MILK REGULATION WITH SPECIAL REFERENCE TO ITS PUBLIC UTILITY STATUS

by

JAMES KEEFE GOSS

A Thesis

Presented to the Department of Economics
and the Graduate Division of the University of Oregon
in partial fulfillment
of the requirements for the degree of
Master of Science

June 1939

APPROVED

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Major Adviser

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For the Graduate Committee
of the College of Social
Science

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Lovingly Dedicated

To

MY MOTHER

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PREFACE

Notwithstanding a clear statement to the contrary by the United States Supreme Court in the Nebbia case, production and distribution of fluid milk for human consumption is being considered more generally the subject of public utility control. This attitude toward the industry has increased during the past six years, particularly. In this time many laws have been enacted placing fluid milk under strict governmental supervision. These regulatory laws are of three natures, federal, state and local. In most instances these regulations overlap and result in some confusion.

Confusion exists among the producers and the distributors of fluid milk as to the exact logic behind all the regulations in force. With the federal government seeking controls, with state legislatures enacting regulatory laws and with local political groups clamoring for control of the fluid milk industry, it seems imperative that some clear statement of the fundamental principles that should govern regulation of the fluid milk industry must be adopted. Each state has certain pecularities which set it out from all others and thereby require an individuality of control method. All states, however, have much in common, and the same basic principles can almost invariably govern the operation of control methods. It has been said by keen observers of milk markets throughout the United States that

each milk marketing area has every factor present in it that any other milk marketing area has. Some one factor or many factors may be emphasized in any one community. For example, all milksheds have both distributors and producer-distributors selling milk at retail. In one city the distributors may be in the predominance, while in another city there will be very few. Each community has its share of price cutters. Each community has a certain element present which attempts to meet only the minimum sanitary requirements. All markets have present all the evils which exist in all other markets. For that reason control methods can be generally applicable to all markets with modifications to fit the particular needs of each market.

There must be a possibility in this advanced age of economic research that some set of workable and logical rules of regulation can be enacted. To determine what rules should govern, it is only necessary to look into the vast library of public utility regulation. Based on the years of experience economists have had with public utility regulation some workable set of regulations surely can be adopted for the milk industry. As yet, this industry has not had the benefit of clear-cut application of the knowledge and experience of public utility regulation.

It is the intention of the writer to analyze the fluid milk industry in the light of its relationship to other public utility regulation, and to superimpose certain ac-

cepted public utility principles upon the economic structure of the fluid milk industry.

This writing is based upon an extended study of public utility economics. It is also based on an acquaintance with the law as the result of several years of active practice and also close association with the dairy industry through active participation in the business for some years.

This writing is intended only as the first step in a more detailed inquiry into the possibilities of the industry as a public utility. It is particularly hoped that this writing may suggest the necessity for correlation of conflicting factors and factions in the reasoning of fluid milk economics.

Acknowledgement is hereby given to the many persons who have contributed toward the information contained in this writing. It is impossible to list them all here in that they comprise the vast army of agricultural research experts in all state experiment stations, together with the accountants and statistitions who have compiled the valuable information for state control boards. Special acknowledgement must be given to John D. Black for his book, "The Dairy Industry Under the A.A.A.", also to James Cassel and his book, "A Study of Fluid Milk Prices." George Olson, of the Oregon Milk Control Board has been of special help in arriving at some of the conclusions herein contained.

INTRODUCTION

What is a public utility? How can public utility be best defined? It cannot be accurately defined in such a manner as to cover the entire scope of public utility control, including all present public utilities and all enterprises which may in the future become public utilities.[1] This expression at best only designates certain forms of business enterprise which at a certain time and place may be considered by the general public as sufficiently vested with the public interest as to constitute a public utility. "The distinguishing characteristic of a public utility is the devotion of private property by the owner or person in charge thereof to such a use that the public generally, or that part of the public which has been served and has accepted the service, has the right to demand that the use or service, so long as it is continued, shall be conducted with reasonable efficiency and under proper charges" (Corpus Juris 51-4). This is no definition of a public utility. It is but a vague and general statement of circumstances under which an enterprise may become a public utility. Circumstances may change from time to time and that industry, which at one time was considered sufficiently vested with the public interest to be a public utility, may at another time, and possibly not too remote a time, be not vested with

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1. Corpus Juris 51-3

sufficient public interest as to be considered a public utility. The reverse also holds true.

At present, (June 1939) with the extremely rapid train of events and often the associated change of attitudes and thoughts by the public at large, industries which formerly had no public interests now may suddenly spring into prominence as dominant public issues in which extreme methods of regulation must be applied. This regulation, as such, cannot be designated public utility regulation until it is so determined and described by our courts of final appeal. Until recently, with the adoption of the Wagner Labor Relations Act and its many correlated superstructures, hiring halls were not considered sufficiently vested with public interest as to demand any governmental regulation. At present, this concept is undergoing drastic revision in a dynamic society determined to protect that part of the public most interested in this phase of industrial activity.

It is the militant oppressed element revolting against the status quo which causes the creation of regulatory laws. This same militant faction also tests these laws in our courts, determining by judicial decision the metes and bounds of regulation. In our system of checks and balances, it is not until the final interpretation by our highest court of appeals that any interpretation or definition can be regarded as established.

Is the fluid milk industry such an industry as is sufficiently vested with public interest as to be considered a public utility? Our statutory law in twenty-one states of the Union says that milk is a public utility. At present, judicial interpretation says the milk industry is not a public utility. Whether it is or is not can only be determined by the passage of time and the testing of milk control laws by a militant interested group, bound to determine with greater exactity the metes and bounds of this legislation. At present our Supreme Court in the case of Nebbia v. N. Y. (1934)-2 P. U. R. (N. S.) 337, 291 U. S. 502; 78 L. Ed. 940; 54 S. Ct. 505 through Justice Roberts has interpreted the New York Milk Control Law, Chapter 158, Laws of 1933 with the blunt declaration, "We may as well say at once that the dairy industry is not, in the accepted sense of the phrase, a public utility". It appears that at present no case can be drawn on the basis of judicial precedents for considering the dairy industry as a public utility, but to fully understand this problem, bring our legal philosophy up to date and in step with industrial reality, a full consideration of the possibilities and probabilities of the fluid milk industry as a public utility must be indulged in. We need not go far to consider these possibilities and probabilities. A more complete statement of Justice Roberts' decision in the Nebbia case will point the way for our ex-

ploring the possibilities of the dairy industry as a public utility.

> "The argument runs that the public control of rates or prices is per-se unreasonable to businesses affected with the public interest; that a business so affected is one in which property is devoted to an enterprise of a sort which the public itself might appropriately undertake, or one whose owner relies on a public grant or franchise for the right to conduct his business, or in which he is bound to serve all who apply; in short, such as is commonly called a public utility; or a business in its nature a monopoly. The milk industry, it is said, possesses none of these characteristics, and, therefore, not being affected with a public interest, its charges may not be controlled by the state. Upon the soundness of this contention the appellants case against the statute depends.
>
> We may as well say at once that the dairy industry is not, in the accepted sense of the phrase, a public utility. I think the appellant is also right in asserting that there is in this case no suggestion of any monopoly or monopolistic practices. It goes without saying that those engaged in the business are in no way dependent upon public grants or franchises for the privilege of conducting their activities. But if, as must be conceded, the industry is subject to regulation in the public interest, what constitutional principle bars the state from correcting existing maladjustments, by legislation touching prices? We think there is no such principle."

Justice Roberts here lays down a broad basis for considering the possibilities of the fluid milk industry as a public utility. If judicial interpretations are forthcoming in the future on such points as Justice Roberts has enunciated and these judicial interpretations find the public to have such an interest in milk regulation, then

it would only be fair to consider the fluid milk industry as having been finally adjudicated a public utility. In the meantime regulations continue. Little of this regulation is contested or even questioned. In the main it is accepted by those most interested as a necessity for the proper conduct of the industry.

To blandly say that the fluid milk industry is at present a public utility might not be heresy, but it would certainly be unfounded on any judicial interpretation. At the same time a full statement that fluid milk distribution is a public utility, that the existent twenty-one milk laws throughout the United States have in effect made the industry a public utility and that the standard milk ordinance and the resultant regulation have contributed largely toward this utility status, might be prophetic. Prophecy itself is generally questionable. But where this prophecy is based on sound logic it can well be given more credit.

Justice Roberts states first, that a business to be affected with the public interest might be one in which property is devoted to an enterprise of the sort which the public itself might appropriately undertake. Fluid milk distribution meets this qualification, as will be shown later in this work. Little has been attempted in this direction in the United States. We have but one municipally owned milk plant, that in Tarboro, North Carolina. It will

be shown that other cities have considered the establishment of municipal milk distribution. Cooperative distribution of milk has increased markedly during the past ten years. In New Zealand this trend toward municipal ownership has been carried so far as to completely eliminate private enterprise. Can it be questioned there that milk distribution is not a public utility? In several milk control laws the provision is made whereby milk control boards may set up processing facilities to be operated by the board, particularly for the handling of surplus production. Here it is recognized by statute that the public itself might appropriately undertake phases of milk distribution. An example of this is the provision of the Oregon Milk Control Law, Section 13 (d), which grants the milk board the power "to appoint, set up, select and employ agencies for the handling and disposal of surplus fluid milk".

Justice Roberts further states that the industry might be affected with the public interest if the owner of private enterprise relies on public grants or franchises for the right to conduct the business. This right exists in the case of many milk control laws. A definite right or franchise has been created, vesting in existing producers the right and privilege to a protected share of the milk market. This is nothing short of a franchise guaranteeing to the producer a market for a certain proportion of the needs of a community. Similarly, milk distributors have

been licensed and the board instructed by appropriate legislation to not grant further licenses. Thus, the number of distributors on the market has been limited. The California Milk Law of 1937 specifically provides for this limitation. The Oregon Law, Section 13 (a) definitely states that the powers of the milk board shall be "to define and limit the geographical area from which fluid milk shall be produced for any given market or sales area as fixed and designated by the board; provided, that producers, producer-distributors, or their successors now shipping to any market may continue so to do until they voluntarily discontinue shipping to designated milksheds; and (b) under uniform rules and regulations to determine what proportion of the milk produced by each producer shall be considered as marketed as fluid milk for human consumption and what proportion so produced shall be considered as surplus; and (c) to provide for the pooling and averaging of all returns ..... etc."

A further characteristic which Justice Roberts would imply might justify construing an industry sufficiently affected with public interest to be considered a public utility, is that of being bound to supply or serve all who might apply for service. No particular case is available to establish the judicial interpretation of this point with particular reference to milk. It remains only for a

bold minority to demand milk service, and there is little question but what a distributor would be required to make such a service. The logic followed in the ice business case, wherein a particular company engaged in the production of ice was directed to supply a certain drug store with its ice requirements, would necessarily follow if such a demand were made for milk service, particularly would this be true if the case in point should stress the necessity of fluid milk for the health and well-being of an infant. To make this assumption is pure prognostication, yet in the light of the cases of Cap. F. Bourland Ice Co. v. Franklin Utility Company and Garner v. Tulsco Ice Co. this conclusion seems inevitable.

In the Nebbia case no question of monopoly was raised. This question, however, may at present be in our courts and may soon be decided. The city of Chicago at present faces a determination of this issue. City health officials combined their efforts with distributors acting in a monopoly capacity to create certain sanitary and price controls which are now questioned under the Anti-trust laws.

This work is an attempt to indicate certain characteristics of the fluid milk industry which have in the past or may in the future tend to establish the fluid milk industry as one subject to public utility control. The treatment here given is not intended as a complete legal research on public utility questions involved in the milk

industry. At present the literature of judicial decisions does not justify the conclusion that the industry is a public utility. This work further does not tend to state fully all phases of control applied to the industry. It is limited to a declaration and statement of principles, together with interpretations derived from practical operating milk plants and milk markets.

The procedure to be followed will be direct in the assertion of the actual existence of characteristics of public utilities within the industry. A consideration of public health measures and regulations, together with the history of these influences and their effects on the industry will constitute a large share of the study, for the reason that they in themselves have contributed most greatly toward the establishment of the industry on its present highly controlled basis.

Milk control legislation is not the result of an arbitrary law created by the legislatures and imposed upon the public; rather, it is the legislative enumeration of principles of control for an industry, these principles of control having first been proven desirable by the industry and not themselves coming from the industry. Control measures as now set up constitute a restatement of working principles proven desirable by past experience of the industry. Thus, control legislation in itself can meet that particular test of constitutionality which requires that utility regulation

be not simply an arbitrary statement by legislative authority, but rather that the utility itself first exist, and that the law governing it so exist as a natural consequence of the existing utility. Thus harmonizing with the decision of Smith v. Calhoon in Florida, 283 U. S. 557.

Public health regulations, as will be thoroughly pointed out, have resulted in a control of the nature of the milk supply on most markets as to require the entrance of governmental bodies to protect the public against shortage in milk supply. These health regulations have determined the availability of milk at any given time. At certain periods a definite shortage might be inevitable without the existence of certain controls. By means of these controls an obligation is placed upon producers to fully supply the needs of the market at any given time. At the same time, producers are protected by these same controls against financial loss by reason of fluctuations in the market. This is accomplished by guaranteeing a stability of prices during periods of both shortage and surplus.

It is the primary purpose of this writing to show that the high degree of control over the fluid milk industry which now exists, makes it imperative that either this control be completely dropped and eliminated, (but this is impossible), or that the control be extended and advanced to the dignity of a public utility concept. That the type of control which ultimately will be in effect will be of a scientifically refined utility nature based on research

statistics and a clear enunciation of principle.

CHAPTER I

THE INDUSTRY PRIOR TO REGULATION

In the study of human foods, milk has long been considered the most ideal source of body nutriment. Historical records point out the fact that even in the very earliest time, milk was largely used and logical deduction presumes that even prior to these periods it was considered a food of no little utility. It is accepted now as being without a substitute and might well be called the mainstay of the health of humanity.

Studies of comparative anatomy have revealed great differences between races that used milk and those that did not use it. A general conclusion has therefore been reached that milk and its products constitute a great stimulant to the advancement of the human race and the development of civilization.

Milk is generally considered and defined as the normal secretion of the mammary glands of any animal as food for the young.[1] In a commercial sense in the United States milk is almost restricted to consideration of that of a cow. Goats milk, while still used extensively, constitutes only a very small part of the whole amount of milk now consumed.

In its early stages of development the cow was a low milk-producing animal, yielding only enough milk to suckle its calf. At best, this amounted to something less than

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1. Websters Dictionary

1000 pounds of milk per calving. Since the domestication of the cow, with consistent and careful breeding, the average cow produces over 5000 pounds of milk per year and certain individual producers have gone as high as 38,000 pounds per year.[1] Thus the circuration of cattle has been developed into the greatest single agricultural industry of the United States. At present more than one hundred billion pounds of milk are produced annually, about 54% being consumed in fluid milk, the remainder being processed into butter, cheese, ice cream, evaporated milk, condensed milk and powdered milk.

This vast dairy industry, however, is not one that has long been in existence in America. In fact, it is only within the past fifty years that major problems have arisen in milk production and distribution.

The handling of fluid milk on a large scale has existed in centers of population for many centuries. Even today in certain parts of Europe distribution methods used more than a hundred years ago still prevail in cities of over fifty thousand people. A commission of American dairy experts going to the world conference of the dairy industry in Berlin in 1935, while passing through Denmark, say milk peddlers selling their fluid milk in large earthenware crocks, tied to flimsy carts, drawn either by hand or Great Dane dogs. This is a stage of development in the transportation of milk that was used hundreds of years ago. A comparable

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1. Composition and Properties of Milk, F. C. Button, p. 5

situation existed in the United States at that time. In large centers of population, transportation presented the principal difficulty in the way of orderly marketing of fluid milk, and the natural result was that milk was often sold in the form of cheese, one of the oldest known human foods.

At present, approximately half of the fluid milk disposed of in this raw state is consumed on the farm or, rather, at the point of production by the owner of the cow. This home production and consumption has been continued and carried on by family groups even in large centers of population to some extent. Milk distribution methods hence have not changed as rapidly as scientific developments. The old-fashioned methods of setting milk in a pan so that the cream will rise to the top, in the case of a family owning cows is still used for a large part as our rural milk supply.

Early milk distributors were often fraudulent in their trade, deceiving the public by devious methods. The greatest deception was usually in the quality of the product. These earlier distributors, selling their milk through the streets in large ten-gallon containers, would pour off a bucket of milk for some unsuspecting consumer. If the milk were delivered in the morning, by nightfall it might be sour. The

customer could have no idea of the sanitary conditions or, rather, unsanitary conditions under which the milk was produced.

One other form of distribution was to herd the cow down the city street and to milk it directly into the consumer's bucket. This method may or may not have been more sanitary than canned distribution, but at least, the consumer knew the condition of the milk and the relative degree of sanitation under which it was milked. There were many things, however, the consumer could not know, such as the health of the cow, whether free from undlent fever, Bang's disease, etc., nor could the consumer know the health conditions of the family caring for the cow or the man milking the cow. Thus the consumer was entirely at the mercy of the producer.

With the advent of a greater knowledge of refrigeration, the keeping-quality of milk was naturally increased. Producers learned to use ice and cold water to help preserve the milk. Cans of milk could be shipped into large centers of population from greater distances. As the keeping-quality of milk increased, the demand for fresh milk increased until large cities were requiring larger and larger quantities of milk each year. With the increased demand for milk it became more necessary that the market extend further into the country. Transportation immediately became an important factor, almost the controlling factor in milk distribution.

Railway refrigeration was introduced and thereby increased the radius of the milk producing area, simultaneously bringing about the extension of milk production boundaries.

Pasteur is recognized as having made the revolutionary discovery of protecting the keeping-quality of milk, known to everyone as pasteurization, particularly interesting to those who daily consume pasteurized milk in large cities where today 90% of all milk consumed is pasteurized.[1] Leeuwenhoek, 1695, and Spallanzani, 1729, had discovered that heat would kill beasties or microbes. Pasteur merely rediscovered this fact in 1857. However, to Pasteur must go the credit for definite enunciation of the principle that heat treatment would protect milk from premature spoilage. This discovery was merely incidental to his principal research development that heating would eliminate the fermenting of wine and destroy certain spoilage microbes. In some large cities as much as 100% of the daily consumption of milk is pasteurized.

Almost simultaneously with the perfection of pasteurization methods and equipment for fluid milk, the dairy industry found new ways to produce a milk bottle that would stand up under the difficult treatment received in its use in the milk plant, and to produce this milk bottle with greater efficiency and at much lower cost.

The dairy equipment industry itself has been a tre-

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1. Association Quarterly, pub. by Dairy & I.C. Machinery and Supplies Association, p. 7.

mendous factor in the improvement and development of the modern technique of the industry. All branches of science, including metalurgy, chemistry, physics and engineering and bacteriology have contributed toward the improvement of dairy plant equipment which make for more efficient and simple processing and distribution of sanitary milk.

Not until pasteurizing and bottling equipment had been developed to a point that a large scale handling of milk could be accomplished in a relatively short time did the full importance of milk as a public necessity become apparent. In 1900-1901 Dr. H. Weigmann perfected a continuous flow pasteurizing machine in Kiel, Germany. This machine was the forerunner of many such devices which followed using the same principle of a continuously flowing stream of milk subjected to temperatures between 140 and 160° F. This early continuous flow pasteurizing machine was the only practical machine to result from early experiments conducted by Dr. Weigmann starting in 1893. In this year he introduced the first crude machine for the purpose of being a, "method of milk conservation, especially pasteurization and sterilization of milk". This introduction stimulated American milk distributors and mechanics to perfect similar machines. In 1894 D. H. Burrell, in collaboration with a Danish inventor named Monrad, designed a machine to pasteurize milk by a continuous method, it flowed from one tank to another until heated sufficiently

to sterilize all the milk. The first holding type pasteurizer was introduced at Wisconsin University by Professor H. L. Russell. This method of handling milk was ultimately to be adopted as the most acceptable process.

Of great importance to the industry are the significant dates around which have hinged the organization of the industry, from its crude elementary stages to the vast public utility status it now holds. Without these progressive steps, the industry never would have achieved the great importance it has today nor would the public have been benefited by low cost milk as a food. (Refer to Appendix 3)

As scientific knowledge of the dairy industry advanced the demand for pasteurized milk increased, particularly, in areas where many epidemics resulted from milk-borne diseases. As yet public health regulations have not penetrated as far as they should, as is borne out by the following quotation and chart of milk-borne epidemics and the resultant fatalities. This chart is compiled by Leslie C. Frank, Office of Milk Investigations, U. S. Public Health Service.

> "The lack of agreement among the leaders in milk control in this country is at least partly responsible for the continued occurrence of numerous outbreaks of milk-borne disease long after the means of preventing such outbreaks were known. A list of the milk-borne outbreaks which have been reported by state and local health authorities during the past ten years is given in the accompanying table.
>
> The continued existence of such outbreaks is

inexcusable. One principal reason why they do continue is that there are still many hundreds of American communities, particularly the smaller ones, which have either no milk control at all or but a low grade of milk control. As long as such communities find that there is serious disagreement among health authorities as to what constitutes good milk control they will continue to be confused as to what type of milk ordinance to adopt and will adopt either ineffective ordinances or none at all....These communities are the very communities in which most of the outbreaks of milk-borne disease are occurring. In order that we may inspire them with confidence and spur them to action it becomes vital for those of us who can be leaders in American milk control work to lay aside all minor differences, to cease bickering over inconsequential details, and to lend ourselves to a uniform program."

TABLE I

Milk-Borne Outbreaks Reported By State And Local Health Authorities Of The United States For The Ten-Year Period 1926-1935

Disease	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Typhoid	49	24	25	30	30	21	23	25	26	16
Paratyphoid	2	2	0	1	0	1	0	3	1	2
Scarlet fever	5	4	8	10	2	1	6	3	3	2
Septic sore throat	6	0	3	8	9	8	3	7	6	9
Diphtheria	2	2	2	0	0	1	0	0	1	0
Dysentery and enteritis	3	1	3	1	5	2	1	0	2	8
Miscellaneous	1	0	0	1	2	0	0	4	3	6
TOTAL	68	33	41	51	48	34	33	42	42	43

Total number of outbreaks reported during the above 10-year period.....435
Total number of cases of milk-borne disease.....17,501
Total number of deaths from milk-borne disease.....512

These diseases were contained in raw milk almost exclusively. Whole communities were affected with typhoid, diphtheria, etc. This continual spread of diseases through contamination of milk aroused public demand for reforms and particularly, for pasteurization.

Many branches of industry and science were required to develop simultaneously in the perfection of a milk distributing industry that would operate efficiently. Unfortunately transportation improvements did not keep pace with increased demand for milk. Mechanical refrigeration was slow in perfecting a technique to apply to the dairy industry. Scientific engineers were hesitant about forcing their theories onto the public which would have improved the quality of dairy products. Most of the prejudice which retarded scientific engineers in their efforts to help the dairy industry came from political groups of various types. Certain prejudice was created within the medical profession itself among those who did not accept milk sterilization or pasteurization as adequate safety measures at all in the protection of babies from milk-borne diseases. Those within the profession who did not accept pasteurization as adequate protection, as early as 1893, began an effort in the right direction toward making milk sanitary, sterile and pure enough for infant consumption. Thus in 1893 Dr. Henry L. Coit of Newark, New Jersey formulated a plan for obtaining a constant supply of

clean, pure milk. The medical society of Essex County, New Jersey appointed what was then known as the Medical Milk Commission which prescribed rules for the production of "certified " milk. Since then medical milk commissions have been formed throughout the United States in most large cities and have associated themselves together as the American Association of Medical Milk Commissions. Rules have been prescribed under which milk may be certified by these commissions as pure enough for human consumption. Not until 1935 did this association of milk commissioners authorize the pasteurization of certified raw milk. The entire medical profession has never been in full accord with the principles of pasteurization. Not until 1937 did the Council on Foods of the American Medical Association see fit to make such a bold statement as the following:

> "Since disease germs are readily destroyed by well-established methods of pasteurization, all milk for direct human consumption or for use in ice cream, cheese or other milk products should be pasteurized according to officially approved methods."

The farming groups objected to the expense involved in the production of clean-quality milk. Groups of distributors objected to the stringent regulations of their industry and methods in regard to shipping supplies of raw milk to the market.

Too often milk distributors were forced to adopt

pasteurization only after serious outbreaks of milk-borne diseases had occurred in the communities. Numerous examples of the growing demand for pasteurization could be cited. The appendix 4 shows the organization concurrently made by sanitary regulations and equipment industry, and dramatizes the importance that milk-borne epidemics played.

The force that has done more than any other to improve dairy methods is the force of public opinion. The presence of epidemics of contagious diseases throughout entire communities created and aroused public opinion which finally demanded and obtained a sanitary milk supply and relatively honest administration of health regulations.

CHAPTER II

STEPS LEADING TO PUBLIC REGULATION

With a concentration of populations within large industrial cities, problems of milk distribution multiplied. A greater need for scientific knowledge of sanitation and sanitary milk production methods was imperative. Between 1880 and 1900 milk production methods and sanitation on dairy farms were so backward as to be an actual handicap to the advancement of the industry. In 1896 a great clamor in London was made for the production of clean milk. It was the crusading Fabian Papers which brought to the attention of the public the crying need for corrections in milk sanitary methods. Concurrently with this demand for clean milk was the demand for municipal ownership of milk distribution facilities. Great debates occurred in the House of Parliament demanding enactment of uniform sanitary laws for the protection of the citizens of London, particularly the children. Infant mortality rates were astounding.

In the United States production methods were slightly ahead of those in England due primarily to the newness of large city organization and the aggressive spirits behind large-scale production and distribution of milk. The first sanitary laws to govern the organization were enacted by

the Congress of the United States in Washington, D. C., August 1, 1863. This form of sanitary law was extremely elementary, there having been no body of precedence on which to establish legislation of this type. This law of 1863 was a forerunner of what was to be known as the United States Standard Milk Ordinance. Strange as it may seem, Washington, D. C. does not today operate under the United States Public Health Standard Milk Ordinance.

The situation in New York City was probably the most complicated of any in the United States due particularly to the very extensive milkshed necessary to supply the vast demands of a large metropolitan area. In order to furnish sufficient fluid milk for the entire demands of the city, this milk has to be shipped from neighboring states as far north as Boston and as far south as Philadelphia. Today with the more complex development of transportation facilities and the advancement of refrigeration methods, New York and Philadelphia receive cream from as far south as Texas and as far west as Minnesota. This vast production area, covering several states, introduced problems of uniform sanitary control and problems of interstate commerce which have never been solved to the entire satisfaction of the industry. The city of New York extended its police power to the regulation of sanitary conditions throughout its entire milkshed, but this was only one step in the right direction.

Beginning in 1893 Nathan Straus made pasteurized milk available to the infants of New York City. From 34,000 bottles distributed in that year, his philanthropy increased until by 1906 his work was conducting seventeen New York City depots, distributing over 3,000,000 bottles of milk per day and more than 1,000,000 of pasteurized milk per day to the needy children. Dramatizing the importance this work played in reducing the metropolitan death rate of children under five years of age, statistics showed that mortality dropped from 96.2 to 55 per 1,000. During the summer months when infant mortality was at its highest, the death rate fell from 136 to 62. During the year 1936 this decrease in infant mortality meant a saving of more than 11,000 babies.

Expanding his activity he furnished equipment for pasteurizing stations in other American cities and for twenty-five stations in foreign countries. His greatest work, however, was in demonstrating to the public the imperative necessity of the pasteurizing process in treating milk for fluid consumption.

The existence of a body of sanitary laws does not in itself establish a clean milk supply. While laws are a necessary tool and a preliminary step toward sanitary milk, the laws in themselves constitute only the framework upon which conscientious, honest and consistent regulation can be built. More important than laws calling for regulation

of sanitation, and more important than the police power to so regulate, is the actual act of regulation. Investigations have proven that lack of uniformity of enforcement of sanitary laws has caused the breakdown of the laws themselves. In order to have proper sanitary regulation, it is primarily essential that this regulation, based upon the police power granted to a municipality be carried out with uniform justice to all who care to come under that regulatory power. Thus, it has been proven many times that favoritism has existed and lenience toward certain individual producers or distributors, whereas strict and stringent requirements have been forced upon other producers or distributors. This very act, while not necessarily intentional upon the part of milk sanitarians, has caused the defeat of their own laws.

The above cause for breakdown of sanitary methods and enforcement, is, undoubtedly, the primary reason for the failure of many milk sanitary laws. More often, however, the failure of sanitary milk laws to function properly has been attributed to corruption in politics. This, beyond a doubt, is a big factor and without question has contributed toward the breakdown of certain individual municipal laws. With very little difficulty numerous examples of corruption in politics and bribery of city officials by factions or special interests in the milk industry could be cited. These cases of corruption have occurred even as recently as 1938. A charge of such corruption has been made against the

health officials of some of our largest cities. In fairness to the honesty of the average municipal official it should be more firmly established that errors of judgment and resulting partiality have been the principal cause of past failures in milk sanitation. Each error of judgment on the part of a milk inspector had been established and carried further as a precedent to govern future acts of other milk inspectors. As these errors accumulated they became an unshakable burden which in many instances led to the entire breakdown of a milk sanitary enforcement system. These same inspectors, however, were required to exercise their best judgment. The welfare of the community hinged on their good or bad judgment. In many cases the laws themselves could not withstand the accumulative effect of the inspectors bad judgment.

One reason for the breakdown of various milk sanitary laws in cities, was the variance in method prescribed and the variations of definition which existed. For example, in Chicago and Akron 140° F. for twenty minutes was considered pasteurization, whereas, Jersey City and Cincinnati required 145° F. for thirty mintues. St. Joseph, Missouri permitted a range from 140° F. to 150° F. for twenty minutes, whereas, New York City and Philadelphia required simply 142° F. for thirty minutes. These variations represented irreconcilable differences of opinion as to a

scientific fact, that fact being, the establishment of the point of heat and the length of time of heating required to kill pathogenic organisms. It is small wonder that greater uniformity of regulation was demanded by not only the public but the industry itself.

A distrust has grown up in most cities of the various local health laws as adopted by these cities. In many instances these health laws have broken down under their own weight. Concurrently with this breakdown of city health regulations there has grown throughout the United States since 1900 an increasing desire among all states for the enactment of uniform laws on various subjects. This is evidenced by the increased recognition of comity between states and the numerous conventions with the specific purpose of creating uniform regulations and interpretations in all branches of law. One outgrowth of this trend toward uniformity has been the United States Standard Public Health Ordinance. As mentioned earlier this ordinance had its inception in 1863 at Washington, D. C., and has been growing and improving ever since until today it is accepted throughout the United States as the standard health measure for the regulation of most milk production of the United States.

In 1907 a public-minded group of leaders in New York City organized what was called the New York Milk Committee. This group continued and in 1911 this nucleus brought together twenty eminently prominent men in the fields of

bacteriology, chemistry and dairy science as a group to be known as the National Commission of Milk Standards. An early crusader in this work was Franklin Delano Roosevelt, now President of the United States. His efforts as chairman of a sub-committee in this group contributed much toward the success of this enterprise. This commission met annually or more often until 1920, and the results of each meeting were reported by the U. S. Public Health Service. These reports constitute the first authoritative documents dealing with standards of pasteurization, time and temperature and bacterial standards and with grades of milk. This group, having been composed of eminent men in politics and industry, probably has done more than any other single group in the promotion of pasteurization.

The Federal Government has spent a vast amount of money in the maintenance of a research staff to codify and clarify the law. This law now is kept up to date and current with the advancement in technical knowledge by the publication of a yearly revision of the standard code. It is always up to the local option of the state or municipality as to whether the refinements and improvements in the law shall be adopted by them.

It is interesting to note that Leslie C. Frank, the present head of the office of Milk Investigation of the United States Public Health Service, is himself not a doctor or a chemist but is rather a sanitary engineer. Some empha-

sis should be placed on this fact, because as an engineer he has the engineer's viewpoint. His code book reflects the technical approach of the engineer and throughout can be observed the niceties of discrimination which only an engineer could draw. This code book sets forth regulations designed to control the largest milk plant in the United States. With the technical spirit of the engineer this book designates and describes the activity to be carried on in the most complex and most technically advanced milk distribution plant that can possibly be constructed. This technical approach to the matter of milk sanitary engineering is carried throughout the code book right down to the individual producer selling milk from a minimum number of cows.

It is apparent how difficult it would be to transpose downward the rules and regulations applicable to the most complex dairy plant in the United States and apply these rules to the smallest producing unit; yet as a matter of technical engineering these same rules must govern all units.

This United States Standard Milk Ordinance provides for regulation of the production of milk under uniformly standard conditions, provides a more or less mechanical chart or grading record for the classification and judging of production units. Reference to Appendix No. I. (This is a copy of the Grade Sheet posted in the milk house on the farm where milk is produced. The inspector calls usually twice each month and can call as frequently as every three days. If

during the course of his inspection of the farm, the cows, the barn, the milk house, the toilet facilities, the water supply, utensils, milking operations, bottles and capping or the person of the employees themselves the inspector finds some single item listed on this Grade Sheet as having been violated, he marks an "X" in the space provided for such a grade. If, on two consecutive inspections he finds at least two items violated or finds one item violated twice in succession, the producer is subject to being degraded; that is, put off the market, his milk being forced into the cheese or ice cream markets until the farmer again meets all the sanitary requirements and has a clean inspection sheet. It is apparent that some degree of personal judgment is necessary on the part of the inspector. The purpose of the Grade Sheet, however, is to reduce this individual discretion to a minimum.) It also calls for a semiannual reporting and republication of the classification of all producers in the milk market and all distributors and producer-distributors in that market.

Reference to Appendix No. II, Pasteurization Plant Inspection Form. (This is the form used when inspecting milk pasteurizing plants. After an inspection tour of the entire plant, the inspector writes up his report on this form, making notes by means of check marks as to any item or items having been violated. If he finds two or more items have been violated on consecutive inspection days, the plant is

subject to degrading at the discrimination of the health officer. Here considerable more discrimination is used than in the case of the producer. A large part of industry believes that it is absolutely impossible for any distributor of milk to maintain his plant in such a condition that two or more check marks cannot be made at any time. This is a widely debatable issue. In the light of enforcement practice, however, it is apparent that discrimination on the part of the inspector is the primary controlling factor. This is true, despite all efforts to make the grading form as mechanical as possible.)

In this way much of the past problem of uniformity of enforcement has been eliminated; discretion has in many cases been taken out of the hands of the inspector. Causes for the withholding of a license to serve a municipality or revoking a permit to produce for the municipality are enumerated. Only in case of certain violations of the Standard Milk Ordinance can this license or permit be withdrawn from one serving the market. Uniform bacteria count requirements have been enacted. This Standard Ordinance provides for milk with not more than 20,000 bacteria per cubic centimeter in both Grade A milk and pasteurized milk.

GRADE "A" PASTEURIZED MILK. Grade "A" pasteurized milk is Grade "A" or Grade "B" raw milk which has been pasteurized, cooled, and bottled in a milk plant conforming with all of the following items of sanitation and the average

bacterial count of which at no time after pasteurization and until delivery exceeds 20,000 per cubic centimeter.

The requirement for market milk to be used in pasteurization is that it contain not more than 100,000 bacteria per cubic centimeter.

GRADE "B" RAW MILK. Grade "B" raw milk is milk, the average bacterial count of which at no time prior to delivery exceeds 100,000 per cubic centimeter, or which falls in class 1 as determined by the reductase test as described in the Standard Methods of Milk Analysis of the American Public Health Association, and which is produced upon dairy farms conforming with all the items of sanitation required for Grade "A" Raw Milk except (1B), (4), or (6) provided that cleanliness of the barn and cow yard shall in no case be omitted. Item (23) shall apply except that the cooling temperature shall be changed to seventy (70) degrees Fahrenheit.

Milk falling below these sets of standards or, rather, having higher bacteria counts than allowed, for a period of four consecutive tests is thereby subject to degrading or withholding from the market. These regulations are of an almost mechanical nature capable of mathematical exactity. The human element is reduced to the lowest possible minimum. By this means much of the former criticism against favoritism for certain individual plants has been eliminated. Milk sanitation engineers have been established on a more firm

professional basis than heretofore, and considerable public confidence has been created in the people administering this branch of health departments.

This trend toward the adoption of standard United States milk ordinances in various cities had its greatest impetus about 1930. Between then and 1933 most of the large cities of the United States had adopted this ordinance or an ordinance similar in almost every respect but in many cases not called by the name of United States Standard Milk Ordinance for purely local reasons. In 1922 the State of Alabama Board of Health requested the services of the U. S. Public Health Division of Scientific Research in an effort to standardize milk control in that state. This was the first active participation of the U. S. Public Health Service in milk regulation. As a result, Louisville, Alabama became the first city to adopt the standard milk ordinance. Since then almost 700 American communities have adopted this ordinance as their standard. Thus when the industry faced an economic crisis in 1932 and 1933 and 1934 most of the industry throughout the United States was governed by this standard code. This is important in the light of further economic factors connected with the standard law.

In order for a producer of milk to qualify for the market governed by a standard ordinance, the producer was required to invest approximately $1500 in improvements to his barn, to his water supply, his milk house and other

facilities incidental to sanitary milk production. This was the average requirement. Many producers were actually forced off of their former city markets and into the cheese factory or condenser market where no improvements to the barn, milk house and other facilities were required. No sanitary requirements governing production are set up for production of milk for the ice cream trade, butter, cheese and condensed milk factories, except that minimum qualification which judges milk on its own merits by bacteria count, butter fat, flavor, odor and taste. In fairness to these industries it must be said that they have recognized the importance of pasteurization in the preservation of their product and as an aid in production of high-grade products. At present most state laws require the pasteurization of all cream used in the manufacture of butter and of the mix used in making ice cream. The standard milk ordinance regulations of production do not apply to these industries however. Thus it was much easier for a producer to sell his milk or cream in the market requiring no sanitary qualifications than to equip his farm to fit the qualifications necessary for shipping his milk to the city market.

The differential or premium allowed for milk in the city market in many cases was not sufficient to keep producers in the city markets; hence, there was a rapid reduction of the number of shippers every time a United States

Standard Milk Ordinance was adopted.

Coincidental to the adoption by many communities of this standard ordinance, there was a marked separation of the milk markets into the Grade A market where pasteurized milk, Grade A Raw and certified milk were sold, the B market where raw milk that could qualify for pasteurization was sold, and the C market where ungraded market milk could be sold only for manufacturing purposes. These classifications and separations of market milk caused a marked increase in the differential paid for these various classes of milk.

Incident with the rapid adoption of standard milk ordinances, certain farm problems were created. One problem was that of utilization and classification of land closely adjacent to cities for productive dairy purposes. Producing units close to urbane centers were forced to qualify for the higher-priced market, due to the pressure of land values and taxation. These producers could not afford to produce high-grade milk for the cheaper markets. In many cases they, therefore, went into the actual distribution business producing their own milk on the farm on the outskirts of the city and distributing it by means of their own vehicles in the city, thus eliminating a middleman.

CHAPTER III

PUBLIC UTILITY CHARACTERISTICS WITHIN THE FLUID MILK INDUSTRY

This study is primarily intended to be an analysis of the fluid milk industry with respect to the public utility aspects thereof. An attempt will be made to show how the various factors present in the fluid milk industry can best be considered and regulated in accordance with accepted public utility technique. To understand the technique necessary in solving a public milk problem as a public utility, it will be essential to first analyze those characteristics of a public utility inherent within the fluid milk industry.

In the history of communities the public has risen as a body to assert its prerogative of control over certain enterprises "vested with the public interest". To the tribal form of community, public fields for hunting and agriculture were a necessity in which public interest was involved, in that they were open and free for the use of all the people of the tribe. Any poacher on this public domain was an enemy to the tribe. Hence, the tribe itself protected the public domain against all comers, it being necessary for the future well-being of all members of the tribe.

No more simple form of public utility can be conceived

because a public utility cannot exist without the previous existence of a body of people constituting the public.

Very early forms of public utility were community wells where everyone might come and draw water. These wells were "vested with the public interest" for several reasons. The well in itself may have been unique in being the only one within miles. Thereby it constituted a monopoly, and the public as a whole could only survive by reason of having access to the water of the well. If it were necessary to go extremely deep for the water, this produced a labor problem which no individual in himself could solve. Therefore, when people pooled their efforts to develop a well, it thereby became public property and the public had access to it.

Another early form of public utility was the sewer system of a city. The health and well-being of the entire community living together for various reasons of either industry or mutual protection was contingent upon the proper conduct of all people in the community and the orderly and systematic disposal of refuse by each individual. For one individual to develop a system of refuse disposal would be too expensive and beyond his capabilities, but the entire community as a whole could easily accomplish an orderly refuse disposal system or sewer system.

In each of the above cases, the tribal pasture or hunting ground, the community well, or the village sewer

system, the demand was present for a governing influence or police power. By police power we must mean, "the general power of government in the administration of its police to preserve and protect the welfare of the public, even at the expense of infringing the private rights of individuals" (Cooley, Const. Lim. 704). "The police power of a state extends to the protection of the lives, limbs, health, comfort and quiet of all persons and to the protection of all property within the state; and, hence, to the making of all regulations promotive of domestic order, morals, health and safety" (95 U. S. 465). This police power constitutes the basis of regulation of all forms of public utility from the simple public well down to the most complex hydroelectric power plant and distributive system. With the more elementary forms of public necessities, the concept of public utility was hardly present. Simple police power was sufficient to achieve the greatest interest for the greatest number. When the public concern about the conduct of a business developed to complex proportions wherein detailed supervision, and a high degree of regulation became necessary, then the public utility concept came into being.

Certain industries have necessarily "been affected with a public interest." Such industries have been wharves, grain elevators, Green v. Frazier, (Mrs.) 253 U. S. 233 and ice plants, Oklahoma Ice case 285 U. S. 262. The concept of what

is or what is not affected with the public interest and what is, thereby, to be considered a public utility has varied widely. This public utility concept is a growing one. From the more elementary forms of public needs to a multitude of complex economic structures, the public utility concept has developed, often taking on one type of industry and considering it a public utility for a short time, then dropping this utility for another and newer form. Thus for example, toll bridges constitute one of the oldest types of public utility. In the past public inns were so considered, but now must be looked upon as a common calling. Candle manufacturing at one time was a public utility, but has now reverted to private enterprise. The community grist mill was a public utility as long as transportation facilities so circumscribed the community as to limit the choice of place where a farmer might have his grain milled. Particularly was this true when the mill used the only available water power.

The earliest known legal decision and enunciation of judicial principles governing such control was some 250 years ago by Sir Matthew Hale, Lord Chief Justice of the King's Bench, in a decision appearing in Hargrave Law Tracts, 78, quoted in 43 Harvard Law Review, Page 764 (1929-1930) as follows:

> "If the king or such have a publick wharf, unto which all persons that come to that port must come and unlade or lade their goods as for the purpose, because they are the wharf's only

> licensed by the queen, ... or because there is no other wharf in that port .....; in that case there cannot be taken arbitrary and excessive duties for cranage, wharfage, pessage, etc. neither can they be inhanced to an immoderate rate, but the duties must be reasonable and moderate ..... For now the wharf and crane and other conveniences are affected with a publick interest, and they cease to be 'juris private' only."

Insurance companies, steamship companies, railroads and other types of enterprises were and still are considered "vested with the public interest". This does not mean that they of necessity must be publicly owned. The public interest may best be served by simple supervision by means of boards of control.

To enumerate the characteristics of an industry affected with the public interest might be misleading, and at best can be only a partial enumeration, for many industries not affected with the public interest have similar characteristics and yet can in no way claim to be public utilities. A few of these peculiar characteristics have been enunciated by Justice Taft in a Supreme Court Decision, Wolf Packing Company v. Court of Industrial Relations, 262 U. S. 522;

"(1) Those which are carried on under the authority of a public grant of privileges which either expressly or impliedly imposes the affirmative duty of rendering a public service demanded by any member of the public. Such are the railroads, other common carriers and public utilities.

(2) Certain occupations, regarded as exceptional, the public interest of arbitrary laws by Parliament of Colonial

legislatures for regulating all trades and callings. Such are those of the keepers of inns, cabs and grist mills. (3) Businesses which, although not public at their inception, may be fairly said to have reason to be such and have become subject in consequence to some governing regulation. They have come to hold such a peculiar relation to the public that this is superimposed upon them. In the language of the cases, the owner, by devoting his business to a public use, in effect grants the public an interest in that use, and subjects himself to public regulation to the extent of that interest, although the property continues to belong to its private owner, and to be entitled to protection accordingly."

Certain characteristics of the fluid milk industry which can be observed in other types of public utilities, as, railroads, public water works, sewer systems, etc., may be listed as follows: (1) Fluid milk production and distribution is a decreasing cost business. In production of milk a certain size herd has been demonstrated to be the most efficient unit. The New Jersey State Agricultural College demonstrates that a herd of between twenty-five and thirty cows constitutes the most economical production unit. In the field of distribution of milk it is not difficult to see that the greater volume which can be handled up to a certain point in a given plant, the less the unit cost of handling. This point has been established thoroughly by

Professors J. M. Tinley, F. H. Abbott, O. M. Reed, and J. B. Schneider in their mimeographs published for the University of California, entitled "Creamery Operating Efficiency in California." Within this survey it is established that a plant of a certain capacity can only operate at the smallest individual unit cost if the plant is being run at a point somewhere near the maximum capacity. Beyond that point inefficiency sets in and the law of marginal productivity operates. This is true because distribution through established plant facilities has reached the point of opportune efficiency and gone beyond this point, resulting in a decline of total plant efficiency and a consequent higher unit cost.

(2) Milk has an inelastic demand. This is borne out by the statement of John D. Black in his book, "The Dairy Industry and the A.A.A." "Domestic per capita consumption of fluid milk, cream, and concentrated milk does not fluctuate noticeably from year to year in ordinary times. The changes are in the nature of trends. It takes a business depression or a price upheaval to reverse these trends. Ordinary changes in prices such as occurred between 1921 and 1929 have no appreciable effect on the consumption of these products. Milk dealers have sometimes observed that purchases are less for a week or two after a sudden jump in milk prices; but seldom do these effects hold. No doubt, however, continued high prices will gradually accumulate a

significant depressing effect on consumption, and continued low prices the opposite."

(3) Milk throughout the world is of almost uniform quality. That is, cow's milk whether produced in England, Africa, Vermont or California still has relatively the same chemical composition. The great uniformity between cow's milk and human milk make it the indispensable milk beverage of all people.

TABLE II AVERAGE COMPOSITION OF MILKS

	Water per cent	Casein per cent	Albumin per cent	Fat per cent	Lactose per cent	Ash per cent
Human	87.41	0.91	1.23	3.76	6.29	0.31
Cow	87.27	2.95	0.52	3.66	4.91	0.69

(4) Milk is relatively free from possible substitution. Milk consumption becomes a health habit similar to that of water consumption. As a food, it is generally not recognized that milk is composed of a higher percent of solid matter than most vegetables. The American people being creatures of habit, the milk consuming habit has remained fixed over a period of years at relatively the same point. This is borne out by the figures of the enclosed chart, showing production and utilization of milk in the United States over a ten-year period.

(5) The public has not always been interested in sanitary control of the milk supply. Now, with the volumes

of regulatory decrees which must be adhered to by the industry, the public health interest constitutes the greatest single factor of control in the dairy industry.

(6) Waste of competition can only be eliminated by public regulation. Duplication of delivery facilities occurs in every large market. This duplication is inevitable and must continue and become increasingly complex unless producer's and distributor's margins are controlled by some effective method of public utility regulation. This is, of course, an argument for monopoly. Monopoly in itself has not caused this condition of duplication. Efficiency can only be obtained by encouraging monopoly.

(7) Practically everyone uses milk at some time during his or her life. The following is a quotation by Leslie C. Frank, Sanitary Engineer in Charge, Office of Milk Investigations, United States Public Health Service:

> "Of all things of life which affect human welfare none is more important than food. Food is to man what coal is to the furnace or gasoline to the automobile. Food furnishes man with internal heat, without which even overcoats would not keep him warm. Properly selected food provides mankind with the mental and physical energy which has been the mainspring of all civilization, it repairs the structural damage which the wear and tear of life inflict upon our bodies, and it helps make us resistant to disease. On the other hand, improperly selected food is responsible for a large proportion of human ills, from a simple stomachache to the shortening of life itself. In short, food is all-important in the human economy.
>
> "Of all of the kinds of food none is more important than milk, the principal food of in-

fants and small children.

> "In the first place milk is the only food specifically prepared by nature for the young of mammals. Nearly everyone will immediately agree that a substance specifically prepared by nature for no other purpose than for food is most likely to contain the food elements needed to sustain life and justly deserves the title recently conferred upon it, namely, 'the most nearly perfect food.'"

(8) Milk constitutes a relative necessity in the diet of American people. With advancements in the knowledge of dietetics and the development of new forms of food, it is imperative that the American people have access to this most marvelous combination of chemicals which has such a stabilizing effect on the body when used in proper diet combinations. The following is a quotation by Leslie C. Frank:

> "It is by no means sure that we know all of the attributes which the perfect food should have, but we can at least discuss some of them.
>
> "It will be obvious that one of the most important attributes which a food should possess is that it be a good source of energy, since every living thing needs a fresh supply of energy every day. Milk is such a food and, furthermore, is a cheap form of energy. The equivalent energy value in the form of certain other widely used foods is more expensive.
>
> "Milk is also a good muscle builder. It is rich in protein, which is required for muscle building. A child cannot grow and form strong muscles without protein. A full-grown adult cannot keep in health without it. As to the quantity of protein available in milk, Rose states: 'A quart of milk yields more than an ounce of pure protein of the highest quality,' that is, more than one-third of the total daily protein requirement of an adult."

(9) The fluid milk distribution business tends to become a monopoly. The fact that a monopoly condition would be desirable in milk distribution would naturally lead to the creation of monopolies by natural methods of competition. This process has been carried on until today some of the nation's largest corporations are engaged in the almost exclusively monopolistic distribution of milk.

(10) Seasonal variations in the supply of raw milk available for any market, demand that regulation by a central governing body be effective in supplying a uniform flow or supply of milk throughout the entire year. In this respect the dairy industry can be readily likened to our water utilities, wherein it is essential that a uniform supply of clean, pure water be maintained throughout the year even in periods of drouth. These same weather factors which cause a diminishing of the water supply, also cause a shortage of fluid milk.

(11) Perforce the fluid milk industry is interstate in nature. Very few urbane milk markets confine their supply to intrastate production. Most cities of any size must reach out in all directions for milk to supply their needs. As mentioned earlier, New York City crosses many state boundaries in procuring its milk supply from as far south as Texas and as far ~~east~~ West as Minnesota. It is obvious, therefore, that many problems of state regulation must exist. These problems can only be solved through the con-

sideration of milk as a public utility and governing the industry by boards of control.

Most of the above characteristics can be noted in most forms of public utility. In the electric utility there is greater elasticity of demand than with milk, and no public health reason for control. With railroads there is considerable elasticity of demand and a variation of service offered. There is also little or no public health reason for public control. At one time there was a relative necessity for the existence of railroads in certain parts of the country. With changes of communication methods, this necessity is decreasing. Water supply and milk supply are affected with all of the above characteristics of public utility.

It is the public health aspect of milk control which started the trend toward public utility control. It is understood without explanation the necessity for rigid public health control of milk supplies. The sanitary requirements of places of production and processing are becoming more strict each year. Reoccurrence of milk-borne epidemics throughout the country demonstrate the importance of this sanitary control. But with this sanitary control there is a certain fixation of costs upon the producers and upon the distributors. These fixed costs are the first steps toward complete regulation. With the rapid increase of labor's bargaining power, labor costs are becoming a

second more or less rigidly fixed cost in production and distribution. These two costs once established are rigid factors in the industry, making impossible the adjustment of losses in these directions. Producers' organizations are a third factor injecting rigid costs into the industry. With the increase of these producer organizations' bargaining powers, distributing organizations have lost the third avenue of adjustment. With rigidity in these three directions, distributors have found it almost impossible to adjust the price structure according to laws of supply and demand and in accord with sound business principles. Hence this branch of the industry has almost universally required the interjection of fixed resale prices. The more rigid factors exist in the industry, the more additional rigid factors are encouraged to be created.

The nature of milk as a consumer's good with but slight variation in consumption the year round necessitates a uniform supply of the product throughout the year. This uniformity of supply is not an automatic matter. Certain seasonal variations cause a vast oversupply of milk during the spring and early summer and a great shortage during the early fall. Also harvest and weather variations cause a fluctuation of supply. To meet this fluctuating production with a relatively uniform supply necessitates that the producer maintain a margin of safety; that is, a certain quantity in excess of the normal demand. Herein lies the diffi-

culty in milk control. This margin of safety acts as a football kicked around by producer and distributor, each desiring to sell or buy this margin at the best possible prices.

This quantity of milk normally inside the fluid milk industry as a margin of safety guarding against seasonal fluctuations and variations of herd freshening forms a part of the secondary milk market. This secondary market is for milk and cream for use in the ice cream, butter, cheese, and condensed milk industries. These four latter branches of the milk business are capable of protracted market control; that is, the ice cream, butter, cheese, and condensed milk industries can store their product and hedge against seasonal fluctuations of production.

Without public regulation of the fluid milk industry, a constant shifting occurs in the market; that is, a producer will sell his milk to the secondary market when prices offered in the primary market are relatively low. The additional cost of maintaining rigid sanitary control of his supply tends not to justify him in staying within the primary market. This tendency reacts to the producers' disadvantage in that the constant pressure of distributors to buy at lower prices forces the producer into the secondary market and the margin or degree of price fluctuation necessary to bring him back into the primary market must be more than sufficient to just offset the additional cost of sanitary requirements.

This tendency of producers to fluctuate between the primary and secondary markets also reacts to the consumer's detriment in that the distributor is enabled to exact unusually high prices for his products during short periods of scarcity. This is made possible because producers will not tend to shift from the secondary market to the primary market very rapidly. This slowness of response is due to the expense and the mechanism of public health inspection.

It is apparent therefore, that some interrelationship must exist between producers' selling prices in the primary and secondary milk markets. This relationship must exist concurrently with the existence of sufficient surplus in the primary market to supply seasonal and breeding fluctuations. Shifting from one market to another is not sound price policy on the part of producers and does not have the tendency toward stabilization in the industry.

Many plans and proposals have been offered for stabilization of these various factors. At present there is no uniformity of procedure throughout the country.

With the milk distributor certain problems exist which are not problems of production. These are matters of distribution. Just how should the consumer's dollar be divided as to the various factors necessary in distribution? Just where should the distributor's margin be? At what point can distribution facilities be considered most efficient? And where are the losses of duplication of dis-

tributive facilities affected by the economics of distribution efficiency?

These questions can only be answered by a thorough-going analysis of the business of distributing milk. Such an analysis can only be made by detailed and expensive auditing of records. Thus far the cost accounting in the dairy industry has been confined to the larger organizations. These figures are more or less readily obtainable.

Herein lies the greatest difficulty of milk control. The larger distributing units are in existence as a business for the producing of profits or dividends. From the largest distributor down to the smallest producer-distributor and even on to the smallest producer, there exists a constant gradation of efficiency, of business principles and of actual practices. In the smaller enterprises, a single family will operate the dairy. One member will produce the feed, another member will care for the cows and produce the milk, and another member will distribute the milk. Or as often is the case, one person will perform all of these duties. Such a distributor is no less a factor in a milk market than the large distributor buying milk at a fixed price, paying fixed labor charges, assessed fixed taxes, fixed insurance costs, etc. Yet with the small producer-distributor practically every function is present and every cost is variable; with the large distributor practically every function is fixed and costs are not variable. Hence,

the importance of milk control boards and price regulation.

This condition as between the large distributor and the small producer-distributor is not common to one market only. It is a peculiarity of every milk market throughout the country.

TABLE III PRODUCTION AND UTILIZATION OF MILK IN THE UNITED STATES
1925-1934

Item	1925 Million Pounds	1926 Million Pounds	1927 Million Pounds	1928 Million Pounds	1929 Million Pounds	1930 Million Pounds	1931 Million Pounds
Milk Production:							
By cows on farms	88,375	91,887	94,307	95,910	98,782	99,736	101,970
By cows not on farms	4,241	4,079	3,846	3,524	3,145	2,826	2,826
Total	92,616	95,966	98,153	99,434	101,927	102,562	104,796
Utilization: (milk equivalent)							
Creamery butter (total)	29,593	31,229	31,801	31,243	32,517	32,516	33,905
Cheese, total	5,002	4,798	4,544	4,865	4,894	5,061	4,975
Evaporated milk (case)	2,585	2,491	2,739	2,875	3,223	3,113	3,072
Ice Cream (total)	3,213	3,226	3,399	3,480	3,809	3,602	3,130
Total for manufacture, including farm butter	51,737	51,566	52,736	52,900	55,358	54,672	55,590
Consumed as fluid milk or cream:							
In cities and villages	28,760	29,559	30,272	31,063	32,152	32,526	32,161
On farms where produced					10,818	10,919	11,368

* Data on utilization for manufactured products in 1934 preliminary.
Source: Bureau of Agricultural Economics, U.S.D.A. mimeograph--
Manufactured Dairy Products Situation July 1935

1932 Million Pounds	1933 Million Pounds	1934* Million Pounds
101,863	102,309	98,940
2,826	2,826	2,826
104,689	105,135	101,766
34,386	35,813	33,622
4,883	5,469	5,657
3,377	3,694	3,702
2,326	2,226	
56,291	58,116	
32,093	31,213	30,499
11,969	12,222	12,008

CHAPTER IV

TENDENCY OF INDUSTRY TO BECOME A MONOPOLY

The general philosophy behind price fixing is one of the most widely debatable subjects of the age. We still have at present many economists of the old "laissez faire" school with a generous inoculation of the Adam Smith's "Wealth of Nations". To counterbalance this conservative group, an ever-growing militant majority favor governmental control.

Any discussion of price fixing must first recognize the dangers thereof. Price fixing in itself is a blight on the structure of free competition since it can grow to such enormous proportions as to eliminate all free trade. It is argued by many that free competition in itself is the best assurance the public can have of industrial efficiency, that only by this means can less efficient operating units of industry be eliminated. It is obvious, however, and it would be folly to deny that free competition has not had these beneficial results in the milk industry. The simple reason is this, that free competition does not exist in the milk industry, and that it in itself does not always eliminate the inefficient plants especially in an industry which is expanding rapidly. In a modern milk shed, milk prices paid by the industry and margins allowed to distribution units are established

through agreements between producer's organizations and distributors and distributor's organizations. This result is most desirable to the public interest and necessity in that it eliminates cut-throat competition between producers or producing units for the sale of their product and between distributors for the purchase of supplies. Entirely free competition between these groups would be harmful to all. This existence of associations of bargaining units, in itself, does not nullify the beneficial results of free competition. The industry, by its nature being a public necessity and the demand for milk being relatively constant, may function to the best interests of the public at large if governed by the economic rules of monopoly in industry. If prices to the consumer can be adjusted on a long-time basis and industrial planning be conducted over a period of time to the end that the consuming public buys milk at the lowest possible profitable price, the industry as a whole will be bound to benefit. Unfortunately, however, all within the industry do not realize the importance of such economic planning nor the true significance of economic laws of monopoly on supply and demand. In all sections of the country at practically all times there are those who regard the dairy industry as a rich source of lucrative profit to be gained over a short period of time. Disillusionment awaits these untried and uninitiated.

If the dairy industry were organized along the most

efficient lines, any change in price levels throughout industry as a whole could be reflected in changes in the dairy industry also. The constant bobbing up and down of price levels would result in constant efficiency in the dairy industry and the constant usage of competition to its maximum advantage. If productive capacity should become unprofitable, it would be eliminated from competition and a resultant stability would follow wherein the industry would not be overcapitalized or oversupplied with productive and distributive capacity.

Milk consumption throughout the United States has shown very little increase between 1925 and 1930. During this period a large surplus of distribution facilities existed and toward the end of this period a decided effort was made toward efficiency by means of the merger movement. In most communities the number of distribution plants was reduced, and, as a consequence, more efficient distribution was achieved. Distributors not being far-sighted, however, attempted to retain the entire margin between producer's cost and distributor's price without passing any of this margin on to the benefit of the consumer. This was a short-sighted policy and resulted, as it naturally only could result, in a gradual decrease of consumption and a stimulation for the creation of new plants in the industry. New capital was attracted to the distribution industry, this new capital frequently going into old abandoned plants discarded as a

result of the merger. Employees who prior to the merger movement worked in these discarded plants now became the new employees in newly established distribution organizations. Hence, the merger movement while it caused the creation of large distribution units, did not achieve the desired result because those in control of the merger did not take advantage of recognized principles of supply and demand.

Any single plant or organization may have good will value. Good will is something personal, tangible, which attachs itself to a particular business within an industry. When it is attempted to discover good will in an entire industry taking all organizations as a whole, it is impossible to find it. During the merger movement most values were written up, often many times higher than actual values. Bonds and stocks were floated for this fictitious value much the same as bonds and stocks were floated for the pyramiding of other forms of industrial organization. When it came to a show-down, these values were not actually present and the industry could not pay interest or dividends on these fictitious values. By the end of the merger movement in 1929 and 1930 in most sections of the country there were as many distribution plants, if not more than there were before the merger movement got under way.

Merger movements in themselves are predicated upon the

possibility of a few larger, well-organized plants distributing milk at a lower cost than a large number of small plants. Unit distribution costs should in the course of a merger decrease, and this is exactly what happened. The only difficulty was that this decrease in unit cost was not passed on to the ultimate consumer in the form of low retail prices or to the producer in the form of high buying prices.

As the merger movement got under way and decreased unit distribution costs became evident, the dairy industry formed a very attractive medium of investment. Considerable capital was attracted to the industry. Stocks and bonds were floated, old discarded plants were repurchased at exorbitantly high prices, and the industry was faced with just as many facilities as prior to the merger movement. The results of this merger movement and its consequent breakdown were obvious. When the financial ills of 1929 became acutely apparent and distribution volumes fell off sharply and purchasing power decreased, many of these plants were operating at a loss. The market being oversupplied with distribution facilities caused an increase in unit cost. These unit costs tended to increase for awhile, then as commodity prices reduced, these unit costs tended to reduce slightly. In various fields operating costs mounted, and have been advancing steadily during the past five years.

One of the most important factors incident to the rise in operating costs and present unit distribution costs has been the rapid organization of labor groups. The dairy in-

dustry has not only been organized in the distribution and processing end of the business, but in many cases right down to the producer himself. These labor groups demand a fixed income at a high scale. During the flood of the N.R.A. movement, many milk plants were placed under union organization which never before had known unions. Operating costs were increased materially. These increased costs must be met, and could be met in only one way--through payment by the consumer.

At the same time producer cooperative organizations were being strengthened and as the depression dragged on, these producer organizations became more and more effective, working hand in hand with labor organizations to squeeze out of the distributors every bit of profit they might conceivably have.

This process has been described by J. M. Tinley of the University of California as analogous to a man with one leg rigidly encased in a plaster cast. In this case the labor costs and overhead costs were definitely fixed. At this point the man with his one free leg could jump around but had little ability to react quickly to changed conditions and environment. The tendency toward increased ridgedy in all important branches of economic activity was a tendency to shackle his one free leg and put it within a plaster cast. As producer groups organized and set their prices arbitrarily, Mr. Tinley's economic man became relatively firmly en-

cased within the confines of fixed prices. Now, having both legs in plaster casts, his economic man could not move, but could only groan.

During the early part of the depression this tendency in most important branches of economic activity continued to operate under a relatively free competitive condition, and was to a great measure a contributing factor toward the economic collapse of 1929. Economists will agree to this general principle of certain rigid controls having a definite effect upon other industries and contributing to their economic collapse. Yet few economists will agree as to just what corrective method should be applied to relieve such a situation. Some believe that technological advances will cause price fixing to continue as a permanent characteristic of our industrial activity, and that the only solution for our economic woes is to extend the same privilege of price control as rapidly as possible to all other branches of economic activity. This philosophy has been basic in much of our recent federal and state legislation, aiming to extend to agriculture and labor greater powers to control prices and wages. E. G. Nourse, J. S. Davis, and J. D. Black, three economists of the Agricultural Adjustment Administration, in their book published in 1937, entitled "Agriculture and the A.A.A." contend for this thesis. This may be the solution, but it must be clearly remembered that the more rigid the plaster cast becomes the more im-

mobile becomes the patient. Hence, the handicaps of impaired mobility may or may not have a determining effect upon the relative degree of recovery industry may make.

An argument for a natural mobility of factors is supported by many economists. It is deemed desirable that the factors of land, labor and capital all be in such a state of flux or availability, unimpaired by fixed prices, that these factors of production can be quickly moved or adjusted to meet any emergency. It is contended that our economic system is based upon its functioning on a basis of periodic yet automatic checks and balances brought about through free competition. This mobility of forces will insure the benefits of technological efficiency, passing them on to the mass of the people, largely in the form of lower prices, but at times in the form of higher wages, shorter working hours and improved working conditions. Price fixing in general, has always had the effect of strangling competition. As yet, we have no superplanning board to function as a supreme power and exercise the prerogative formerly reserved to free competition. Other than that, there is some question of whether a superplanning board could function at all satisfactorily in a democracy.

Mr. Tinley reasons in his study of the economy of the dairy industry that it might have been considerably better to have unshackled the one leg from the plaster cast and permitted the dairy industry as a whole to have shaken it-

self free, and recovered without the aid of sedatives or stimulants in whatever way it possibly could. Until 1929 prices of most agricultural products were determined by free competition, but starting with the Federal Farm Board in 1929 until 1933 basic farm products were fixed in price. This fixation, however, was at the distribution end in most cases and proved futile, because production adjustments did not keep pace with distribution under price fixing. Many farm commodities decreased in price during this period as much as 50 per cent, and farmers as a whole were more or less desperate because the products that the farmers must buy had decreased not more than 20 per cent. Those "must pay" items of taxes, interest and mortgage payments had decreased even less than 20 per cent, in most cases remaining unchanged if not actually increasing. The farmer, undoubtedly, needed relief. This relief came when the Federal Farm Board accepted its choice of alternatives of either reducing the price of commodities which farmers must purchase, or increasing the price which farmers would receive for commodities they sell. The Federal Farm Board took the latter course with the consent and blessing of state legislators and the federal government, particularly with the blessing of politicians. By means of production methods, control measures and marketing agreements, the board attempted to raise or fix prices as near the 1910-1914 parity price as possible. Concurrently with these

activities of the Federal Farm Board other agencies went into operation to establish moratoriums on debt payments and composition agreements for the reduction of interest rates of indebtedness on individual farms.

Leaders of farm movements and many prominent agricultural economists believed sincerely that to attack the relatively fixed prices of industrial commodities purchased by farmers and utility rates paid by farmers would be ineffectual, and in any case too slow to effect immediate farm relief. Unfortunately for the poor suffering farm group, other agencies were set up by the federal government designed to maintain prices of industrial commodities, these in the form of N.R.A. agreements, labor relief acts, fair trade agreements, etc. Agreements within industries as to commodity prices were fixed or tolerated. As the upturn of the business cycle appeared, labor organizing activity increased, as would naturally be expected--this resulted to the detriment of the farmers. In the final analysis, their industrial purchase prices were decreased only slightly, if at all, and where decreases took place they were offset by increases in labor cost.

Some success was achieved by the Agricultural Adjustment Administration in raising farm income. This may have been overemphasized, reflecting too great a credit on the administration itself. Some credit should be given to the drouths of 1934 and 1936 and the resultant and unexpected

demand for agricultural products. Credit might also be given to the devaluation of the dollar, and to the tremendous relief expenditures of the federal government. All these factors contributed toward the raising of the value of farm prices.

Any benefits which may have accrued to the farmers as an industry may have only been temporary, due to certain incidental factors. The rapid rise of industrial prices and of wage levels in both industry and agriculture continued through 1936, but took a sharp turn for the worse toward the end of 1937. This may have been due to the release of overstocks of industrial goods and agricultural products, and the necessarily resultant decrease of price levels as this surplus stock was being consumed. 1937 and 1938 saw a material reduction in buying power of farm products. This has resulted in renewed efforts for effective measures of price raising and price fixing.

Within the industry, control is recognized and accepted as just and inevitable, but little thought is given to the aspects of public utility control which surround present regulations. Even within judicial circles little appreciation is given to this point and the industry is looked upon as one logically suited to control of some type. This control, however, has not yet reached the judicial dignity of a public utility concept. But the fluid milk business is already a public utility, and those who

still contend for this thesis have simply failed to recognize the fact. It is reasonable to say that since the United States Standard Milk Ordinance was imposed upon the fluid milk industry, the industry has been a public utility. This is true because this public health regulation in itself controlled the conditions under which distribution should take place, determined the availability of milk supplies at any given time, and so affected the normal channels of distribution as to create a demand on the part of the public for regulation. True, it has not been governed and ruled in accord with the principles of public utilities, however, that did not affect the fact that it was still under public control. As soon as a regulatory body as state, city, or county imposed upon the industry the Standard Milk Ordinance, that regulatory body immediately assumed the prerogative of economic control of the industry. Many other industries are regulated in points of sanitation, but these regulatory acts in themselves do not affect channels of distribution as greatly as sanitary regulations within the dairy industry. With tomatoes and meat and other articles coming under the Pure Food Act, sanitary regulation does take place, but it must be remembered that these articles are of such a nature that they can be preserved over a long period of time, whereas milk must flow continuously from the time it is produced until the time it is consumed. Thus, the element of transportation becomes a determining factor in the con-

cept of milk as a public utility. Fluid milk is not capable of preservation over a long period of time except as it is altered in the process of condensing and canning. Once this operation has taken place, it is no longer fluid milk but a manufactured and canned product and subject to an entirely different set of reasoning.

The city, county or state may not have recognized its obligations to regulate it in accord with public utility principles, but this obligation nevertheless did exist, and the public is now several years too late awakening to the fact of its obligation. The entire question of public or private ownership has been raised both before and since milk sanitary ordinances were enacted. At the outset, sanitarians determined that private ownership would most adequately serve public needs. This was because the very complex nature of pasteurization seemed to present an insurmountable obstacle of private industry. With the introduction of improved equipment and machinery and a large measure of private initiative, private ownership of the distribution and of the milk business soon appeared most logically and economically feasible.

The next and only other alternative was public regulation of private business enterprise. There are still certain captains of industry and economic royalists who maintain that private initiative should still be given full and unbridled play and authority; that the only safe-

guard of the interest of consumers is free competition; and that any interference with this misnamed free competition is interference and meddling with the inalienable rights of independent Americans. These are the orators speaking for equality of opportunity now that they themselves are firmly entrenched behind the walls of economic security. It cannot be implied that private ownership is entirely virtuous; quite to the contrary of the evils of private ownership and monopoly are the direct cause of a most vital interest in utility control.

Those who so vehemently propose freedom of competition within the dairy industry are those who fail to recognize the philosophy behind free competition and the philosophy behind the definition of the word "liberty" itself. They would interpret free competition and liberty to mean the right to do anything and everything they so pleased within the industry, to so conduct their business as to milk the public instead of the cow. This milking of the public takes place when following periods of extreme competition and low prices the industry gets together on an arbitrary price scale, forcing prices extremely high and distributors' margins unusually wide. Consumers at this time not only pay for the cost of low prices previously, but also pay an additional penalty in the way of extreme profits to distributors. If given free play, they would discard all form of control and many phases of sanitary regulation, then

with the technological advancement of the industry proceed to feather their nests more softly than before, and ultimately reap the harvest of their own shortsightedness and incredulity.

A more thoughtful understanding of free competition and the definition of liberty itself is that liberty can only be liberty within regulation, and that free competition can only be competition within industrial order. No such thing as competition could exist in an economic and industrial chaos. The word presupposes the existence of orderly forces working in opposition.

Liberty does not mean license; liberty liberally construed, means opportunity. Those who uphold freedom of competition would misunderstand liberty to mean license rather than opportunity. Equality of opportunity is fine for politicians to orate about, but the American brand of industrial opportunity is circumscribed by the fundamental principle of tolerance of the rights of others.

Social control is a fundamental economic principle and legal dictum of our democratic government in which the interests of all society take precedence over the interests of an individual. Certain principles govern public utility regulation. These principles may be either economic or social. With the establishment of standard milk ordinances, the dairy industry attained its majority as a public utility industry. There can be no quarrel with those who

would prefer to only say that it attained the aspect of an industry "vested with the public interest". Briefly, the dairy industry became a public utility because certain factors of the industry, previously indicated and to be indicated hereafter, were essential to the public welfare, and thus they necessarily needed to be controlled by the public. These interests with which the public is concerned are, first, that the industry be so constituted as not to form a monopoly for the interests of the few, but rather for the interests of the masses. Monopoly control of a public utility is desirable so long as the control can be exercised by the public. The second factor in which the public is interested is, that low costs be guaranteed the public for the essential services under the public utility. As yet, control laws have set up minimum price regulations. These in themselves do not protect the public against exorbitant prices, but, rather, act as a protection for the producer. Competition has so far acted as a control against the imposition of maximum prices. It must be conceived, however, that within the near future certain maximum price regulations must be enacted for the benefit of the public. Free competition would undoubtedly result in needless duplication of services and resultant public inconveniences, thereby causing a high cost of distribution and large margins between producer's costs and consumer's costs.

The whole field of public utility philosophy will be discussed later. It is sufficient here to say that the public themselves have forced the industry into the status of a public utility by forcing the industry to adopt standard milk ordinances and the resultant regulation thereunder. Just how the industry has been forced into a position demanding regulation, can best be borne by a study of local milk grading practices. A combination of circumstances causes an extreme shortage of milk during the fall months of each year for a period of from 2 to 6 weeks during August, September and October (this period varying for any particular year) production is at a minimum. This minimum is reached because breeding practices prevent cows freshening during this period, farm harvests take necessary dairy employees into the field causing a laxity in sanitary control on the farm and resulting in frequent degrading, pasture is the driest at this period of the year, consumption is at its highest point because of the return of people from vacations and the enrollment of children in school. This combination of factors makes it unprofitable for many producers to remain on the market during this period of the year. It is more profitable for them to sell their milk production to processing plants to be made into cheese, butter, or condensed milk. In all markets at this time there is a great fear of a shortage of milk supply.

CHAPTER V

SCOPE OF THE MILK UTILITY PROBLEM

It is the price charged for the quart of milk delivered on the front porch which constitutes the basic problem in public utility regulation. This price is the ultimately controversial point on which the entire philosophy of public utility control hinges. It is the process of arriving at this ultimate price which makes up the entire problem.

The producer himself is affected by a variety of interacting forces which go to determine the supply of milk available for the fluid milk market and the producer's costs. A few of these interacting forces are, the general price level of all commodities, the quality of the milk produced, its actual food value, the weather, prices of substitutions for milk, prices of milk prevailing in the past, the quantity of milk offered the market, prices of other produce derived from milk (e.g. cream, butter and cheese), the price of fluid milk in other markets, the value of milk as a feed on the farm, the cost of transportation to the city market, the productivity of land used by the dairy industry, the productivity of competitive land, the number and quality of cows kept, the price of feed, the efficiency of milk producers, the competition of other crops for the use of land, the value of cows for slaughter, the prevailing level of wages,

epidemics of cattle diseases, floods, drouths, sanitary regulations, governmental control or regulation, size of herds, general business conditions. All of these factors go to determine the amount of milk the farmer will offer to the market. Hence each of these factors contributes to a determination of what the supply will be at any particular time.

On the demand side of the picture are certain other interacting forces, such as; the general price level, the condition of business in general, the recognition by consumers of the importance of milk as a food, the taste of milk, food habits, religion, the weather, population trends, proportions of children in populations, the spendable income of consumers, the prices of substitute or alternative foods such as condensed milk, milk prices prevailing in the past, the price of milk in other fluid milk markets, the prevailing level of wages, racial characteristics of the community, general standards of living of the community, policies of charitable organizations, including relief agencies. These and other factors go to make up the determining forces which establish the demand level for milk in any particular market.

In between these supply factors and demand factors lies an intervening force and organization of distributors. Often the distribution function is carried on by producers

themselves as producer-distributor combination. More often, however, in larger cities particularly, distribution of milk is in itself a separate enterprise. Under conditions of free competition the distributor would determine the meeting point of curves of supply and demand. Under control, however, the price is set by a centrally governing body, and the distributor has no part in establishing the supply and demand point of equilibrium.

Certain forces affecting distribution of milk contribute toward an adjustment of factors of supply and demand. Some of these are, the general level of all prices, transportation costs, labor costs, the exercise of monopoly powers or lack of exercise of monopoly powers, governmental interference, sanitary regulations, racial and religious characteristics of the community, local police ordinances affecting the establishment of industrial plants, taxation, margin of profit, etc.

Milk production is different from all other private business enterprises in that the producer is required to service the public with milk and to maintain the herd in a condition of extreme costs during a period where he normally would relax production because of these extreme costs. The producer of milk for cheese factors, condensers, butter plants, etc., will control production so that at all times during the year he is producing at the most profitable

price possible. This may mean an extreme peak of production during spring months and an extremely low point of production during the fall months. Producers for the fluid milk market, on the contrary, must maintain an even production throughout the year. These same forces, with certain modification, hold true with respect to distributors' interests in the market.

The obligation of control bodies toward the industry is to see that the supply and demand curves meet at a point which will insure to the public the greatest amount of milk possible at the most reasonable prices. To do this it is imperative that the regulatory body consider all factors which go to determine the amount of milk which will be offered the market at any given time. It is further imperative that the control body consider all factors which will determine the increase or decrease in demand for milk at any given time. After consideration of all these factors, a price must be set which will be fair and equitable to all three factors: the producer, the distributor and the consumer. A detailed consideration of the review of supply factors made necessary will be made later, also consumers' demand factors will be studied more carefully. It is important at the outset to decide what kind of price is to be fixed.

Is the regulatory body obliged to fix a just price, a

reasonable price, a profitable price, the monopoly price, the cost price, or the fair price?

The exact philosophy which will govern any particular milk control board may vary in accord with certain local conditions. At one time, it may seem desirable to fix the cost of production as the established price. At another time, it may be equally desirable that the monopoly price be in effect. Certain milk control laws have stated in the act itself that the control board shall fix a fair price which will result in a reasonable profit to producers and distributors.

When conditions of oversupply are so gross as to necessitate a reasonable reduction in quantity of milk offered the market, it is possible that the desirable producer price be even below cost of production. Likewise when distribution facilities are so great as to result in excessive duplication and inefficiency, it may be desirable that the price be set in accord with the costs of the most efficient distributor.

If producers for the market are scarce and supply limited, it may be desirable that the producer's price be set in accord with that of the least efficient, thereby inducing a larger supply of milk to flow to the market. By the same token if the community is growing rapidly and distribution facilities are taxed to the limit, some effort

must be made to induce capital to enter the industry and thereby supply the additional facilities necessary. In this case it may be desirable to establish a price which will give distributors a wider margin of profit.

These, however, are extreme cases, and with the population trends throughout the country leveling off, and with a tendency of investment within the industry to become stable the general rule to be followed by price fixing groups is that the price must be the fair price which will give a reasonable return to producers and to distributors alike.

An analysis will be made later of those factors which go to determine the supply of milk to be offered the market by producer groups. An analysis will also be made of distributors as a group, showing the relative cost figures and analyzing the relative efficiency of a distribution system. Little attention has ever been given the consumer interest in milk. Probably the greatest single contribution to consumer interest has been by the National Dairy Council. This organization is financed by the industry itself by means of contribution on a pro rata production and distribution basis or otherwise. This organization, located in Chicago with branches in practically all principal cities, has distributed literature and educational material to newspapers, schools and civic organizations for more than twenty years. While the National Dairy Council cannot in

itself be considered the spokesman or organism of consumers, it, nevertheless, has functioned in the consumer's interest.

The Federal Government through the "Consumers' Guide", a small periodical published in the interest of more intelligent consumer reaction, might be considered the only independently consumer activity going to influence the price to be paid by the consumer for a quart of milk.

The factors influencing demand for milk are all subtle and more or less subconscious. For that reason consumer reaction seldom reaches the surface in the form of direct activity or tangible evidence. It is more generally a type of subtle reasoning motivated by subjective forces, racial and otherwise, which weigh and determine the relative desirability of milk as a food compared with other foods in competition for the consumer's dollar. A complete chapter will be presented later showing detailed consumer reaction to motivations. These motivations are of direct importance and significance to any control organization. As yet they have received little or no attention by milk control bodies, and until milk regulation assumes the proportions of a more or less exact science, it is doubtful whether the full significance of buying motives will be appreciated.

CHAPTER VI

THE CONSUMER'S STAKE IN MILK CONTROL

The customary procedure in most states when a milk control board is about to establish a set of prices for fluid milk is to publish notice of the board meeting in some local newspaper. This notice will call attention to the fact that the board is preparing to hear evidence from which it will set prices that distributors will pay farmers or producers for fluid milk. This notice will indicate that resale prices will also be considered and set by the board. An invitation is extended to members of the public to be present and to present evidence from which the board may determine the consumer's capacity to pay.

When the public meeting convenes, farmers and distributors will be present in great numbers. The consumer will be noticeable by his absence. This is not a fact to be trifled with; it is rather an important consideration from the milk control board's standpoint. Now and then a stray person will appear representing consumers. More often than not this person will be more properly the representative of some faction or group within the industry wishing to gain special privileges in a backhanded manner.

At the outset it must be recognized that the producer and distributor are at the same time the consumer. Each

has his special interest, however, within his own special field and not within the general scope of the vast public who buy milk at retail prices.

Because of the limited representation of the consuming public at price hearings, this limited group obtains a disproportionate amount of consideration, and a milk control board is apt to bend backward to give the consuming public a more than fair opportunity to be heard and a greater share of consideration than possibly is deserved. At frequent price hearings in Oregon there have been as few as one, and more often, none, of the public present. Where only one person appeared to represent the interests of the public, this person was given every opportunity to present facts which he or she might have on hand. More often than not, this presentation on the part of the public was an impassioned plea for lower prices, based upon no consideration of cost factors of production and distribution. This also has held true of public hearings by the Oregon Legislature. Few, if any, of the public presented testimony, and when they did, they were given time and attention disproportionate to that received by interested groups from the industry.

Certain psychological factors determine this approach. It is the long-suffering public that pays the ultimate bill,

and it is this long-suffering public which makes no audible complaint about price structures. Any complaint made is of a subtle inarticulate nature, expressed only in reduced milk purchases.

The milk control board is therefore left to determine consumer reactions to fixed prices as a result of a study of milk consumption. If milk consumption increases, the board may conclude, together with other conclusions, that the price fixed is just. If consumption falls off, the board may conclude, together with other conclusions, that prices are too high. The board is perpetually in a dilemma to know whether prices are adequate to provide a fair return for producers and distributors, and at the same time low enough to insure a maximum consumption.

Just what price is at one time a fair price to the three factions of producers, distributors and consumers has never yet been scientifically and accurately determined. Great strides have been made in this direction, however, and it can be hoped that within the near future proper mathematical ratios can be worked out from which fair prices may be set. As yet, very little research has been conducted along this line by milk control boards. The reason for this is, undoubtedly, that boards have failed to recognize the importance of this branch of statistical research.

It should not be necessary to establish milk as important in the human diet. However, some evidence should

be given on this matter, for when the question comes squarely before our courts for consideration as to whether milk shall be judged a public utility or not, the question will be raised as to the availability of milk for all alike, particularly when the question is raised as to a distributor's right to refuse delivery to a person desiring to buy. At this time, the extreme importance of milk in the human diet, particularly for children, will be raised.

With the advent of the New Deal and its accompanying philosophy of greatest good to the greatest number, the United States Department of Agriculture in Washington, D. C. began publishing a pamphlet known as "Consumers' Guide." The objects of this publication were to acquaint consumers with pertinent facts relative to common commodities purchased every day, proper and intelligent buying habits and the most economical use of consumer's goods as such. This publication has now been distributed free of charge for six years to all consumers who would take the trouble to address a post card to the Department of Agriculture for this little magazine. At first it assumed a modest approach to consumer problems and was printed in an unpretentious manner and submitted with some misgivings. Now it dares to beard the lion in his own den, exposing false advertising, misleading information, and dishonest methods used in selling,

etc. A vast amount of good has been done in the standardizing of container shapes and sizes. It has dared to expose graft in high places.

More and more this publication is becoming the voice of the public, the voice of the consumer. As a result, the consumer is now being heard from more and more, and it is hoped that in the future a more militant consumer group will grow and be of greater assistance to milk control boards in price fixing activities.

Recently the consumers' Guide published a series of articles entitled "More Milk for Millions." These articles started in with an analysis of sanitary methods as forced upon the industry by the standard milk ordinance. It showed pictures of acceptable methods, acceptable equipment, the intricate devices used in protecting milk and the high degree of sanitation required by the industry. In the next article it continued along the same line, discussing more the commercial aspects of milk production. Then it followed, in the next article, with a discussion of distribution methods showing the intricate machinery used in processing and handling milk after it was produced on the farm. The next article frankly discussed milk prices in various sections of the United States, comparing one section of the country with another. One article stressed the health value of milk in general and explained the mathematics of

computing competitive food costs. Another article went into detail about the cooperative method of producer handling. One article then showed the methods used for distributing milk to various classes of consumers from relief agencies to the more wealthy and more discriminating trade. One article eulogized the health value of skim milk and skim milk powder.

In summarizing the work of the Consumers' Guide, it can best be said that this publication attributes a vast importance to milk in the human diet as the greatest contributing factor toward the high standard of living and the high type of civilization we maintain in the United States. This is emphasized by the following quotation:

> "Some countries just are, and it isn't necessary to inquire why they happen to exist, but this is not true of the milk country. Milkland, with its 25 million cows, its 4 million dairymen, its processors, its distributors, its trucks and tractors, its pasteurizing equipment, its bottling machines, its pricing systems, its laws, its health officers, and its problems, exists to supply human beings with their most important food, milk.
>
> "No one denies the importance of milk in the American diet."

At all times the Consumers' Guide emphasized the nutritional value of milk in the human diet. This is emphasized by the following statement:

> "Nutritionists have worked out the minimum amounts necessary for each person. Children, nursing and pregnant mothers, should have 3/4 to a quart of milk or its equivalent every day. Or to generalize, the milk prescription for everyone is from 260 to 305 quarts of milk a year.

> "If America's under-consumers of milk were to get their full prescription, not only would their health be toned up but American farmers would have a bigger job to do. The Bureau of Home Economics has figured that if the average consumption of city families could be raised to the level of families whose diets cost less than $165 per person per year (1936 price levels), but whose food supply was rated as first class, there would be need for 33 per cent more milk.
>
> "Not only the health of consumers hangs on this need for more milk. Fair returns to the farmers who produce milk, to the processors and distributors who handle it, to the workers along the milk route, and to investors, hang on this single necessity."

The editorial staff of the Consumers' Guide does not hesitate to crusade in the interest of lower prices, but rather make this their aim to a great extent. The contention is made that milk is inelastic in demand. This, the Consumers' Guide questions. While they do not actually refute that contention, they wish to subject it to the most scrutinizing microscopic study to determine to just what extent milk consumption is inelastic. This is a constructive point of view and should be followed by all factors in the industry in approaching the questions of production, distribution and price. The following is quoted from the June 20, 1938 edition of Consumers' Guide:

> "It doesn't mean much to talk about 'consumer demand' as though every one were cut out of the same pattern. Families differ from each other by the weight of their purses, by their desire for milk, and by their demand for all the marketing frills that go with milk. To get a more accurate measure of 'consumer demand,' the different

needs of under-consumers and nonconsumers must be considered.

"At the top level are families with incomes big enough to afford all the milk they want and also the services milk companies offer. They can afford to pay for the delivery of milk to their door. They can afford the extra costs which companies must charge when customers call up and order a pint of cream delivered immediately. They can afford the luxury of charge accounts.

"Middle level families are those that can afford to buy milk, but not the extra services. If families in this group could buy milk without paying for a delivery service or a credit system or an advertising campaign, they would be able to get more milk.

"Below these families are the tragic 'one-third of the nation.' The wage-earners in these families are unemployed, or are earning salaries too scanty to provide even a minimum of decency in living. Many of them are on relief. As things are now they can afford to buy neither milk nor services.

"To increase milk consumption by the first group, education is necessary. They must be told, if they don't know it already, that milk is an essential food, that it contributes vital ingredients to a healthy diet. Chances are they have already heard that milk is good food and believe it, unless by unhappy accident they have also heard milk described as a medicine or a beauty secret. Calling a good food more than a food is a kind of education that creates doubt as well as convictions.

"Most Americans fall into groups 2 and 3. If their consumption of milk is to be increased, the milk industry must gear itself to their needs.

"Some milk dealers themselves, have taken steps to increase milk consumption by trimming off some of the frills, and by passing on the economies of cheaper distribution. One Iowa milk distributor decided that it cost less to

put 3 quarts of milk on a consumer's doorstep at one time than to put 1 quart of milk there on 3 separate mornings, so he devised a plan whereby consumers could save the additional delivery cost. His customers pay 11 cents for single quarts of milk under this plan, 10 cents a quart for 2 quart deliveries, and 9 cents a quart for 3 quart deliveries.

"To sharpen up the fact that economies can be had in delivery costs, another plan has been proposed; to sell milk at a fixed price plus service charges which decrease with the quantity of milk purchased. Thus milk at a grocery store would cost the flat milk price. Milk in 1 quart quantities delivered to the home would cost the flat milk price plus a service charge, which would shrink with each additional quart of milk purchased at the same time.

"For our 3rd group of consumers such economies are not sufficient. In an economy that depends upon the desire for profits to maintain the production and distribution of goods and services, people who cannot afford to buy anything are economic untouchables. And so long as they are, no private company can be blamed for not getting goods, and in this case, milk, to them. The responsibility for supplying milk to the group of families who can't afford to buy anything obviously becomes a public one.

"Ideally, some economists say, an industry should seek profits by selling more goods at lower prices. The way to do this is to become more efficient so as to make possible lower prices. Lower prices enable more people to buy more of the goods the industry manufactures.

"If a particular manufacturer does not continually maintain his comparative efficiency in relation to the other manufacturers of the same product he will eventually lose out altogether. If an entire industry becomes musclebound in this respect, it may lose out to some alternative product, even if it is supplying an apparently indispensable commodity."

It can be hoped that the Consumers' Guide will play an increasingly important part in determining the attitude of consumers toward the fluid milk industry. It may be asserted that this activity carried on by the Federal Government in behalf of the public is a paternal activity. This must be admitted with a hope at the same time that while it is paternal in nature, it does not stoop to the level of propaganda.

Some criticism is directed toward the Consumers' Guide approach to problems in that it fosters and encourages producer and consumer cooperatives. Milk control in itself where higher prices result may discourage consumption and thereby result in the encouragement of the creation of consumers' cooperatives. It is true that certain groups of individuals suffer by the creation of producer and consumer cooperatives, but it is nevertheless true that an adherence to proper trade practices in the first instance would have dispensed with the necessity for the creation of a cooperative.

The long-suffering public is becoming articulate, and it should become increasingly so as these agencies for the dissemination of information continue to do their good work.

Private distributor enterprises have taken upon themselves research work into consumer responses. As mentioned previously dairy councils have also conducted limited surveys. A few statistical organizations such as "Facts Incorporated"

and "The National Research Corporation" have conducted surveys for private business in certain large cities. These surveys were designed primarily to aid industry in plotting its course of advertising and promotion work. The relation of racial and religious groups and age groups to fluid milk consumption was considered a secondary matter.

A few state departments of agriculture have conducted consumer research within the milk business. The most noteworthy example of this type of work has been done by the Pennsylvania State College, School of Agriculture and Experiment Station, Department of Agricultural Economics in corporation with the United States Department of Agriculture, The Bureau of Agricultural Economics. This survey work was conducted in 1924, 1929 and 1934. This survey was made by using college students to interview over 3,000 families in various sections of the city of Philadelphia. They visited these families, taking with them questionnaires covering dozens of pertinent points which bore some relationship or some importance in determining milk consumption. It is not important that we consider the method used in making this survey. It is more important, however, that we consider a few of the conclusions reached. (Technical Paper No. 659, Pennsylvania Agricultural Experiment Station July 1934).

Pennsylvania has been outstanding as an example of consumer research. Results of this progressive spirit within

the state have been that Philadelphia now ranks as the leading large city in per capita consumption in ice cream. The industry in Philadelphia is continually studying various consumer reactions, particularly to advertising. The city has maintained the front rank in ice cream consumption for several years primarily due to this progressive approach to the consumer problem.

In studying milk consumption statisticians in charge analyzed relations between consumption of competitive dairy products. Their questionnaire was so devised as to gather the following information:

TABLE (IV) Average Weekly Purchases per Family of Various Dairy Products and Butter Substitutes in Philadelphia

Product	Unit	Percent of Families Reporting Use	Purchases	
			Per Family Reporting Use	Per Family Interviewed
Fluid Milk	Quart	92.3	10.60	9.78
Cream-light	Half-pint	15.2	3.37	.51
medium	"	.6	2.49	.01
heavy	"	2.7	1.55	.04
sour	"	3.3	2.51	.08
Condensed and evaporated milk	Tall can	44.5	3.27	1.46
Chocolate Milk	Quart	1.3	2.43	.03
Buttermilk	"	10.3	2.17	.22
Butter	Pound	92.7	2.17	2.01
Butter substitutes	"	1.2	1.54	.02
Ice cream	Quart	38.1	1.31	.50
Cheese-Cottage	Pound	6.6	.87	.06
Spread	"	20.0	.43	.09
Hard	"	37.2	.81	.29

(Preliminary Report, Philadelphia Milk Survey, 1934)

By mathematical computation these statistics were reduced to per capita consumption figures.

TABLE (V) Weekly Per Capita Consumption of Dairy Products

Product	Unit	Weekly Per Capita Consumption	
		Families Using the Product*	All Families
Fluid milk	Quart	2.25	2.11
Cream--light	Half-pint	.80	.11
Medium	"	.63	.0032
Heavy	"	.34	.0091
Sour	"	.52	.0018
Condensed milk	Tall Can	.67	.079
Evaporated Milk	"	.69	.21
Total canned milk**	"	.68	.31
Chocolate milk	Quart	.48	.0063
Buttermilk	"	.46	.048
Butter	Pound	.46	.43
Ice cream	Quart	.28	.11
Cheese--Cottage	Pound	.20	.012
Spread	"	.096	.018
Hard	"	.16	.063

(Preliminary Report, Philadelphia Milk Survey, 1934)

*These figures are derived by dividing the reported consumption of families using the product by the number of persons in these families. In the second column the per capita figures are derived by dividing the reported consumption by the number of persons in all families.

**Some milk in cans comprising this total was not classified as condensed or evaporated.

A very pertinent fact explored during this research was the consumption by various nationality groups during the three years mentioned, 1924, 1929, and 1934 showing the variations in consumption within these groups during different stages of the business cycle.

TABLE (VI)
Comparison of Reported Daily Per Capita Consumption in 1924, 1929, and 1934 for Different Nationalities, and Estimates of Consumption for Each Year After Correcting for Over-statements.

	Native white	Negro	Italian	Jewish	All	Estimates corrected for over-statement
	(pints)	(pints)	(pints)	(pints)	(pints)	(pints)
1924	.74	.39	.42	.78	.69	.62
1929	.84	.47	.54	.82	.77	.68
1934	.73	.45	.52	.72	.64	.60

(Preliminary Report, Philadelphia Survey, 1934)

This consumption of the various nationality groups is interesting, particularly when compared with the consumption for all family groups.

TABLE (VII)
Reported Daily Per Capita Consumption of Fluid Milk in the Home

	Philadelphia	City Proper	Suburbs
	(pints)	(pints)	(pints)
Per capita average for families using fluid milk	.64	.62	.79
Per capita average for all families	.60	.58	.78
Per cent of families not using fluid milk	7.7	8.3	2.9

(Preliminary Report, Philadelphia Milk Survey, 1934)

One of the most interesting patterns of information gathered by the survey was the comparison of milk consumption on the basis of income group. This is revealed in the following charts showing a definite leveling out of consumption after a certain income bracket has been reached.

(Refer to TABLE VIII)

One of the most important factors in controlling general market consumption of milk is the relative age of the community; that is, the number of children within the entire community. Philadelphia found the following figures to be significant. This chart reveals that as the family increases the additional unit of one child receives progressively less milk in proportion to the preceding units of children in the family. This point is also brought out on other surveys.

TABLE (IX)

Average Weekly Per Capita Consumption of Fluid Milk by Size of Family and Number of Children, for Families With a Per Capita Income From $4 to $9 Weekly
(Native White, Irish and Northern European Families)

Size of Family	2	3	4	5	6	7
Number of children (Quarts of fluid milk consumed per person per week.						
0	2.62	2.15	2.38	1.86	2.44	1.98
1	3.87	2.83	2.12	1.99	1.96	1.85
2			3.11	2.77	2.68	2.42
3				2.93	2.80	2.06
4					2.93	2.58
5						2.87

(Preliminary Report, Philadelphia Milk Survey, 1934)

TABLE (VIII) Average Weekly Per Capita Consumption of Fluid Milk by Families of Different Incomes and Different Nationalities or Racial Groups Who Used Fluid Milk

Per Capita income per week:	$0-1	$2-3	$4-5	$6-7	$8-9	$10-12	$13-15	$16-18	Over
Nationality	(Quarts of fluid milk consumed per person per week.)								
Native white	2.44	2.12	2.26	2.47	2.68	2.77	2.66	2.95	2.81
Irish	2.32	2.23	2.63	2.17	2.51	3.16	2.89	*	*
Jewish	2.30	2.32	2.60	2.69	2.34	2.62	3.38		
Polish and Russian	1.90	1.84	2.26	2.39	1.75	2.94			
Negro	1.73	1.29	1.47	1.73	*	1.67			
North European	1.88	2.19	2.26	2.38	2.41	2.98	2.46		
Mediterranean	1.83	1.75	1.95	2.02	2.41	2.79			
Per capita consumption for families using fluid milk	2.06	1.90	2.20	2.35	2.53	2.74	2.69	2.80	2.84
Per cent of families buying some fluid milk	.88	.94	.94	.98	.98	.96	.98	100	.95
Per capita consumption for all families interviewed	1.81	1.79	2.06	2.30	2.49	2.63	2.64	2.81	2.71

*There were too few in classifications to make a reliable average.
(Preliminary Report, Philadelphia Milk Survey, 1934)

Much of the information gathered by this Philadelphia Survey tends to be of slight value to the industry as a whole unless it is collaborated by evidence gathered on a broader field in many other markets. Some of the information is of a particularly hypothetical nature. The interviewers asked consumer's opinion on certain subjects relative to what they would do under certain conditions. For instance, would they or would they not use more milk if the price of milk was reduced, etc. One type of question asked the consumer was the amount of milk consumed by each individual during the course of a day. This question called for an answer based upon memory of a food habit. The answer necessarily was not accurate and tended to be clouded by wishful thinking. Particularly was this true when the adult in a family commented on the milk consumption of minor children. Wishful thinking in this instance was in behalf of the child.

It has always been felt that consumers should, according to the best dietetic practice consume whole milk; that is, mix the cream and milk uniformly together. In truth this is not so often the case for most people drink skim milk, having previously removed the cream for use in their coffee or on cereals. This, however, is a small matter so long as the entire milk content is consumed.

An example of the type of self-help that can be conducted by the milk distributors is the survey made by the author for Goss Brothers Dairy. A review of this survey is

included as appendix 2.

This survey being made for one individual firm, was directed toward obtaining certain specific information for that business. Its primary value is in its having tested consumer responses in such a way as to make them usable in a systematic expansion program.

As mentioned before certain commercial institutions conduct similar consumer surveys, the questionnaire used by these companies being very similar to the one used in Goss Brothers Dairy Survey.

CHAPTER VII

PRODUCTION COSTS AND THEIR RELATION TO PRICES

What is the fair price the farmer should receive for milk? This question must of necessity be uppermost in any consideration of the dairy industry as a public utility. The farmer will ask that as the producer, his claim for a fair return should receive adequate consideration. It is the product of his labor which goes into the market to be handled by distributors and sold to consumers beyond his control. Therefore, at his end of the business he is constantly demanding and forever will demand a higher and higher price for his product.

The Milk Control Board forming the Public Utility Commission regulating milk prices, must consider the producer's claim as of equal importance to the claim of the distributor.

Both phases of the dairy industry, that is production and distribution, must be viewed in the light of what shall constitute a fair profit to each phase of the industry. Shall the profit be computed as a certain percentage of the volume of business done, and if so, upon what basis is the Milk Board to compute costs? Are these costs to be accounted for on the basis of original investment, cost of reproduction, or by a compromise split-inventory method?

Consideration of this basic problem must constitute a major field of inquiry for any Milk Control Board. The

science of valuation must be recognized and applied to the dairy industry through all its possible avenues of application.

Thus far many state departments of agriculture have made exhaustive inquiry into relative costs of milk production. These audits and surveys have sought to obtain costs per lb. Butter fat, cost per 100 weight of milk, and hourly wage rate of return for management. These investigarions and audits are simultaneously being conducted by the Federal Government, and consequently, there is growing rapidly a vast body of information which, when correlated, can readily form the background of intelligent rate-making on the part of Milk Control Boards.

As yet, the efforts toward compiling comparable statistics in the various states have not been crystalized into singleness of objective. Therefore, the data from all states is compiled under different leadership and often by different methods. More often than not, no statistics are compiled whatsoever.

If the theory behind public utility regulation is to be followed in arriving at rates for the sale of milk, consideration must be given to the following cost factors which may be stated as, first, operating expenses; that is the cost of maintaining a herd in production. This cost includes all feed, labor, etc. Second, depreciation and reserves; that is, a reasonable charge for depreciation,

the live stock, the buildings and reserve for fortifying the fertility of the soil and reserve against cow replacement. Third, return on investment including the amount to be received as a result of managerial ability. This amount should not include any charge for labor of the management or family group, these charges more properly belonging under operating expenses; and fourth, taxes.

Milk producers operating in markets regulated by milk control boards should be required to keep account books of records in some standard form in such a manner that these accounts may be checked over by the milk control board from time to time, in order that the board may ascertain the relative efficiency of the producer and obtain all of the producer's expenses. This record book showing operating expenses is also of importance in order that the control board may ascertain from time to time costs of materials used in milk production. These figures will, also, supplement and augment various formulas used to compute costs of butter fat production.

The farm production unit must at all times be kept intact; hence a consistent, and acceptable policy and theory of depreciation and accounting should be set up by each producer. It must not be blandly assumed that dairy production property will at all times remain in a state of high productivity. Obsolescence is a big factor and must be taken into account in the computation of depreciation

charges. Various methods of computing depreciation reserves have been adopted, and it is difficult to say just what procedure is most logical or correct. It is only safe to say that a uniform method of depreciation, and as far as possible, a uniform method of bookkeeping, should be adopted by all producers for the milk shed.

Every farmer should get some return on his investment; that is for the amount of money he has invested in a farm, improvements, and live stock the farmer should receive a reasonable return. Right here is a most crucial and difficult feature of public utility regulation, that of determining values in the anticipation of a charge for capital invested. No arbitrary rule can be layed down for fixing valuations. It is only safe to say that these must of necessity vary according to the particular locality in which the producer is situated. This valuation will vary in accord with different standards of tax assessment. These taxes are a matter of record, and in computing production costs on valuations there can be little disputing these records.

As a general rule, property values on individual farms can be determined by the old jingle, "The value of a thing is just what it will bring." Herein public utility valuation schemes differ from methods which necessarily need to be followed in computing valuation of farms. With large public utility units, such as hydroelectric plants, the general value based on what a thing will bring cannot be

considered, for the reason that values are not computed for hydroelectric plants at just any time. They are not bought and sold on the open market. Farms, on the other hand, are bought and sold on the open market, and the valuation can be computed at any given time.

Computation of farm values in dealing with fluid milk production and in arriving at the cost of fluid milk production, need not be a difficult task. The going price or going value of similar land can be considered in arriving at proper valuations. Farm land used in milk production is not always purchased with the dairy business in mind; therefore, farm land used for dairying need not be considered as single-purpose land. It can readily be transferred to any other agricultural purpose that may be profitable at a given time.

This analogy can cease here, for public utilities, as generally heretofore considered, have much more fixed production units and very little in common from the standpoint of valuation. Most of the similarities which do exist lie in the field of actual production or operation of the business.

Most of the consideration given farmers and their cost problems in milk production must be actually within the field of production costs themselves. It is well to here give some study to these various cost factors. A review

of milk production costs in several states will reveal the vast differences which exist in various sections of the country. The following table is a compilation of costs as arrived at by agricultural experiment stations in the various states mentioned. These do not in every case indicate the average cost of production of all milk within the state. They are, generally speaking, the cost of producing fluid milk for human consumption; that is, milk which will become pasteurized and used in the bottle and can trade.

TABLE (X)

STATE	Cost Per 100 lb. Milk	Cost per lb. Butter Fat
Illinois	$1.57	$.44
New York	2.02	.505
Washington	1.57	.46
Connecticut	2.64	.6601
Kentucky	1.54	.261
Mass. 1938 High	3.22	.8005
Low	2.825	.706
Maryland	2.34	.58
Oregon	1.63	.27
New Hampshire	3.05	.765
Maine	2.55	.638
Ohio	2.61	.637
Vermont	2.10	.525
Rhode Island	2.79	.697
Virginia	2.15	.504

In this field of production costs, a vast amount of research and inquiry can be conducted; in fact, the amount of research that can be pursued in the field of farmer costs is unlimited.

If, however, as much effort had been given to an analysis

of producer's costs as has been given to the study of distributor's costs, a much more complete body of information would now be available.

One of the reasons milk control boards have extensive research information on distributor's cost figures, is that distributors as a whole keep fairly accurate information on their costs of operation. A further reason is that distribution units have tended to increase in size and, with this increase, they have become more subject to scrutiny from above; that is, the management has been responsible to stockholders committees, and has been obliged to furnish accurate information. All this data has been available to milk control boards.

In the case of producers, however, cost figures have been compiled by state agricultural colleges, and, as mentioned before, there is little uniformity of method in compiling these cost figures. Some idea of the procedure followed can be obtained from an analysis of the cost of production figures as arrived at by several different states. The following are summary reports of audits made, disclosing the various types of information obtained on these audits.

What seems to be the most thoroughgoing cost analysis, is that prepared by the New York State College of Agriculture. Herewith is a copy of a cost analysis made in that state.

This New York State College of Agriculture uses a cost of production formula for arriving at cost figures, using this summary only to supplement information already at hand. Wherever possible an actual audit is used, and the formula is only drawn into use where actual audit figures are not available.

The cost of producing milk may be estimated by a formula based on feed, labor, and other items required in the production of 100 lbs. of milk. The formula used in New York is called, "The Warren Formula." This formula can be varied for any particular state and should be proven by actual statistical research. As a rule, however, these data represent a fair cross section of production costs. The average feed and labor requirements in the production of 100 lbs. of milk, according to this summary, are: 33 lbs. of grain, 72 lbs. of hay, 94 lbs. of silage, 2.3 days of pasture, and 2.8 hours of man labor. These items together represent 91 per cent of the net cost of milk production. The following is an example of the use of this table in arriving at cost figures over a period of several years.

TABLE (XI)

ESTIMATED COST BY FORMULA OF PRODUCING MILK IN NEW YORK

1929--1937

Items of cost	Amounts to produce 100 pounds milk[1]	Years								
		1929	1930	1931	1932	1933	1934	1935	1936	1937
		Cost per 100 pounds milk								
Grain[2]	33 pounds	$ .77	$ .68	$ .51	$ .40	$ .47	$ .59	$ .59	$ .60	$ .67
Hay[3]	72 pounds	.40	.47	.42	.25	.27	.46	.43	.34	.38
Silage[4]	94 pounds	.35	.33	.26	.22	.20	.22	.20	.23	.23
Pasture[5]	2.3 days	.12	.12	.12	.12	.12	.12	.12	.12	.12
Man Labor[6]	2.8 hours	.70	.70	.70	.70	.70	.70	.70	.70	.70
Total for feed and labor (91 per cent of net cost)		$2.34	$2.30	$2.01	$1.69	$1.76	$2.09	$2.04	$1.99	$2.10
Yearly average cost (100 per cent)		$2.57	$2.53	$2.21	$1.86	$1.93	$2.30	$2.24	$2.19	$2.31
Average farm price of milk[7]		$2.86	2.48	1.87	1.30	1.43	1.65	1.73	1.85	1.87
Returns per hour of labor		.35	.23	.13	.05	.07	.02	.07	.13	.09

1 Based on a study of 437 dairy farms in New York, 1930-31. Farm Economics, November, 1936.
2 Grain: price of a dairy ration from Farm Economics plus $4 per ton.
3 Hay: average farm price as reported in Farm Economics.
4 Silage: cost per ton on New York Cost Account Farms.
5 Pasture: estimate, 5 cents per day.
6 Man labor: estimate, 25 cents per hour.
7 Simple average of Dairymen's League and Sheffield prices for 3.7 per cent milk.

New York State with its costs of milk production is mentioned first here because it constitutes the most important market milk producing area in the country.

From the summary report over a period of years, it is easy to determine the return per hour of labor expected on the farm.

An interesting cost survey to accompany this previous table, would be an analysis of the economic position of New York dairy farmers as compared with the index of costs on farm necessities such as; feed, labor, machinery, taxes, insurance and other items weighted with their relative importance. This method of analysis would be the thoroughgoing type of research which should be followed in an analysis of producer's costs. Such a table of costs of products purchased for the farm would of necessity reflect a relative position as compared with some previous point of time used as a starting point or normal period. As yet, there is considerable variation of opinion as to what constitutes that normal period against which cost statistics can be compared. It would be highly desirable if all states entering into public utility regulation of the milk industry could arrive at a uniform basis for comparison. Certain work has already been done by L. C. Cunningham of the New York State College of Agriculture. He has based his normal period on the averages of commodity cost from 1910-1914. This information is dubly important in view of the fact

that commodity prices tend to have not only short-time fluctuations, but also long-time trends. At present the trend of certain commodity prices used on the farm is upward, particularly, is this true of building materials and wages. These two items, it must be emphasized, are among the costs which are increased by the fact that farmers are being forced to meet stringent board of health requirements.

In New York State alone, due to increased building material and labor cost primarily, it now takes more pounds of milk to pay a month's wages of hired farm help than it did two, three, or four decades ago. Fluid milk producers feel themselves in a particularly difficult dilemma. In the first instance, their production costs are showing a gradual but continual increase, whereas, their returns have tended to level off. The other horn of the dilemma is that wholesale prices of butter tend to vary according to trends of commodity prices. Noticeably, the price of butter does lag behind commodity prices in a period of general rising prices, but the trend is nevertheless in the same direction. Fluid milk producers find their prices being controlled by or related to the prices of milk used in this butter market. Thus the fluid milk producer is in between the two horns of a dilemma; on the one side, the general tendency of his production costs to vary according to fluctuations in commodity prices of labor and building materials, and on the other

side his butter fat prices tend to be related to variations in commodity prices as a whole. This has been particularly emphasized during the past few years when butter fat prices have sunk to extremely low points. It cannot be said that the milk producer is in any different dilemma than producers of other farm products, but the seriousness of this dilemma is accentuated by the control measures forced upon him.

Emphasizing the extremely high cost of milk production in certain sections of the United States, is the comprehensive survey as made by the Massachusetts State College in cooperation with the United States State Department of Agriculture as shown by the report herewith.

This analysis emphasizes the significance of the high costs of milk production in thickly populated communities. A brief comparison of the Massachusetts system of accounting for milk production and that used in New York State will particularly indicate the divergence of method and the necessity for more uniform procedure in this field of cost accounting.

At the other extreme of costs can be noted the figures for the State of Oregon as brought out by the report included herewith.

One other set of production cost figures will suffice to demonstrate the divergence of approach as taken by the various states in their analyses. The State College of Washington in collaboration with the U. S. Department of

Agriculture has divided their research by counties similarly to the way the research in Oregon has been conducted in accord with marketing areas. These county divisions indicate the wide differences in cost which exist in various parts of the state.

Several formulas have been adopted from which costs of milk production can be computed. One formula may be applicable to a particular state or area and another formula to another area. A summary of these formulas for cost of milk production is given in Henry and Morrison, "Feeds and Feeding," page 413. The particular method which seemed adaptable to the State of Oregon is given herewith.

In fulfilling its duty to the public, any milk control board must consistently endeavor to so regulate prices and quotas that production in the market is constantly becoming more efficient to the end that consumers may ultimately benefit by this improved efficiency, both by way of reduced prices for milk and a more certain source of supply. This problem facing control boards is the same as that faced by the management of monopolies when they endeavor to so adjust production and prices as to cause supply and demand to meet at a point giving maximum returns.

The milk control board is in a position to demand of producers that they maintain adequate records, that these records be available to the milk board audit at any time, and, further, that they actually be audited from time to

time either by the board itself or by cooperative associations in which the producers are members.

Dairy herd improvement associations are so common an institution in large milk producing areas that they now constitute an exemplary bulwark of farm efficiency. Statistics from these dairy herd improvement associations are by their very nature impartial and unbiased. A board may readily conclude that it can rely on these statistics much more than on those compiled by cooperatives or other producer organizations. The desired end should be that producers supplying Class one milk to the market for fluid consumption, should maintain farm units of the most efficient size to insure lowest production costs and highest possible returns to the producers themselves. This can only be accomplished by means of adequate statistics.

When price policies are up for consideration, if producer organizations and cooperatives come into the hearings with cost statistics, the board must have a knowledge of the relative reliability of these statistics. It should even have these identical statistics without the necessity of producers submitting them. Without this information, no conscientious board can properly allow costs of production and reasonable profits on any basis, whether to the least efficient producer or the most efficient producer.

Statistics are not only being used to their maximum advantage in the marketing end of business in Pennsylvania,

but are also being utilized to stimulate greater efficiency in production. An example of this is the work done by 140 Pennsylvania dairy herd improvement associations in compiling costs of milk relative to the size of the production unit. These figures indicate clearly that, as total production on any one farm increases, the actual cost of milk per 100 lbs. decreases materially until reaching the most efficient point at 10,000 lbs.

In the State of Oregon some work has been done along this line toward determining at least what constitutes the most efficient producing unit. In 1931, statistics showed that 1,333 producers were supplying the Portland, Oregon Grade B milk market.

TABLE (XII) 1931--B GRADE HERD RECORD
PORTLAND, OREGON SALES AREA

No. of cows Per Herd	No. of Herds	Total No. of Cows	% Herds on Mkt.	% Cows
40 cows	66	3825	5.0%	19.0%
21-39	223	3538	16.7%	27.4%
11-20	571	7602	42.8%	37.6%
under 10	473	3230	35.5%	16.0%
	1333	18195	100.0%	100.0%

By March 24, 1939 this number had shrunk to 708. Figures are not available to show how the number of cows on the market compared in each period, but a separate compilation showing the distribution of herds according

to their relative production on a butter fat basis indicates that more than 85 per cent of the B Grade herds still maintain not more than 15 to 18 producing cows. This obviously is a very small herd and probably an economically inefficient unit.

The relationship between farm acreage and productivity of this acreage is an important consideration that should be studied by milk control boards. More important, however, than this, even, is the relationship between the size of herds and final butter fat production costs. Both of these studies should be conducted by milk boards, and the findings made available to producers and producer groups, also to distributors and to consumers. Few states and practically no milk control boards have made surveys of this nature. Where state agricultural colleges are working in cooperation with milk control boards there is no need for duplication of research facilities. But there is certainly a primary need for the setting up of machinery for the regular and consistent gathering of vital statistics on production efficiency.

The following chart as compiled by the New Jersey Agricultural College Experiment Station, indicates that the most efficient producing unit in that state is a herd of 25-35 cows.

TABLE (XIII) RELATION OF SIZE OF HERD AND COST OF PRODUCING MILK

Eight Areas -- 162 Farms
Average Cost per Cow for the Year

Size of Herd (No. of Cows)	Cows per Herd	Total Cost	Production Butter-fat (lbs.)	Production Milk (lbs.)	Butter-fat Test Per Cent	100# Milk	Total Qt. Milk	Cost Lb. B.F.	No. of Herds
Under 15	12	$205.99	309.8	8436	3.67	$2.44	$.052	$.66	26
15 - 24.9	19	192.90	313.6	8302	3.78	2.32	.050	.62	76
25 - 34.9	29	187.37	309.8	8117	3.82	2.31	.050	.60	39
35 and Over	44	199.08	306.4	8191	3.74	2.43	.052	.65	21

In all states this may not be the ideal herd size toward achieving the most economical production. Each state must determine the proper herd size for that state and for various sections of the state. When a large herd might operate efficiently in one section where an abundance of cheap pasturage was available, the same herd might operate at a loss if located on land with a high market value where pasturage was not as efficient or economical. A large herd may be operated in a dry farming area under conditions of alternate pasturage with irrigation and dry feeding, whereas the same size herd would be an uneconomical unit a few miles distant.

The mechanics necessary for the gaining of adequate and comprehensive statistics may or may not be complicated, according to the various necessities of the particular marketing area, the facilities at hand and finances available. Much of the information gathered by the U. S. Department of

Agriculture can be used as an analysis of producer's costs. General statistics applicable to one territory may be in a general way applicable to another territory, in which case they can be used interchangeably in arriving at consistent conclusions.

Where a diversified type of farming is followed and producers are engaged either alternately or simultaneously in several types of farming, such as dairy husbandry or poultry raising, it may be difficult to assess costs fairly; that is, between these different producing enterprises. A general rule followed under such circumstances is to determine all the reasonable costs for the smaller of the two production enterprises and deduct this sum from the total operating costs, then to allocate the remainder in accord with the cost schedule being followed. Many assumptions must be made in computing these cost figures because few farmers maintain accurately a division of all cost items. Where, for example, grain is fed to a herd in liberal quantities, the poultry being permitted to run over the feed after the cows have eaten all that is readily available, a certain percentage of this feed cost must logically be applied to the poultry side of the business. Another example of the interplay of cost items is the matter of water supply. Where poultry, sheep, pigs, and cattle are all raised, a certain amount of the water cost should be allocated to each branch of the business. Arbitrary assumptions must be made as to the

percentage of water used in each enterprise.

The most difficult cost figure to allocate is that of labor, particularly when crops are put in for the use of several types of farm income. Where part of a crop may be sold for cash and part used in the dairy, more often than not, the amount used in the dairy is a matter of supposition rather than actual strict accounting.

Every milk control board should adopt a policy of research into farm costs. The program to result should include statistical inquiry along several lines, such as: (1) general butter fat production costs, (2) comparative butter fat costs in various districts serving the market, (3) comparative production costs between producer distributors and producers, (4) comparative production costs between factory milk and fluid milk production areas, (5) trends of production relative to size of herd, (6) production trends as compared with national averages, (7) man hour labor values trend in production areas, (8) cost of production per cow, (9) trend of cow efficiency, (10) dairy herd improvement association statistics, (11) trend as to size of farms in production areas, (12) trend of feed prices, (13) trend of commodity prices, (14) trend of production response as a result of price changes, (15) relation of per cent butter fat in milk to cost of production, (17) relation of butter fat pro-

duction per cow to cost of producing milk, (18) comparison of milk cost between summer and winter months, (19) comparative study of most efficient and least efficient producers, and (20) comparative study of basic production quotas owned by producers and the degree to which these quotas are fulfilled.

Among the problems peculiarly belonging to the producers, is that of pooling their production. It has been recognized and approved by law that producers may band together as cooperative associations or as independent marketing agencies to sell their production collectively, returning to each producer a pro rata share of the total sum received for all milk sold in the bottle and can trade on the market. Such milk as was not used in the first grade market or fluid milk market but was forced into manufacturing channels to be used in ice cream, butter, cheese, etc., would be sold at such prices as the market would bring, the producers sharing their proportionate part of returns from this low priced pool.

This principle of milk pooling is not new or the result of milk control legislation, but rather was put into practice long before actual milk control.

By agreement milk producers had a center body compute production over a specified period, particularly including the low production period of the year, and further by agreement allocated to individual producers a basic quota or basic average which meant that that producer had the right to supply

that particular faction of the total milk for the fluid milk market. This constituted both an obligation by the producer to sell to the market and an obligation by the market to purchase from the producer. Thus was created what is now known as basic quotas or basic averages which constitute a vested interest in the milk market so long as the producer is able to supply that particular demand.

This pooling arrangement has been carried over to the present time and used by milk control boards in regulating and allocating the relative interest of producers on the market. It is important to remember that this pooling arrangement is not the product of milk control boards, but is rather the result of voluntary effort on the part of producer and producer organizations themselves. In certain marketing areas provision has been made for new producers to enter the market, provided they suffer or undergo certain requirements before they are admitted to the full benefits of the first grade milk prices. Other markets make no provision for the entering of new producers on the market, but rather in effect provide for the perpetuation of a vested interest or a producer in a certain proportion of the protected market. This raises the problem of monopoly control of production, and at the same time emphasizes the producer's obligation to fulfill the requirements of the market at any given time.

Considerable opposition to this principle of regulatory procedure has been raised by those interests producing low grade milk for butter, ice cream and condensery purposes.

Why these interests should object, is not clearly stated, but one thing is certain that there is an unlimited amount of jealousy as between producers of this class of milk.

This concept of basic averages when carried to its public utility interpretation amounts to a monopoly interest in a market with the protection that no further producers can be admitted to the market unless sufficient reason or cause can be shown for admitting these new distributors.

An important phase of public utility regulation which has been mentioned but slightly thus far, is that of transportation. In all forms of utility, transportation itself constitutes a major problem. In public water systems, transportation of this water from the mountains to the city is a major item of expense. With the electricity transmission lines, their transmission leakage or loss is a major expense. With telephone companies, the maintenance of transmission lines over great distances is a major expense, requiring rate structures assessed according to distances. With railroads, this transportation charge is the primary problem, and rate schedules constitute a difficult and elaborate system.

With milk, this transportation is no less an important factor then with other utilities. In most milk sheds a graduated scale of rates to be charged is adopted by the carriers for each unit of five, ten, or twenty miles from the city. This rate structure then determines on the question of whether the producer shall sell fluid milk or cream. The further away from the city the producer is established, the

greater the freight rate, and the greater the tendency to ship cream. The closer to the city, the greater the tendency to ship fluid milk. In certain cities, however, no graduated scale is adopted, but rather a flat fee is charged for the entire market. The producers close to the city ultimately share expenses of those producers at a greater distance from the city. Such a system, however, can only be effective in a relatively small area, for the reason that no systematic system of price adjustment is arranged except through co-operative organizations and between producer and hauler.

It is more common that the distance from farm to plant determines the freight rate to be charged. This is peculiarly the producer's problem and cannot in any way be shifted on to the distributor or consumer. The producer acted by his own volition and his own discrimination in locating where he chose to locate, whether this be close to the metropolitan area or far from it. Low land costs and low taxes must tend to compensate him for the greater hauling charge from the greater distance from the city. Producers located closer in, tend to be compensated for their high taxes and higher production costs by low freight rates and higher land values in case of resale. The marketing area from which any urban community will draw milk is an important consideration to the milk control board and a determining factor when considering milk prices. It is clearly within the realm of possibility that control boards might fix freight rates within a certain

radius from the city and make such graduations of rates as seems necessary, all with the public consent and cooperation of the public utility commissioner or commissioner of transportation.

Of major consideration to the producer is the question of whether distributors sell their milk on the basis of equality as between store prices and delivered prices, or whether a price differential is permitted. This matter is of natural importance to distributors, but is of greater interest to producers in the long run. Most milk control laws are designed to primarily protect the interests of producer rather than consumer. As a marketing area is permitted to operate with a price differential in favor of store sales as against home delivery sales, the natural tendency will be for a decrease in consumption. This is true because a single obstacle has been placed in the way of consumers in their effort to buy milk. This obstacle is the necessity of going to the store to make the purchase. Where delivery is made direct to the home, the milk consumption habit is thereby encouraged and consumption tends to increase. Most milk control boards have considered the question from the standpoint and have done away with price differentials. Certain chain stores and grocery store interests favor the retention of this price differential privilege, but from the producer's angle if the law is to be enforced to his benefit, these differentials should not be granted.

These chain store interests have tended to justify their price differential demands on the basis of low costs of distribution through grocery stores. This problem has been analyzed by the Director of Research, Merchandising Facts, Inc., Wroe Alderston of Washington, D. C. in cooperation with the Consumers' Council of the Agricultural Adjustment Administration. This survey was conducted in Louisville grocery stores, contrasting the costs of handling milk as between straight grocery stores, grocery stores handling meats, and meat markets with groceries incidentally. Milk is particularly adapted to become a lost leader item in stores to be sold without a profit, but with the purpose of drawing customers into the store to buy other grocery items incidentally and along with the milk purchase. The exceptional advantages of using milk as a lost leader cast a considerable shadow of doubt on the claims of chain stores organizations that they can sell milk at a lower price than the dairymen can at house-to-house delivery. Relative costs as between three types of stores handling milk are revealed in the following percentage calculation. Bear in mind that this is but a percentage figure of the consumers' dollar and not the amount per quart of milk.

	Percent
Straight grocery stores.....	1.6
Meat markets with groceries.....	1.2
Grocery stores with meats.....	0.9

Conclusions of this survey can be briefly stated as follows:

(1) The distribution functions performed in the handling of milk require a greater amount of employee time and capital investment in cash-and-carry distribution than in route distribution.

(2) The principle of economy from mass operation which is a major factor in industrial production is of minor importance in distribution.

(3) The present factor of economy in mass distribution is found in specialization and the reduction of operations to fixed routine. These factors are more evident in the route distribution of milk than in cash-and-carry distribution.

(4) The principal factor in the growth of chains has not been the outstanding efficiency of their operations--rather the great bargaining power they are able to exert to obtain lower prices than competitors from their suppliers.

(5) Fresh milk is ideally suited for creating price appeal in the cash-and-carry grocery store and there is convincing evidence that store margins on milk are dictated by this consideration rather than by definite knowledge on the part of the store operator that his operating cost on milk is lower than for other commodities handled.

TABLE XIV FORMULAS FOR COMPUTING THE COST OF PRODUCING MILK AND BUTTER-FAT IN OREGON

Region or type of production	Formula for cost in cents per pound butter-fat*			
Willamette Valley	1.31A	25.0B	.214C	6.9
Coast regions	1.13A	11.7B	.174C	12.0
Irrigated regions	1.37A	8.5B	.205C	5.7
All regions	1.26A	16.7B	.198C	8.3
Market milk, Willamette Valley	1.43A	25.5B	.224C	8.8
Churning cream, Willamette Valley	1.38A	20.8B	.247C	3.8
Cheese milk, Coast regions	1.11A	8.2B	.166C	12.6
Churning cream, Irrigated regions	1.26A	6.5B	.216C	5.2

*A--U. S. Dept. of Agric. farm price per ton of all loose hay for Ore.
B--U. S. Dept. of Agric. farm price per bushel of oats, for Oregon.
C--U. S. Dept. of Agric. monthly farm wages without board, for Ore.
Illustration of use of formulas: For the year ending April 1, 1933, the average U. S. Dept. of Agric. price per ton of all loose hay in Oregon (A) was $7.53; the average price of oats per bushel (B) was $0.31; and the average monthly farm wage without board (C) was $40.31. The cost for churning cream in the Irrigated Regions would be computed by the formula for that type of production as follows:

1.26	A--1.26	X	7.53--	9.5
6.5	B--6.5	X	.31--	2.0
.216	C-- .216	X	40.31--	8.7
				5.2
Estimated cost per lb. of butter-fat.....				25.4¢

TABLE (XV) AVERAGE COST OF PRODUCING MILK AND BUTTER-FAT IN OREGON BY PRINCIPAL TYPES OF DAIRYING
Year ending April 1, 1933

	Market milk (Willamette Valley)	Churning cream (Willamette Valley)	Cheese milk (Coast) regions)	Churning cream (Irrigated regions)
Number of farms	54	35	41	52
Cows per farm	15	12	33	18
Pounds of milk per cow annually	6,389	4,995	5,663	4,841
Butter-fat test (per cent)	4.2	4.7	4.6	4.6
Pounds butter-fat per cow annually	270	237	258	224
Annual cost per cow				
Hay	$23	$20	$17	$16
Succulents	11	9	6	1
Grain	17	14	5	2
Pasture	4	5	15	9
TOTAL FEED	$55	$48	$43	$28
Labor	29	27	19	22
Use of buildings	9	6	5	3
Use of equipment	3	2	2	2
Sire	2	2	2	2
Depreciation of cows	5	5	3	5
Interest on cows	3	3	3	3
Miscellaneous	7	4	4	3
TOTAL GROSS COST	$113	$97	$81	$68
Credit for calves	2	2	1	1
Credit for manure	7	5	3	3
Credit for skim milk	....	10	....	9
TOTAL NET COST PER COW	$104	$80	$77	$55
COST PER 100 POUNDS OF MILK	1.63	1.59	1.36	1.13
COST PER POUND OF BUTTER-FAT	.39	.33	.30	.24
Average price received per pound butter-fat	$0.27	$0.18	$0.23	$0.17

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TABLE XVI COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS
State College of Washington and U. S. Department of Agriculture Cooperating

COUNTY SUMMARY — Dairy Records

Extension, 1931

Four Counties----101 Farms

County and number of records					
Average Value of Butterfat per lb.	.51	.40	.36	.46	.43
Cows per Herd	21.1	15.5	19.5	27.	20.
Butterfat per cow	#343.8	334.25	335.4	367.	345.
Cost Roughage and Pasture	$ 47.73	$ 46.82	$ 35.06	$ 43.97	$ 43.
Cost of Grain	36.80	38.21	30.50	27.93	34.
Total Feed Cost	84.53	85.04	65.56	71.90	77.
Labor Cost	53.65	48.14	51.35	51.24	51.
Interest on Buildings	4.19	5.49	3.67	3.53	4.
Depreciation on Buildings	2.58	3.70	3.94	2.47	3.
Equipment Cost	1.82	1.57	1.56	1.46	2.
Sire Cost	5.17	5.20	4.53	3.90	5.
Interest on Cows	4.91	4.39	5.27	4.83	5.
Depreciation per Cow	9.51	7.21	6.82	5.77	7.
Miscellaneous Cost	11.72	10.64	10.27	11.59	11.
Total Cost	$178.13	$171.44	$155.00	$156.78	$166.
Calf Credit	2.50	3.00	2.50	2.50	3.
Manure Credit	6.00	6.00	6.00	6.00	6.
Total Credit	8.50	9.00	8.50	8.50	9.
Net Cost	$169.63	$162.44	$146.50	$148.28	$157.
Cost of Butterfat per pound	.49	.49	.44	.41	.46
Pounds of Roughage per Cow	#5953	#5714	#6570	#3696	#5500
Pounds of Grain and Concentrates	2013	2170	1967	1439	1933
Days of Pasture	167	181	155.1	163	167
Total Hours Labor	180.2	157	171.3	169	168
Value of Buildings	$ 94.09	$109.78	$114.39	$ 70.75	$ 98.
Value of Equipment	13.36	10.02	11.51	10.15	11.
Average Value per Cow	98.44	87.00	102.56	96.81	97.
Value of Butterfat per Cow	174.18	132.15	121.12	167.10	149.
Net Return Per Cow	4.55	-30.29	-25.38	18.80	-8.

TABLE XVII COST OF PRODUCING MILK IN MASSACHUSETTS

Averages for the State--303 Farms

	Silage	No. Silage
No. Farms	189	114
Cows per Farm	20.2	17.4
Prod. per Cow	6587 lbs.	5901 lbs.
Ave. Fat Test	3.86%	3.89%
Ave. Requirements per Cwt. Milk:		
Pounds Silage	102	
Pounds Green Feed	16.5	29
Pounds Hay	68	94.5
Pounds Grain	36	41.3
Hours Human Labor	2.55	2.85
Prices for Materials:	**May 1937--Apr. 1938**	**Apr. 1938**
Silage per Ton	$ 6.00	$ 5.35
Green Feed per Ton	5.00	4.50
Loose Hay per Ton	17.00	15.00
20% Dairy Ration per Ton	40.00	37.00
Farm Labor per Hour	.27	.26

Cost of Feed and Labor per Cwt. Milk at Prices Above:

	Silage	No Silage	Silage	No Silage
Silage	.306		.272	
Green Feed	.041	.072	.037	.065
Loose Hay	.577	.804	.510	.708
20% Ration	.720	.826	.666	.764
Labor	.688	.770	.663	.740
*All Feed and Labor	$2.332	$2.472	$2.148	$2.277
Other Costs per Cwt. Milk:				
Pasture	.178	.206	.178	.206
**Misc. Cash Expense	.116	.121	.116	.121
Interest on Investment	.189	.186	.189	.186
***Use of Buildings	.152	.162	.152	.162
Deprec. on Cows	.190	.174	.190	.174
Bull Service	.051	.062	.051	.062
Horse & Truck Work	.014	.013	.014	.013
Total Other Costs	.890	.924	.890	.924
Total Gross Cost per Cwt	3.222	3.396	3.038	3.201
Credits: Manure & Calves	.261	2261	.264	.264
Total Gross Cost per Cwt	2.961	3.135	2.774	2.937
" " " " " (Wtd)	$3.02		$2.825	
" " " " Quart	6.50		6.08	
Cost per lb. Butter Fat	.732		.7062	

*Except Pasture

**Includes bedding, veterinary, marketing dues, testing fees, salt, etc.

***Includes, taxes, insurance, depreciation and upkeep of buildings.

TABLE (XVIII) COSTS AND RETURNS IN PRODUCING MILK
ON 22 NEW YORK COST ACCOUNT FARMS
1937

	Per cow	Per 100 pounds of milk produced
Costs		
2505 lbs. grain at $35.18 ton	$ 44.06	$ .52
2.5 tons hay at $11.11 ton	27.77	.33
3.9 tons silage at $4.82 ton	18.79	.22
Pasture and fences	9.11	.11
Other feed and bedding	2.99	.03
Total feed and bedding	$102.72	$1.21
134 hours labor at 29 cents hr.	39.37	.47
Horse work and equipment use	7.67	.09
Depreciation on cows	8.95	.11
Interest	5.35	.06
Use of buildings	5.10	.06
Breeding costs	3.03	.04
Veterinarian, medicine, disinfectants	1.59	.02
Hired milk hauling	5.92	.07
Miscellaneous	6.64	.08
Total cost	$186.34	$2.21
Returns		
7767 lbs. milk sold at $2.00 cwt.	155.67	
679 lbs. milk used on farm at $1.36 cwt.	9.21	
Calves	7.32	.09
9.1 tons manure at 95 cents ton	8.66	.10
Other returns	0.07	
Total returns	$180.93	
Loss per cow	5.41	
Net cost per 100 pounds of milk		$2.02
Cost per lb. butter fat		.505

	1936	1937
Net cost per 100 pounds of milk	$ 1.95	$2.02
Returns per hour of labor	0.26	0.25

Source: Preliminary results of Cost Accounts on New York farms for 1937.
Compiled by P. S. Williamson, Cornell University.

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TABLE (XIX) COST OF PRODUCING MILK IN 140 PENNSYLVANIA DAIRY HERD IMPROVEMENT ASSOCIATIONS
1929 to 1937

(Averages Per Cow)

	3,000 to 3,999 lbs.	4,000 to 4,999 lbs.	5,000 to 5,999 lbs.	6,000 to 6,999 lbs.	7,000 to 7,999 lbs.	8,000 to 8,999	(9,000 to 9,999 lbs.	10,000 pounds and over	Average 1929-1937
Current Expense	$ 18.01	$ 18.24	$ 27.62	$ 28.46	$ 31.33	$ 29.57	$ 30.95	$ 31.17	$ 30.00
Grain	16.75	26.93	31.46	38.53	42.51	44.47	48.64	53.73	44.27
Roughage	18.44	22.71	24.31	26.67	28.86	31.69	34.54	38.81	31.33
Pasture	9.72	8.26	9.57	9.48	9.20	9.00	8.36	7.88	8.85
Labor	27.50	33.35	40.61	40.81	41.18	40.67	40.03	40.52	40.57
Milk Hauling	9.89	7.97	5.66	4.56	4.69	4.65	5.20	4.85	4.87
Interest and Depreciation	13.52	15.89	18.84	19.69	20.41	20.78	21.69	22.65	20.80
Decrease in Inventory	8.48	5.86	7.10	5.34	5.45	5.19	4.85	5.87	5.49
Total Cost	$122.31	$139.21	$165.17	$173.54	$183.63	$186.02	$194.26	$205.48	$186.18
Returns Other Than Milk	16.20	18.35	21.11	22.00	24.43	22.93	22.52	24.41	23.13
Net Cost	$106.11	$120.86	$144.06	$151.54	$159.20	$163.09	$171.74	$181.07	$163.05
Net Cost Plus 10%	$116.72	$132.94	$158.47	$166.70	$175.12	$179.40	$188.91	$199.18	$179.35
Cost Per Cwt. Milk	3.12	2.86	2.81	2.55	2.34	2.12	1.90	1.77	2.15
Cost Per Quart Milk	.067	.062	.060	.055	.050	.046	.043	.038	.046
Cost Per Pound Butterfat	.64	.54	.54	.49	.45	.44	.45	.40	.45
Capital Invested	$203.71	$246.74	$299.67	$315.87	$325.96	$334.23	$357.69	$378.76	$337.65
Pounds of Milk	3,742	4,654	5,636	6,550	7,474	8,439	9,481	11,230	8,337
Pounds of Butterfat	158.98	214.8	254.6	292.2	324.4	335.1	340.5	387.4	328.8
Butterfat Test	4.25%	4.61%	4.51%	4.46%	4.34%	3.97%	3.59%	3.45%	3.94%
Number of Herds	3	31	168	447	550	416	366	439	2,420
Number of Cows	40.67	458.44	2,338.27	6,714.98	8,149.60	6,309.61	5,669.50	6,946.49	36,627.56
Grain (Pounds)	1,153	1,551	1,849	2,273	2,518	2,680	3,020	3,078	2,708
Silage "	4,006	4,302	4,250	4,587	4,980	5,663	5,760	6,530	5,384
Hay "	2,297	2,081	2,172	2,315	2,507	2,575	2,851	3,242	2,649
Stover "	-	255	329	367	369	408	470	437	402
Green Feed "	-	2	9	30	57	67	99	101	65
Man Labor (Hours)	97.66	137.49	165.95	162.50	165.36	162.57	145.01	164.05	163.13
Horse Labor "	-	2.26	3.08	1.98	1.80	1.76	1.50	1.96	1.90
Hours of Man Labor Per Cwt. Milk	2.61	2.95	2.94	2.48	2.21	1.93	1.70	1.46	1.96

TABLE (XX) DISTRIBUTION OF SALES
OF
SEVEN PORTLAND PLANTS SHOWING NUMBER OF UNITS IN 100 LBS. BUTTERFAT

Butterfat	Units	Lbs. B.F.	No. of Units	No. of Quarts	Price per Unit	Total
	WHOLESALE:		MILK			
4	Gal.	4.97	14.40	57.60	.36	5.18
	Quart	26.11	303.60	303.60	.09	27.32
	Pint	.14	3.25	1.63	.06	.19
	½-Pint	2.63	122.00	30.50	.03	3.66
3½	Qt. Choc.	3.16	42.00	42.00	.09	3.78
5	Quart	14.41	134.00	134.00	.11	14.63
						54.76
			CREAM			
22	Gal.	5.47	2.95	11.80	1.60	4.72
	Quart	7.96	17.20	17.20	.40	6.88
	Pint	.75	3.24	1.62	.22	.71
	½-Pint	5.17	44.72	11.18	.13	5.81
32	Gal.	2.14	.88	3.52	2.20	1.93
	Quart	1.74	2.58	2.58	.55	1.42
	Pint	1.33	3.96	2.00	.30	1.18
	½-Pint	4.38	26.05	6.50	.16	4.17
						26.82
	Total Whsle.	80.36	720.83	625.73		81.58
	RETAIL:		MILK			
4	Quart	10.47	121.75	121.75	.11	13.39
	Pint	.23	5.35	2.67	.08	.42
3½	Qt. Choc.	.11	1.46	1.46	.11	.16
5	Qt.	6.90	64.18	64.18	.13	8.34
						22.31
			CREAM			
22	Qt.	.22	.47	.47	.45	.21
	Pint	.19	.82	.41	.25	.21
	½-Pint	.87	7.50	1.88	.15	1.13
32	Qt.	.03	.04	.04	.60	.03
	Pint	.06	.17	.08	.33	.06
	½-Pint	.56	3.33	.83	.18	.60
						2.24
	Total Retail	19.64	205.07	193.77		24.55
	Grand Total	100.00	925.90	819.50		106.13

BUTTERFAT PURCHASED
100 Lbs. Butterfat
3.04 Lbs. more purchased than accounted for in sales
103.04 @ 58¢ per lb.-- $59.76

59.76 Prod.
46.37 Dist.
106.13

Prod. 56.3
Dist. 43.7
100.0%

TABLE (XXI) March 24, 1932

NO. OF PRODUCERS AND PRODUCER-DISTRIBUTORS ON PORTLAND MARKET SHOWING AMOUNT OF DAILY QUOTA BY GROUPS, IN A FOUND ORGANIZATION.

Amount Daily Quota	"B" Grade	%	Producer-Distributor	%	Total	%
Lbs.						
1 - 5	84	11.06	12	12.76	96	11.08
5 - 10	253	33.33	7	7.44	260	30.07
10 - 15	174	24.58	18	18.79	192	22.20
15 - 20	76	10.73	15	15.94	91	13.45
20 - 25	49	6.92	6	6.90	55	6.36
25 - 30	32	4.52	2	2.30	34	3.97
30 - 35	14	1.98	6	6.90	20	2.32
35 - 40	18	2.54	5	5.75	23	2.69
40 - 45	9	1.27	6	6.90	15	1.80
45 - 50	3	.42	2	2.30	5	.65
50 - 55	2	.28	2	2.30	4	.60
55 - 60	1	.14	2	2.30	3	.53
60 - 70	1	.14	3	3.45	4	.99
70 - 80	4	.56	0	.00	4	.53
80 - 90	2	.28	1	1.15	3	.38
90 - 100	2	.28	2	2.30	4	.50
100 - 120	1	.14	1	1.15	2	.230
120 - 150	0		0	.00	0	.00
150 - 200	0		1	1.15	1	.125
200 - 250	0		1	1.15	1	.125
250 -Over	0		1	1.15	1	.125
	708		87		795	

George L. Olson

CHAPTER VIII

DISTRIBUTION COSTS AS THEY AFFECT PRICES

Those characteristics of the fluid milk industry which make it a public utility are many of them, closely allied with the distribution end of the business. These characteristics have been previously listed in that chapter dealing with an analysis of the peculiar characteristics of the industry which tend to make it a public utility. The processing and transporting of packaged milk in quart and half pint bottles to the ultimate consumer, is a decreasing cost enterprise. Inelasticity of demand for milk greatly affects distribution costs, making these costs more or less fixed under conditions of a stable market. As between one distributor and another, market milk is the same. The selling job in milk distribution is primarily one of transportation and service. Sanitary requirements of all distributors are the same. Waste of competition exists in milk distribution in a notorious fashion. Distributors are obliged to serve consumer demands whether there is a profit or not, thus distributors are obliged to carry their service facilities to districts where it is unprofitable to render service. This is partially due to the fact that milk constitutes a necessity. Distribution tends ultimately to become monopolistic. Plants must maintain facilities for handling a surplus of supply during

periods of peak production. Although not always inter-state in nature, this is often the case. Quite often, therefore, federal control is necessary in order to bridge this gap between states. Each of the above characteristics applying to the distribution end of fluid milk marketing constitutes a vexing problem and a justification for the consideration of fluid milk marketing as a public utility.

In general it cannot be claimed that these problems facing milk distribution are much different than problems facing the distribution of most other agricultural problems. However, that one characteristic of rapid deterioration and spoilage of milk, which requires it to be transported as quickly as possible to the point of consumption, is sufficient distinction to bring out the point of necessity for control over milk production and distribution. Perishability and the resultant necessity for rapid and complex transportation facilities, constitute the big problem which distinguishes milk from all other agricultural products.

Any discussion of public utility regulation of the milk business must consider such alternatives as do exist or may exist. In this respect there are two extremes of thought. One calls for complete freedom of action among distributors, that they be allowed to operate in open competition aided only by such common marketing information as may be available to all. This is essentially the condition which existed in the past prior to the transition period between 1930-1933.

It is often asserted that two conditions existed; one in certain markets where complete freedom of competition held sway, the other a condition of open bargaining between producer groups and distributor groups. In effect this constituted only one form of operation that of relatively free competition.

At the opposite extreme is complete public ownership of distribution facilities. This will be discussed more fully later.

Between these two extremes of possible distribution organization lies public utility control of existing distribution facilities, this control exercised by a board constituted in accord with the dictates or desires of the legislature. Under this form of distribution, existing plants would be retained and a control exercised over them in such a way as to produce such a degree of efficiency as is desired by the control body.

It is this latter form of control of which we speak when we now mention control as a public utility.

Under a highly developed economic society, the dairy industry, for technological reasons particularly, can operate most efficiently only under a monopoly form of distribution. This has been stated before, but should be reiterated in the light of a consideration of distribution. Milk distribution in a large city constitutes a more or less highly standardized system of processing a raw product and transporting it to

retail destinations. The raw product itself as between different distributors is relatively uniform. Duplication of transportation facilities is frowned on in all public utility reasoning. These characteristics of uniformity of production and duplication of delivery facilities constitute the basic justifications for milk becoming a monopoly or a highly regulated competitive industry. If this regulation increases, the trend toward monopoly also is emphasized.

When speaking of monopoly, the correct interpretation must be applied. Too often the conception of monopoly also draws the connotation of exploitation for private gain. The general presumption is made when speaking of public ownership that the public gain or public welfare is foremost. As between these two conceptions of control, monopoly might offer, and more often does offer, the greatest public gain. The reason for this too often is, incompetence and graft on the part of public officials in the case of public ownership. This is a sorry commentary on public officials in the United States. It can well be hoped that as the science of public administration advances, a finer group of public officials will hold public office. In the meantime, the fluid milk industry must remain controlled as a public utility, as free from politics as is humanly possible.

Most serious of all problems facing milk control boards is that of price fixing within any given market. Under the Agricultural Adjustment Act, which constituted our first bold

attempt at public utility control of the milk industry, a clumsy procedure was adopted for the establishment of milk prices. No criticism, however, can be made of this procedure because it was a pioneer gesture in an unexplored field of economic control work done under the A.A.A. While it does not remain to attest of its effectiveness, nevertheless, at the time, it constituted the only coherent body of principles on which the industry could rely in a farsighted approach to so important an industry. Without the benefit of detailed surveys and audits of distribution costs under A.A.A. marketing agreements, arbitrary sets of prices for various units sold were adopted. This was the only possible procedure in an untried field. In Chicago where the first A.A.A. agreement was put into force, prices had no sooner been fixed then a wave of objections was raised to the price structure and demand made for alteration. Few knew anything about fixing prices which would be either equitable or secure for the industry as a whole. Bargaining between producers groups and distributors groups on the old basis of free competition was the first method adopted for fixing resale prices. Thus distributor groups arbitrarily agreed upon such prices as they needed to receive in order to give them a reasonable profit, if they were required to purchase at various prices. This was not a scientific price schedule, not even a just schedule.

For any control board to arrive at the proper schedule of prices, many steps are necessary. Several surveys must

be made of distribution facilities and distribution costs as they have existed in the past. These surveys must be compiled, and actual distribution costs arrived at. From these costs it can be determined whether distributors are making a profit or loss. If the particular control law makes mandatory the granting of a reasonable profit to the industry, it is, therefore, encumbant upon the board to add to the unit return allowed the farmer or producer, the actual unit cost of distribution plus that percentage which will give the allowable rate of profit for distribution.

The practice to be followed in this direction can be either complex or simple, according to the desires of the particular milk control board or the financial ability of the board to delve into necessary statistics in order to arrive at more complete and scientific conclusions. First, a board must determine the particular line of reasoning to be followed in arriving at the price. Shall they grant distributors a price in accord with the costs of the most efficient distributor, the least efficient distributor or the average distributor? If the market is short of distribution facilities, it may be best to grant such a price as will give a margin sufficient for the least efficient operator to make a profit, thus encourage additional capital into the industry to provide additional facilities. If the industry, on the other hand, is overstocked with distribution facilities and it seems desirable to discourage further capital from entering

the business, it may be best to set a price which will give only the most efficient operator a reasonable return. It is easy to adopt a middle course and establish a price which will give the average operator a reasonable return on his investment.

None of these approaches to the problem is entirely scientific. Each may be practical under a certain set of circumstance, but may not be adaptable to the particular market for which prices are being set. In fact, to arbitrarily adopt any one of the above policies without knowing any of the facts, may result in serious injury to the entire industry.

A comprehensive and logical procedure has been adopted in the State of California for arriving at the price structure which should be adopted. The first step was to determine the capacity of individual plants, then determine the actual operation of the plant and the unit cost involved. The steps followed in this determination were outlined by Mr. E. P. deGarmo of the Mechanical Engineering Department of the University of California. These steps were as follows:

1. Each distributor's costs were determined on a unit basis by product and container under four headings: (a) processing, (b) selling and delivery, (c) advertising, and (d) administrative

and general office--separate for wholesale and retail.

2. An array of costs per quart of milk sold was then made, running from the distributor with lowest costs to the distributor with highest costs.

3. Next an estimate was made of the peak daily consumption requirements for the marketing area. This was obtained by dividing the annual volume of milk distributed in the area by 365 and adding 20 per cent to care for seasonal and daily peaks.

4. A tabulation was then made of the estimated capacities of each distributor arrayed in order of costs per quart.

5. The last distributor whose volume is necessary to meet market requirements is regarded as the key or supply-line plant. It is this distributor whose costs are considered by the director in determining resale prices in the market.

6. A detailed analysis is then made of the costs of the supply-line plant to enable the Director to determine whether all the costs of the key or supply-line plant are "necessary" costs. For example, this plant may have excessively high administrative or advertising expenses, part of which the Director may disallow. In this connection, data are supplied also on the percentage of cap-

acity utilized by each distributor and the average mileage of and loads handled by wholesale and retail trucks. Considerable differences in plant and delivery costs have been found to exist in individual markets and between markets.

7. An estimate is then made of the investment of the supply-line plant and the proportion of such investment applicable to fluid milk. Interest at the rate of 6 per cent on such investment is estimated and applied to each unit.

8. To the handling cost plus return on investment per quart is added the cost of the raw material, and the result is the minimum price per quart that the Director approves for the area. Similar calculations are made for all other size containers.

After working out this information and constructing a table similar to the hypothetical table shown herewith, it was possible to arrive at what constituted the most efficient plant which could supply the entire market; that is, the plant showing the greatest degree of efficiency of operation, which after adding up the capacities of all other plants with a more efficient cost of operation, constituted the marginal plant which could supply the entire needs of the community after allowing sufficient percentage of tolerance to take

care of peak loads. It can be seen that by this reasoning all the advantages of public ownership were achieved except one, that of decreasing delivery facilities available. The above type of reasoning demonstrates a clear and acceptable approach to regulation on a public utility basis. All existing plants are permitted to stay on the market. Those plants operating inefficiently must either improve their efficiency or go out of business. Old and obsolete equipment tends to be automatically eliminated as more efficient facilities demonstrate their adaptability to more fully serve the market. The logic and reasoning of the milk control board is not based on the most efficient distributor, but rather on the efficiency of that distributor whose business by a mathematical chart appears to be on the border line where sufficient facilities appear to be present to supply the entire market with all its needs.

This method of arriving at a policy from which to set a uniform price schedule has not as yet been adopted by milk control boards as the general rule of procedure. There is little doubt, however, but what this must be done if milk boards are to demonstrate their continued usefulness.

In California this information from which the table showing relative efficiency was constructed was obtained by means of mimeographed audit forms sent to various distributors. This audit form contained blank spaces for supplying the following information:

1. The estimated capacity of his plant on an 8- and on a 16-hour basis; the capacity of each type of equipment; the volume of milk and cream handled; and the daily number of hours worked.

2. Investment (original cost less depreciation) in land, buildings, and equipment, including automotive equipment.

3. Other assets, including inventories, cash on hand and in bank, investments in other corporations and in good will, patents and so forth.

4. Liabilities including stocks, bonds, reserves, and current liabilities.

5. Sales of milk, cream, and other products by type and size of container for April, May and June, 1937. Sales were separated for milk and cream.

6. The number of packages carried, distance traveled, and nature of areas served for each wholesale and retail route.

7. Processing costs with a separation from total costs, of costs incurred in handling milk and cream only.

8. Wholesale selling and delivery costs and retail selling and delivery costs.

9. Advertising costs.

10. Administration and general office costs.

There are other methods of arriving at what constitutes an efficiently operating distribution system, but any other type of reasoning is inexact as compared with the procedure as adopted in California.

The only exact way of arriving at actual distributor's costs is to make an audit, reduce all expenses to units, quart unit preferably, and determine the actual operating cost per quart unit. The cost analysis herewith is an example of such an audit and demonstrates the procedure followed.

One step further is now necessary in order to arrive at the exact prices consumers should pay. An audit of the market should reveal the distribution of items sold in accord with whether or not they are wholesale or retail, and under each heading the classification of 4 per cent and 5 per cent milk into gallons, quarts, pints, half pints, etc. The market is apt to have between 25 and 30 units to consider. This distribution may or may not include buttermilk, skim milk, and chocolate milk, which are essentially skim milk products. Having determined the number of each unit sold on the market, it can be determined just what percentage of the total butter fat sold each unit represents. Having determined this percentage, it is then but a step further to calculate the actual monitory cost to the distributor of each unit, and, further, figure what percentage of the butter fat dollar as paid to the producer, each unit represents. Having

reduced the entire market molume to a unit basis, then reduced this so that the relation of the entire market can be interpreted in terms of 100 lbs. of milk, it is but a simple procedure to figure the cost the distributor must pay for each unit. This can readily be computed on a butter fat basis.

With an audit similar to the one pictured above, the total margin the distributor must receive in order to show a profit, can be determined. This audit appearing on a unit basis can be reduced with relative success to the basis of 100 lbs. of butter fat. Now, it is necessary to arbitrarily set after each unit a reasonable markup which, when the markup for all units are totaled, constitutes a price which will give a satisfactory return to the distributor. This might be considered a fair markup and the prices so resulting to be fair prices in accord with the milk board's policy. An example of this approach is represented by the following schedule.

TABLE (XXII) DETERMINATION OF DISTRIBUTION COSTS PER QUART (CENTS)

Distributor's number	Peak daily capacity (gal.)	Volume handled (gal.)	% of capacity utilized	cost per qt.	Int. on investment	Cost of product*	Total cost	Cost per quart	Int. on investment	Cost of product*	Total cost
1	5,000	4,000	80	2.5643		5.64	9.00	5.1027		5.64	12.0
2	5,000	3,000	60	2.6217		5.64	9.00	No retail		5.64	12.0
3	10,000	6,000	60	2.7334		5.64	9.00	5.3342		5.64	12.0
4	3,000	2,000	66	2.8013		5.64	9.00	5.6677		5.64	12.0
5	15,000	8,000	53	2.8643		5.64	9.00	5.8434		5.64	12.0
**6	8,000	4,000	50	3.2091	.1509	5.64	9.00	6.1413	.2187	5.64	12.0
7	12,000	6,000	50	3.2242		5.64	9.00	6.4492		5.64	12.0
8	5,000	2,000	40	3.3921		5.64	9.00	6.4137		5.64	12.0
9	3,000	1,000	33	3.3996		5.64	9.00	No retail		5.64	12.0
10	7,000	3,000	43	3.5267		5.64	9.00	6.6671		5.64	12.0
11	10,000	3,000	30	3.5786		5.64	9.00	6.8562		5.64	12.0
12	3,000	1,000	33	3.8427		5.64	9.00	6.9431		5.64	12.0
	86,000	43,000	50								

* Based on 3.6 per cent milk fat at 73 cents per pound of milk fat.
** Key or supply-line plant.
Note: Peak Daily Market Requirements: Wholesale 26,000 gallons
Retail 19,000 gallons

Total 45,000 gallons

Criticism should be directed toward this procedure, for while it constitutes a fairly scientific approach to a vexing problem of distribution, it, nevertheless, does not constitute the most equitable approach, either from the standpoint of distributors as a whole or from the point of view of the consumers.

It can readily be understood that one distributor may have a predominance of a wholesale business, whereas another distributor may operate more exclusively in the retail trade. Each distributor in his own field may operate quite efficiently. If the above procedure is adopted in arriving at resale prices, for example, the margin allowed for the sale of a quart of cream may produce an extremely large profit for the distributor operating retail may do so at a loss. This example is of slight importance, but when the example is carried to the field of bottled milk and it is considered that a distributor operating wholesale, handling bulk milk almost entirely, can operate at a profit, where in the case of a similar item the retailer would be forced into a position of loss. This method cannot be justified.

It may be argued that, taking the market as a whole, various costs equalize themselves as between various products. This is true, but it is not to the benefit of either the consumer or the distributor. No gain can be shown by such a procedure. The only result is that one group as

compared with the other, is successfully eliminated from competition in the other field. Consumption may be reduced because of inequities in the price structure. Price chiseling and milk wars will be the inevitable result, and a breakdown of the whole milk control system is likely.

What seems a more just procedure would be that of arriving at the plant which represents the optimum efficiency, then constructing a chart showing the distribution of units on the market, and next so distribute the margins of markup on each item. This procedure would accomplish the same result as the former arbitrary markup, and yet do away with the serious drawbacks of such procedure.

CHAPTER IX

MUNICIPAL OWNERSHIP AS A POSSIBLE MILK UTILITY CONTROL

Any consideration of fluid milk marketing as a public utility must bear in mind public ownership, and not only consider the possibilities of public ownership but also the actuality of public ownership where it now occurs.

At present in the United States there are two types of consideration relative to public ownership. One is the theoretical or anticipatory approach, as exemplified by the City of Milwaukee, Wisconsin. The other is the actual or present operating publically owned milk plant, as exemplified by the City of Tarboro, North Carolina. This plant is the only municipally owned milk plant in the United States.

Starting in the spring of 1934, public interest in Milwaukee, Wisconsin centered about the possibility of municipal operation of their fluid milk industry. This interest was whetted by a general public knowledge of a gross condition of duplication of delivery facilities. Within 1,020 individual city blocks within the city, it was found that an average of 6.8 companies delivered, with two or more companies serving every block with the exception of two. In an extreme case, as many as 17 companies were found to be competing for business on the same city block. Milwaukee is divided into ward sections. It was found that not less than 9 distribu-

tors operated milk routes in each of the 25 city wards.

A survey was launched with the help of the Civil Works Administration for the purpose of studying the feasibility of a centralized milk distribution plant in the city. With termination of the Civil Works Administration, the survey was continued by the Federal Emergency Relief Administration in cooperation with the Dairy Section of the Agricultural Adjustment Administration. This survey was completed in May of 1937, and report of their findings issued by the Department of Agriculture.

It was found in Milwaukee that 25 distributors were then serving the milk requirements of the city, that they represented a total of gross investment, before deducting depreciation, of approximately $10,000,000. This included investment in actual milk handling plants and surplus processing plants. Surplus milk was handled primarily through distributors facilities, there being no centralized organization for processing surplus milk. Milwaukee has a total of only 1,097 miles of street. An analysis of one day's milk delivery showed that vehicles from the 25 distributors' plants serving the city, traveled 13,876 miles. This demonstrated a vast duplication of facilities which seemed to justify corrective measures of some kind. Milwaukee was not unlike most other large cities, in that considerable excess of milk was handled each day in order to insure sufficient supply for peak demand periods and low

production periods. Also the city milk supply was subject to regular health inspection control similar to that of most large cities.

It was found that during the period 1928-1934 production in the Milwaukee milk shed had increased approximately 25 per cent, while consumption, at the same time, had decreased approximately 8 per cent. This left a condition in which producers were receiving much lower prices for the milk than prior to the depression. It must be noted, however, that this condition was not unique for Milwaukee alone. On the contrary, such a condition existed in most large marketing areas.

Milwaukee had a form of milk pool in which all producers supplying the market shared a common responsibility by way of equalizing net returns on the basis of actual revenue from fluid milk, plus revenue from surplus milk sales.

This survey went into the question of actual processing and distribution costs. They found these costs to vary in the year 1929 from 3.05 cents per quart of milk handled in the most efficient plant, to 4.23 cents per quart of milk handled in the least efficient plant. Between 1929 and 1934, the depression having set in and operating costs having mounted, together with the situation of a decreased consumption within the city, showed a change in unit operating costs, wherein the most efficient operator's

costs were 2.35 cents per quart as compared with the least efficient operator's costs of 8.65 cents per quart. It must be emphasized here that the most efficient operator handled wholesale milk exclusively, and was, undoubtedly, a chain organization serving only its own stores. These cost figures are mentioned in the light of a comparison with the cost figures presented earlier. They show considerable differences, but the general trend of higher costs during the depression is significant. This has been true in practically every large city, due to the organization of labor into stronger bargaining units and a gradual increase of commodity prices that distributors must stand.

The general conclusion, as a result of this survey, was a recommendation that the city establish a municipally owned and operated milk plant. The basis of this recommendation was a contention that approximately 2 cents could be saved consumers per quart of milk, and that approximately 14 cents more per 100 lbs. of milk could be paid to the producer. Architects made rough proposals as to the organization of plant facilities with an estimate of probable cost of $5,000,000 to provide adequate facilities for handling the entire city milk requirements. They further recommended the establishment of five country receiving stations wherein all milk would be received before being shipped to the city. At these receiving plants, surplus milk would be processed

into skim milk powder, butter or cheese, as market conditions might make desirable from time to time. It was contemplated that this investment could be amortized during a period of 19 years.

No provision was made for paying the cost of existing plant facilities. This, constituting the most important aspect of the entire problem, was ignored completely.

The savings of 2 cents per quart, which was contemplated, would be derived mostly from the elimination of duplicate distribution facilities. It was proposed to cut existing milk routes from 742 delivery trucks to approximately 400. This move would eliminate more than 300 delivery employees and the investment in delivery facilities. The unified processing plant was to eliminate an additional number of employees, which could not be clearly determined in advance. The survey revealed, however, this frank conclusion; that larger units more often operated at a decrease of individual man efficiency, that is, on a higher labor cost per quart of milk distributed than a minimum sized plant. It was, therefore, the conclusion that probably very little labor savings could be effectuated by the centralization of all processing facilities.

Nothing has been done relative to this recommendation as a result of the survey, probably for several reasons. Primary among these reasons is the fact that the project as contemplated was only the dream of the researchers.

It would be an adventure into an untried field of municipal ownership. More probably than not, certain aspects, particularly that of the delivery function, would entail greatly higher costs than preliminary estimates would indicate. A further reason for questioning the feasibility of this proposed plan, was the recommendation of country receiving plants wherein processing of surplus milk would be conducted. Two schools of thought exist on this question of handling surplus milk. One contends that country receiving plants can operate most efficiently, the other holds that a centralized processing plant for handling surplus milk can be most effective and most flexible in meeting changing market conditions. That with a centralized plant, complete facilities for processing butter, cheese and skim milk powder can be maintained at a low gross investment and on a more flexible basis, so that as market conditions shall give a relative advantage to any one product, the plant can at that time be automatically switched to processing of that product, thereby gaining advantage of fluctuations in the market. This latter type of thought seems to hold much merit, particularly in view of the very efficient transportation facilities now available to all producing sections. There may have been a time when bad weather and poor roads, coupled with the lack of refrigeration facilities, made necessary short hauling of milk. A further reason for skepticism and failure of the city to take action in adopting the proposed centralized

plant, was the absence of any concrete proposal for financing the project. One further factor which received little outward consideration but was undoubtedly a potent subjective factor in determining public reaction, was the necessity of competent managerial ability in conducting such a vast enterprise as proposed.

The only municipally owned milk plant in the United States is that of Tarboro, North Carolina. Some description of this municipality must be made in order to understand the circumstances under which this plant grew. Tarboro is a town of some 6,000 people, predominatly negro. It is served by four producers with very large herds. In 1918 the necessity for the introduction of pasteurized milk became apparent. These four producers were persuaded to furnish pasteurized milk to the market, but not one would agree to undertake the venture. It was considered essential that the city have pasteurized milk at that time; therefore, the city council voted to set up their own pasteurizing plant and buy the raw milk supply from these producers. For the past 20 years this plant has operated under municipal ownership. It has had its profitable and unprofitable years. At first, going was quite difficult and there was a long stretch of unprofitable operation.

This plant now has an investment of approximately $16,000, not counting the land on which the plant is located. Milk prices are the same in Tarboro as in neighboring towns.

During the past eight years profits have amounted to an average of $720 per year for the entire operation. This is after taking out all expenses, but not including any allowance for interest on certain capital donated to the enterprise, no allowance for taxes, and no allowance for accrued depreciation.

An analysis of this report reveals clearly that the plant is operating under conditions of a loss. It is not profitable to permit the continuance of business without making due allowance for depreciation. On the basis of the investment of $16,000 depreciating all facilities in a manner most liberal to the plant, considering all equipment to be completely outmoded in fifteen years, this depreciation would be reasonable. This would call for a depreciation of $1,060 per year. At this rate the plant showed a loss of some $340 each year. Besides this actual bookkeeping loss, the enterprise paid no taxes. Any privately owned business would be required to pay taxes on the property and on the personal property, plus a property tax. No allowance was made for rent on the property actually occupied by the plant. This would result in further actual operating loss. Undoubtedly certain other factors existed which did not come forward. These would unquestionably show a further operating loss.

The citizens of Tarboro are entirely satisfied with the conduct of their municipally owned milk plant. It is

reasonable that they should be satisfied, due to the peculiar nature of the community and of public demands. Milk prices being the same as in neighboring communities, the public is entirely satisfied. This is brought out by the fact that there is little or no bootlegging of milk into the city. Unit handling costs appear to be quite reasonable, being kept down for the period of 1936 to 3.27 cents per quart. This is undoubtedly due in some degree to the use of negro labor at much lower wages than comparable plants could use in other cities. It is also evident from a glance at the processing cost for this plant that they have eliminated all selling cost, which generally amount to from 1/3 to 1/2 of a cent per quart. Delivery costs have been cut in half due to the monopoly. The full benefits of control in this case seem to have reflected to the producer, it appearing the producer receives an average of .0625 cents per quart for all milk sold. Milk used in the bottle trade was paid for at the rate of .075 cents per quart, and surplus milk used as cream, chocolate milk etc., was paid for at .038 cents per quart, the average being .0625 per quart.

TABLE (XXII I Cost of milk plant operations expressed as percent of net receipts and total operating cost, and per quart of milk purchased from producers, year ended June 30, 1936.

Departmental cost	Cost expressed as percent of		Cost per quart of milk purchased
	Net receipts	Total operating cost	
Processing:	Percent	Percent	Cents
Salaries and wages	6.04	20.35	0.66
Supplies, including bottles, caps, etc.	2.93	9.89	.32
Repairs and replacements	2.23	7.47	.24
Power and light	.62	2.07	.08
Water	1.44	4.86	.16
Fuel	.40	1.34	.04
Total processing	13.66	45.98	1.50
Delivery:			
Salaries, wages, and commissions	6.97	23.45	.77
Gas, oil, and horse feed	1.35	4.56	.15
Repairs	1.11	3.73	.12
Supplies	.33	1.13	.04
Total delivery	9.76	32.87	1.08
Total processing and delivery	23.42	78.85	2.58
General and administrative:			
Salaries	3.93	13.25	.43
Telephone	.19	.63	.02
Repairs	.05	.18	.01
Supplies	.81	2.72	.09
Insurance and bonding	.33	1.10	.04
Stationery and printing	.38	1.28	.04
Advertising	.52	1.77	.06
Miscellaneous	.07	.22	.01
Total general and administrative	6.28	21.15	.69
TOTAL OPERATING COST	29.70	100.00	3.27

Tarboro municipal milk plant in no way can be considered as an exemplary institution from which other municipalities might model a similar publically owned milk plant. Conditions existing in this market were unique, in that no plants already existed which needed to be purchased or otherwise eliminated. The population was mostly negro. Producers supplying the area were perfectly willing that the city enter into its own milk distribution. An air-tight monopoly preventing bootlegging could be created. The city could go into business on a very small scale. The municipality was of such a small size that little opportunity for graft was permitted.

In comparing this municipally owned milk plant in actual operation with the plant contemplated for Milwaukee, Wisconsin, due allowance must be given for the extreme differences which exist as between the two situations. It can only be presumed and not conclusively proven that corruption and dishonesty of management would exist under a condition of municipal ownership in a large city. The possibility of obtaining competent managerial ability for such a large plant as will be necessary in Milwaukee, has not been fully explored. In our larger cities of Chicago, New York, Los Angeles and San Francisco, privately owned milk plants of a size comparable of what would be required in Milwaukee, now exist and competent managers operate them. It is within the realm of reason that some competent manager could be induced to come

from private enterprise into public management, and that this hired managerial ability could create an entirely satisfactory distribution system.

In Wellington, New Zealand municipal ownership of fluid milk facilities has existed for some time. New Zealand is notoriously a cooperative country. It is primarily agricultural in nature, and the bulk of its agricultural enterprise is that of dairy farming. Cooperative producers organizations have existed for many years. In Wellington private ownership was formerly the rule, but gradually, as the philosophy of cooperative ownership gained momentum, the city took over the active management of existing plants. This seems to have been the most logical method of procedure for it was accomplished without loss of investment and existing facilities and with a minimum of private objection.

In Milwaukee, Wisconsin no consideration has been given to the alternatives to public ownership. It would be desirable to undertake a study as to just what modifications of the present system could be made to obtain the efficiencies desirable under public ownership. If after considering all possibilities and comparing them with the system as proposed, some compromise plan might logically be adopted, such as, for instance, the establishment of local distribution plants in each ward of the city or in several convenient spots within the city. This could be done by taking over existing facilities resulting in no actual loss of investment to

the community or to the private ownership and not necessitating the additional investment in duplicating facilities. Where processing facilities seem too centralized it might further be proposed that certain equipment be relocated in communities where it was more needed, thus permitting distribution efficiencies by means of many medium size processing units rather than one centralized unit.

Public utility ownership of electric light and power utilities have demonstrated their utility. It is to be regretted that as yet no cities other than Torboro have adopted municipal ownership of milk. A few operating examples of municipal ownership of milk plants might serve the good purpose of blazing the trail for future enterprises of a similar nature. If public ownership of the milk distribution in the United States should prove undesirable, such municipal plants as would exist could very well serve as yardsticks for present privately owned distribution. To this extent a few municipal milk plants might serve a very useful purpose for the rest of the industry. It is safe to say that private ownership in the dairy industry has little or no fear of the relative efficiency which can be demonstrated as between private ownership and public ownership of distribution.

Valuation of existing milk plants, when considered with relation to the allowance of fair returns in price fixing, constitutes a field of inquiry little touched by systematic research. Here and there throughout the United States can be

found certain projects which have contributed materially toward one or more branches of knowledge necessary in order to have a clear picture and working basis for computing price structures. But no one state has sufficient data to arrive at an intelligent price schedule without bringing in information collected from sources outside of that particular state. The University of Wisconsin Agricultural Experiment Station in the annual report for 1938, has contributed a review of thirteen Wisconsin dairy firms in the light of their costs of operation. Similar surveys to this have been conducted by Cornell University in New York City milk plants. These surveys represent a ten-year period. The information contained in these studies, was obtained from state tax records and the books of the companies involved. Only such companies as had complete and reliable information were used in making this survey. Averages showed the following concise summary of where the consumers' dollar went in these companies during the period 1927 to 1936, in accord with the following average figures for this ten-year period:

Amount paid farmers for milk	56.0 cents
Wages	17.6
Salaries	5.3
Total depreciation	3.6
Profit	1.9
Power, light, and water	1.5
Repairs	1.4
Advertising	1.3
Taxes	1.1
Bad Debts	.9
Insurance	.9
All other expense	8.5
Total	100.0

Some of these figures varied greatly from one plant to another, but they constitute the actual average of all plants for that ten-year period. Certain cost figures were extremely stable over this period, particularly those of depreciation and costs of power, light, water, repairs, taxes, bad debts and insurance. The most variable form was that of profits and next most variable was that of salaries, indicating clearly that actual labor involved in management of the dairy enterprise suffered during any periods of low income.

This Wisconsin study revealed that distributors' cost were greatly higher during winter than during summer months,

that distributors' cost have tended to increase as a result of milk control legislation and that producers' returns on the average have showed a marked increase by reason of this control legislation.

Of particular interest was the analysis of dairy plants as they entered the business and are continued over the period of fifteen years. During the first five years, the company having started under unfavorable circumstances but with good management, profits of the business are called upon so heavily to finance new improvements and to keep pace with demands for advanced equipment and methods in sanitary control, that absolutely no profit can be withdrawn by the owner of the business except just sufficient for bare living essentials.

Where the company does not pay dividends over a long initial period of growth, it is essential that following this period a phase of operation be entered into wherein the company sets aside surplus sufficient to care for replacement and improvements when the initial equipment is completely depreciated. If this is not set aside before the end of the first fifteen years of operation, the company is almost inevitably destined to go out of business, having used up its original resources and having in return not sufficient reserves to modernize and replace the completely depreciated stock of equipment. In certain noteworthy cases of large mergers, this initial period of no profit has been avoided.

avoided, but it is only fair to say that the expenses of this initial period have been paid for by the large purchase price necessary in accomplishing the merger.

Any survey of plants in order to arrive at the reasonable basis for computing a reasonable margin of profit in the price structure, must of necessity consider the industry over a period of years and not for one single year. Over the ten-year period studied by this survey, it was revealed that average profits to distributors amounted to 1.09 cents per consumers' dollar for the thirteen companies involved. This figure is deceptive, unless considered in the light of other factors such as, size of the company and whether the period was one of prosperity or depression. Profit figures can be arrived at on any one of three bases. Large companies and small companies must be separated in these conclusions in order to make intelligent comparisons. Profits for the five-year period from 1927 to 1931, which was a relatively prosperous one for milk distributors, were as follows for five large companies and six small companies studied:

	Large companies	Small companies
Profit as a per cent of consumers' dollar....	6.3%	1.5%
Profit as a per cent of amount paid farmers..	12.3	2.4
Profit as a per cent of invested capital.....	13.8	4.9

The three sets of figures computing profits as a percentage of

the consumers' dollar, then as the percentage of the amount paid the farmer, and lastly, as the percentage on the capital invested, show the different appearances which may be made to the consumer and the different interpretation which may be made by testing the figures to meet any particular set of circumstances. It can be seen that where the large companies took in only 6.3 cents of each consumers' dollar as profit, their large volume of business enabled them to make a 13.8% profit on their investment. Thus it can be seen that these large companies made a pure profit of 8.8%. During the depression years of 1932 to 1936, the following chart shows the companies above listed in their relative standing.

	Large companies	Small companies
Profit as a per cent of consumers' dollar.....	1.1%	--0.8%
Profit as a per cent of amount paid farmers....	2.4	--1.9
Profit as a per cent of invested capital.....	2.0	--2.6

Obviously profits were much reduced. Volume apparently was also reduced, as indicated by the low net return on capital invested. Large companies, however, made a profit where small companies showed an actual loss. Thus, sound corroborating evidence that the industry tends to become a monopoly, for during this period of depression the large companies made a profit where the small ones actually showed a loss.

Adequate replacements have not been made in the thirteen plants studied by this survey, and the report brings out the crying necessity for improvement in these plants to meet more stringent health requirements.

Important savings can be effected only through; one, reduction of duplication in resale delivery routes and lessening of the amount of special delivery service to consumers, this survey revealed; two, adjustment of total plant capacity to fit requirements of the market so as to bring about higher efficiency of plant operation in lower total capital investment in plant and equipment; three, reducing bad debt loss, bottle loss and collection costs. It is only through these three avenues of the distributor's business that actual savings to the consumer can be effectuated.

Chapter X .

PRESENT STATUS OF STATE MILK CONTROL LEGISLATION

The wave of milk control legislation was started by New York State in the fall of 1933. Wisconsin, however, was the first state to adopt definite control laws. She was shortly followed by Ohio, Vermont, Oregon, Connecticut, Florida, Texas and Virginia. Those states pioneering the necessary research and the experimental drifting of the laws were New York, Wisconsin and Oregon. Legislatures of these three states deserve the primary credit for the present form of most state milk control laws.

Each law since enacted has met with certain amendments and changes. These amendments in general have in no way changed the original intent and purpose of the laws. In general these are effective today to the same extents as when adopted. Most changes made were of a minor nature, either granting some additional power to the control board or clarifying the written law in such a way as to make legal interpretation more favorable to the legislation.

Between 1933-1936 a total of twenty-one states enacted milk control legislation, which authorized the establishment of boards of control for the industry. The purpose of most of these laws was to insure a stable supply of milk at fair prices. Duties imposed upon the board were those of setting

prices and specifying qualifications for markets and fixing of license fees. In no respect did the milk control legislation reduce the powers of cooperative organizations. On the contrary, practically all legislation bore evidence of the administrative leaning toward cooperatives, and they have thereby been more generally helped than hindered in their activities.

Thus far the question of constitutionality of existing milk control laws has resolved primarily in favor of the legislation. The most noteworthy case on record was a New York decision, People v. Nebbia (262 N. Y. 259). They decided in the Court of Appeals, July 11, 1933, and affirmed in Nebbia v. New York (291 U. S. 502), March 5, 1934. The New Jersey law has been held constitutional in the case of the State Board of Milk Control v. Newark Milk Company (118 N. J. Eq. 504, 179 A. 116). The Virginia law was held constitutional in the Supreme Court of Appeals (179 S.E. 507), March 29, 1935. The Supreme Court has also upheld the Indiana law (Albert v. Milk Control Board, 200 N. E. 688), the Alabama law (Franklin v. State ex rel. Alabama State Milk Control Board, 169 So. 295) and the Pennsylvania in (Rohrer v. Milk Control Board, 186 A. 336). In Pennsylvania the law was first held unconstitutional on the ground that it granted legislative authority to unlawfully delegate, and that the act in form set up only the general

welfare as a reason for the price fixing privilege as granted thereunder. This also held insufficient reasoning to justify the board.

The Wisconsin milk law was sustained in its delegation of powers in the case of (State ex rel. Finnegan v. Lincoln Dairy Company, 265 N.W. 861). In Washington in the case of Griffiths et al. v. Robinson (43 P (2d) 977). The law was held to be an unconstitutional delegation of legislative powers.

Certain other acts have been held unconstitutional for various reasons, the primary reason being the delegation of legislation to a board. The New York law has been held unconstitutional in those provisions which provided for the setting of prices in milk received through inter-state transportation on the local milk market. (294 U. S. 511)

Each board is constituted slightly differently. Some are made up of only citizens of that state, some states require that members of the board come from the industry itself a certain number representing producers, others representing distributors, others consumers. Other states require that one of the board be permitted to live outside of the state. A few provide for the board to be composed of representatives from each branch of the industry. Oregon requires that each member on the board be from a different political sub-division. In California if 65 per cent of the producers or distributors in any trade territory whose

business constitutes at least 65 per cent of the entire volume, may on their own petition request a milk control board hearing.

The best analysis of milk control boards as now constituted can be made by considering each board individually, analyzing the board membership, administrative powers, price fixing powers, etc.

ALABAMA

Alabama Milk Control Board is composed of five members appointed by the governor to serve during the pleasure of the governor. They receive a compensation of $5.00 per day and expenses. This board is under bond to the state in the sum fixed by the treasury. There is no provision in the Alabama law stating who shall be chairman of the board and no specification as to the politics of the members of the board. However, one member must be a wholesale producer, another a producer-distributor, another a distributor, and two may be consumers.

Powers of this board are to supervise and regulate fluid milk, to investigate conditions in the market, to mediate and arbitrate demands and conflicting interests of distributors and producers. This board has the right of entry on to property and can designate marketing areas for particular milk sheds. In Alabama the board can set prices to producers, surplus prices, wholesale and retail prices, and also costs of handling and processing surplus milk.

License fees which are required of all producers in Alabama at the rate of 50¢ per head of cows over two years of age, under the taxable minimum of five cows. Producer-distributors pay a fee according to the amount of milk produced. Distributors pay a fee on the amount of milk bought. Dealers and distributors are subject to a graduated tax of $10 per year for daily handling under 50 gallons per day; $25 per year for those daily handling from 50-100 gallons per day; $50 per year for daily handlings from 100-500 gallons per day; $100 for those handling from 500-1000 gallons, and $250 for all plants over 1000 gallons per day.

Alabama requires that producers and distributors maintain records showing the amount of milk received, the amount of milk sold, the milk manufactured, and the items allowed in arriving at the spread. The state also scrutinizes all financial transactions of dairies supplying that territory.

Violators of the Alabama law are subject to a fine of not over $500. Licenses before granted are subject to the writ of certiorari in the county circuit court.

CALIFORNIA

The California law sets up several milk control boards by the statutes of 1935, chapter 241. These boards are composed of seven members appointed and approved by the director of agriculture to serve for a period of two years with no remuneration except expenses.

This California board has only powers to fix prices to

producers. No authority is granted for the fixing of wholesale prices or retail prices by the original acts. However, an amendment of 1937 known as the Young Plan does permit the fixing of wholesale and retail prices by local option of the particular community of the producers and distributors of any particular community.

Fees for financing this law are raised by the assessment of 1 mill per each 100 lbs. of fluid milk sold by producers. Violators of this California law are subject to review by a court of competent jurisdiction.

CONNECTICUT

This law is administered by one person appointed by the governor to act as administrator by virtue of the authority given in (public acts of 1933, chapter 107-A). This administrator serves for a period of two years at a salary of $5,000. He is given the services of one deputy at $3500, plus expenses. No qualification is imposed upon the administrator for this board except that he must have been engaged in the milk business for two years prior to his appointment.

The Connecticut law gives the authority to supervise and regulate production and distribution of milk, to investigate all matters of importance thereto, gives the right to enter on producer's or distributor's property and make audits of books. The board is also given a power to designate certain market areas.

The Connecticut administrator has the power to fix

prices to be paid producers and also prices to be charged for wholesale and retail.

Fees for the continuance of this board are furnished at the rate of $5 for each 100 quarts daily average sold. The minimum fee is $2 for those selling an average of only ten quarts of milk or less.

Violations of the Connecticut law are subject to review and appeal by the superior court of the county in which complaintant resides. In case of violation, a fine of not over $100 can be imposed, and/or a sentence of not over three months.

DELAWARE

The Delaware milk control is administered by a commission of five menaappointed by the governor to serve for a period of two years by virtue of laws of 1933, chapter 59, amended in 1935 and 1937. These five commissioners receive $10 per board meeting with a maximum allowance of $20 in any one month. It is provided that two of these board members must be producers, one a distributor and two others from the public at large. Not more than three may be of the same political party. Powers of this board are simply to investigate. They have no specific powers to fix resale prices. For violations of the general provision of this act, a fine of from $100 to $500 can be imposed.

FLORIDA

This control board is made up of three men appointed

by the governor to serve for a period of two years, as provided under (laws of 1933, chapter 16078 and amendments of 1937). Compensation is fixed at $3600 per year, maximum. The exact amount is to be set by the governor. A bond is required of these members, the amount to be fixed by the Department of Taxation and Finance. The membership of this board consists of the commissioner of agriculture, a state health officer and the director of the milk board who need not be an officer of the state otherwise.

Powers of the board include those of supervising and regulating, investigating, mediating and arbitraring. The board has the right of entry on to property for the purpose of gathering information.

The Florida board may fix prices to be paid producers for fluid milk and also wholesale and retail prices.

Fees for the administration of this law are collected on the basis of $2.50 if the daily average distributions amount to less than 100 lbs. of milk; $5 per year where the volume is 100 to 300 lbs. of milk; $7.50 per year, 300-500 lbs. of milk; $50 where the volume is 1,000-5,000 lbs. per daily average; $250 for all distributing plants over 20,000 lbs. per day. This board is directed to gather records of milk received, milk sold and milk manufactured by distributors, and it is also directed to make records of the spread or margin allowed distributors, and it is empowered to compute the wastage or processing laws incurred in the plant.

Penalties for violation of the Florida law are not more than $500 or more than one year imprisonment for any single violation. Review of complaints can be had in any superior court.

INDIANA

This board is composed of five members appointed by the governor to serve for a period of two years each, as provided by laws (of 1935, chapter 281). Board members are allowed $15 per day maximum compensation, plus traveling expenses. The governor fixes a bond. The chairman is the Commissioner of Agriculture. The four other members are two producers and two distributors.

This board has the power to investigate, to supervise and regulate, and mediate and arbitrate in matters coming before its attention. It also has the right of entry and audit of books and can designate marketing areas.

Prices paid producers may be fixed by the board, and also wholesale and retail prices. This board has the additional authority to set prices to be paid for surplus milk on the market.

License fees are assessed producer-distributors at the rate of $2 for the owner of less than three dairy animals. For over three animals, the fee is $1 for each multiple of three. Thus a producer-distributor with 300 cows would pay a fee of $100. Dealers and distributors are assessed $35 for a plant whose daily average distribution

is under 1000 pounds of milk; $110 where the volume is between 7500 and 10,000 lbs.; $330 for 25,000-30,000 lbs.; $825 where the volume is 60,000-75,000 lbs. Violation of the Indiana milk control law is punishable by a fine of not over $1,000. Appeal from the administrative orders may be made to the circuit court or supreme court of the county in which the aggrieved party resides or in which the subject matter or the order is situated. Appeal may then be taken to the appellate court.

MARYLAND

This board is composed of three members appointed by the governor to serve for a period of two years by virtue of (laws of 1935, chapter 310). These commissioners receive only expenses. The chairman and secretary are subject to a bond of $5,000 each. Not more than two commissioners may be the same political party.

These commissioners may fix prices to producers and also wholesale and retail prices.

Fees are raised by the assessment of ½¢ per every 100 lbs. of milk against each producer. Each producer-distributor is assessed 1¢ for each 100 lbs. produced and sold. Each dealer or distributor is assessed ½¢ for each pound distributed. Thus one full cent is collected for every pound of milk sold on the market.

Violation of this law is punishable by a fine of $100 or not more than six month's imprisonment. Appeal from

administrative orders can be made by filing with the circuit court of Baltimore City or any county circuit sitting as a court of equity.

MASSACHUSETTS

This board is composed of three members appointed by the governor and serving at his good pleasure, as provided under acts of 1934, chapter 376 and amendments of 1936, chapter 300. These three milk commissioners receive $10 for each day's attendance at hearings, plus traveling expenses. The chairman is elected by the board members once each year.

Powers of this board consist of the right to investigate, supervise and regulate the market and mediate and arbitrate disputes. They have the right to enter premises to make audits and also to designate market areas within the state. Their power to fix prices consists solely of the right to set wholesale and retail prices. This is in marked distinction to the powers granted all other milk boards, Massachusetts being the only state to give this price fixing power exclusively to distributors.

Fees for the administration of this law are collected on the basis of 1¢ for every 100 lbs. of milk produced for the market. This fee is collected from the producer himself. Distributors and dealers pay a fee of $5, plus 1¢ for each 100 lbs. of milk distributed each month.

Penalty for violation of the Massachusetts law is a

fine of not over $100, plus an imprisonment of not over one year.

MONTANA

The Montana law as enacted by (revised codes 1935, chapter 241) provides that the governor shall appoint three milk control board members to serve for a period of four years, the salary to be fixed by the governor. One of these members shall be the executive officer of the livestock sanitary board, another the chief of the dairy division, plus a third member appointed by the governor. The executive officer of the Livestock Sanitary Board shall be the chairman of the milk control board.

This board has the power to supervise and regulate laws, to investigate complaints, to mediate and arbitrate disputes. It also has the right of entry onto premises for the purpose of gathering information and auditing books.

It has the power to fix both prices to the producer and prices at wholesale and retail.

Fees for defraying the expenses of this board are collected at the rate of ½¢ per each 100 lbs. of milk sold to a distributor by a producer. Producer-distributors are assessed 1¢ per each 100 lbs. of milk distributed or sold. Dealers or distributors are assessed a $10 annual license charge.

Violation of this law is punishable by a fine of $100 and/or 90 days imprisonment. Appeal from administrative

order can be had through the regular channels of the statute laws of Montana.

NEW HAMPSHIRE

By virtue of the (laws of 1935, chapter 21) the governor is empowered to appoint a board of three men to hold office for a period of three years each, their terms to be so arranged that one board membership expires each year. These three commissioners are paid $5 per day when serving, plus expenses. Not more than two of these commissioners may be of the same political party.

Powers of this board are to supervise and regulate the market, to investigate complaints, to mediate and arbitrate any disputes which may arise. They have the right to enter and gain such information as they desire.

Their price fixing power is limited to fixing of prices to producers and distributors, plus the prices wholesale and retail. They have no power to adjust surplus prices.

Fees for the administration of this New Hampshire law are collected from distributors only, at the rate of $1 for each distributor selling between two and twenty quarts daily; $2, 20-50 quarts; $5, 50-100 quarts; $7.50, 100-200; $10, 200-400 quarts, etc. For violation of this law a fine of not over $1,000 and/or not more than one year imprisonment. Appeal from orders of this control board can be made through the regular channels, as provided by the statute laws of New Hampshire.

NEW JERSEY

By virtue of New Jersey (laws of 1933, chapter 169 and laws of 1935, chapter 175) the governor is empowered to appoint five milk control board members to serve at his pleasure and be compensated at the rate of $10 per day, plus expenses. This board chooses its own chairman, no restrictions are made as to occupational qualification or political qualification.

This board has the power to supervise and regulate the market, to investigate any complaints, to mediate and arbitrate and, further, has a right to enter onto premises for any purpose it may desire.

The New Jersey board may fix prices to be paid to producers and also prices to be paid for milk wholesale and retail.

Fees for furnishing expenses of the administrating the New Jersey laws are collected from distributors and dealers only, at the rate of $2 where monthly average sales are less than 2500 lbs. of milk; $7.50 where sales are 2500-5000 lbs.; $20, 5000-25000 lbs.; $125, 100,000-200,000 lbs.; $500, 100,000-2,000,000 lbs.; $800, over 5,000,000 lbs.

The New Jersey law provides that the board can force distributors to maintain records of all milk received, milk sold and all milk manufactured, plus the computation of all wasted or lost milk. The board itself has power to compute the spread or margin between purchase cost and sales cost.

Enforcement of this law is aided by the penalty of a fine of $50 for a first offense and $200 maximum for each subsequent offense. Appeals from administrative orders can be made by application for writ of certiorari to a justice of the Supreme Court.

NEW YORK

The New York division of milk control was established by (laws of 1934, chapter 126 and laws of 1935, chapter 10, 297, 401-4 and further amended in 1937). A director of milk control is provided for and a bond fixed. This director works in collaboration with the federal government in a joint enforcement of milk control legislation.

This director has the power to supervise and regulate the market in collaboration with the federal government, to make investigations of complaints, to mediate and arbitrate differences on the market and may enter on private property to make audits.

The director's power is limited to that of fixing wholesale and retail prices within the market. Prices to producers are fixed within the production area subject to the approval of the federal government.

Fees for the administration of this law are collected from distributors only on a graduated scale based upon the amount of milk received daily by the distributor. These fees range from the smallest dealer or distributor at $25 to the largest selling over 1,000,000 lbs. of milk daily average

with a fee of $5,006

The New York director may demand of distributors that they maintain records of milk received, milk sold, milk manufactured, all wastage, the amount of spread fixed, and of all financial transactions entered into by the distributor.

OHIO

By virtue of the (laws of 1933, file No. 114) the governor is empowered to appoint four members of the milk control board to serve for a period of two years each at a salary of $8,000 and expenses for the secretary, and $4400 for examiners. These board members are subject to a bond fixed by the Director of Agriculture. The chairman of the milk board is elected by the commissioners. Not more than two of the members shall be of the same political party.

This board has the power to supervise and regulate the market, and to investigate complaints, to mediate and arbitrate disputes and complaints of producers and distributors, and has the right of entry onto premises for purposes of inspection of milk and milk products and of books of records, and this board may designate milk marketing areas.

This Ohio board can punish violations of its order by the imposition of a fine of not over $100 or an imprisonment sentence of not more than six months. Appeal from orders of the board can be made by filing a petition in error in common pleas court of the county in which the business com-

plained of was conducted.

OREGON

The Oregon Milk Control Board created by the (laws of 1933, second special session, chapter 72 and amendments of 1935 and 1937) is composed of three members appointed by the governor to serve at the pleasure of the governor. Each board member receives $10 per day, monthly maximum $150, plus expenses. Ex officio chairman of the board is the Director of the Department of Agriculture who sits in an advisory capacity only. No political limitations are placed upon this membership and no bond is required of the board. The only qualification is occupational, in that no member shall be a producer or distributor of market milk.

This board has the power to supervise and regulate the market, to investigate complaints and matters which come before the board, on their own initiative to mediate and arbitrate disputes as between producers or distributors or producers and distributors. This board has the right of entry to audit and inspect milk, etc. One of their powers is to designate the boundaries of certain marketing areas.

The Oregon Board has full power to fix prices to be paid producers and at which wholesalers and retailers must sell. It further has the power to fix surplus prices, but has never used this authority.

The Oregon Board is financed by the industry through the collection of a license either of $1 for every person or

company selling milk, whether as a distributor, producer-distributor, grocery store, or boarding house. This fee is collected from any one engaged in the profitable exchange of milk. In addition, a fee of $\frac{1}{2}$¢ for each pound of butter fat received and handled in the fluid milk trade is paid. One-half of this fee is collected from the producers, the other half from the distributors. In addition, such expenses as are necessary to maintain pooling operations may be deducted from pool receipts.

This law provides that the milk board may insist on producer-distributors or distributors maintaining accurate records of all milk received, sold or manufactured and of the actual spread between purchase price and sales price, together with information on wastage. While it is mandatory that this information be kept by each dairy as set, no uniform procedure has been accepted by all dairies. One of the first functions of the board was to set up a uniform bookkeeping system, but this was not adopted uniformly.

Penalty for violation of Oregon Milk Control Board Law is a fine of from $25-$1,000 and/or imprisonment for 30-90 days. Appeal from orders of the board can be had through the legal channels of the Supreme Court of each county.

PENNSYLVANIA

This board created as a result of (Statutes (Purdon's Compact ed) 1936, title 31, S684) empowered the governor to create a board of three members who should receive a com-

pensation of $6,000 each per year and serve during the pleasure of the governor. The chairman of this board is to be designated by the governor himself. The only qualifications for membership on this board are that each hold no other political office, and that each have been a voter in the state for at least one year.

This board has the power to supervise and regulate the market, and to investigate matters which may come before it; also it has the right to enter upon the premises of any party engaged in the milk business and obtain such information as it desires. It does not have the right to mediate and arbitrate disputes as between producers and distributors, nor does it have the right to designate marketing areas within the state. This, however, is a small matter in view of the wide territory from which the milk is received.

This board has the full right to set prices the producer shall receive for milk, and prices at which milk shall be sold wholesale and retail; it also has the right to fix surplus prices. It is doubtful, however, if this prerogative has been exercised.

Fees for maintaining this board are collected on a graduated scale, ranging from $1 for the lowest distributor handling less than 20 lbs. of milk per day, to the highest fee of $5,000 for distributors handling over 1,000,000 lbs. per day.

The Pennsylvania board has full power to demand that

producers and producer-distributors maintain accurate records of all milk received, sold and manufactured at each plant, together with a record of the margin or spread between costs and sales figures. It also can insist that records of wastage and all financial transactions be maintained and be available to the scrutiny of representatives of the milk control board.

Penalties for violation of this law are $25-$200 for the first offense and $500-$1,000 for a third offense and/or one year imprisonment. Appeal from administrative orders can be had by filing in the court of common pleas of Dauphin County for non-residents, or in any other county where the complaintant may reside or do business.

RHODE ISLAND

This board was created by the (acts of 1934, chapter 2089 and acts of 1936, chapter 2310, together with amendments of 1938). It is composed of five members appointed by the governor to serve for an indefinite duration at $500 per year. Each board appointee is subject to the approval of the attorney general. The director of the State Department of Public Health and the Director of the Department of Agriculture and Conservation are ex-officio members of the board. One milk producer, one distributor and one consumer must be on the board.

This board shall have the power to supervise and regulate the market in every respect, to investigate com-

plaints as to violations of orders of the board, and it shall have the right to enter onto premises for the purpose of inspection of records of milk. It does not have the power to mediate and arbitrate disputes as between producers and distributors, nor to designate marketing areas.

The Rhode Island board has the power to fix prices to be paid producers for their milk products, and to fix wholesale and retail prices. It does not, however, have the right to adjust any surplus prices, this surplus necessarily being sold on the open market.

License fees are collected similar to the method as adopted in Oregon, with the exception that instead of the payment of ½¢ per pound butter fat as in Oregon, the assessment of 2¢ per each 100 lbs. of milk is made. This, however, amounts to approximately the same thing, provided milk tests up to 4 per cent fat.

Penalty for violation of the Rhode Island law is $50 for the first offense, and increase for subsequent offenses up to a maximum of $500 penalty. The alternate or additional remedy for violation of this law is the suspension or revocation of the license or permit to do business within the state. Appeal from administrative orders can be made only to the superior court of Providence County. Rhode Island being a very small state, this probably causes no inconvenience to any complaintant.

SOUTH DAKOTA

This board was created as a result of (laws of 1935, second session, chapter 172). A board of six members is appointed by the governor to serve during the governor's pleasure. They are compensated at $5 per day, plus expenses. The chairman of the board shall be the Secretary of Agriculture, and all other members shall be voters within the state.

This board has the power to fix prices to producers and prices wholesale and retail. It does not have the power to fix surplus prices, nor can it assess reasonable handling or processing costs.

What constitutes a reasonable cost of production may be ascertained by the South Dakota Milk Control Board, but it does not have the power to fix any penalties for violation of any orders of the board. Appeal, however, can be made to the supreme court of the county in which the aggrieved party resides.

This board is unique in that it is maintained out of the general funds of the state, rather than being paid for by the collection of assessments against the industry.

TEXAS

In Texas there has been created what is known as the (Local Milk Industry Board by laws of 1934, second session, chapter 19, together with amendments of 1936 and 1938). This board is composed of five members whose expenses only

are paid. The chairman of this board is to be elected by the board members themselves. No restrictions are imposed as to political affiliations or occupational qualifications for membership.

This board has no powers to fix prices either to the producer retail or wholesale. It can only act in an advisory capacity and may not supervise or regulate the industry, it may not investigate further than certain general powers, and cannot mediate or arbitrate differences between groups.

Fees for the carrying on of the functions of this board are collected at the rate of $1 as a certificate or authority to engage in business payable by any one engaged in the selling of milk, plus 2¢ per each 100 lbs. of fluid milk sold. These fees are collected from distributors and dealers only.

This board is created solely for the purpose of carrying out previously existing legislation and can penalize those violating existing legislation by fines of not over $500 nor over six month's imprisonment. Any matters which may come under its jurisdiction are subject to the scrutiny of the district court of the jurisdiction under which the question may arise.

VERMONT

Vermont Milk Control Board was created as a result of (public laws of 1933, chapter 197, together with amendments of 1935 and 1937). This board is composed of three members

appointed by the governor at a salary fixed by the governor in accord with the responsibilities of the board. The chairman of this board is the Commissioner of Agriculture. One member is a commissioner of public welfare and the third member appointed at large.

This board has the power to supervise and regulate the entire market, to investigate any complaints which may be filed with them, and to mediate and arbitrate differences between groups on the market. It also has the right of entry to examine books of record and milk supplies, but it does not have authority to designate or delineate marketing areas.

The Vermont board may fix prices to be paid producers and prices to be paid for milk wholesale and retail.

The functions of this board are financed by producers groups entirely. They pay a flat fee of $10 per year for each producer, plus $\frac{1}{2}$¢ per 100 lbs. of milk sold on the market.

Penalty for violation of this law is a fine of not over $100 and/or one year imprisonment. Appeal from decisions of the board may be had through the legal channels of statute law.

VIRGINIA

The Virginia Milk Control Commission was created as a result of (acts of 1934, chapter 337, together with amendments thereto of 1936 and 1938). By virtue of this law the

governor was empowered to appoint three members to a milk control board to serve at his pleasure. Expenses and $10 per each day served are to be paid to each board member. The chairman of the board is designated by the governor. A preponderance of power is vested in the producers organizations, as the board must be composed of at least two producers on the market. This board is vested with the power and authority to supervise and regulate the market in every respect, to investigate matters which may come before it in the nature of complaints or otherwise, and the further right to enter upon premises to examine books of record and milk supplies. This board does not have the power to mediate and arbitrate differences as between groups, but it does have the power to designate and establish marketing areas.

The Virginia board may fix prices to producers and prices wholesale and retail. It may collect fees from producers at the rate of 2¢ per each 100 lbs. of milk sold, and also the same fee from distributors at 2¢ per each 100 lbs. of milk handled. This fee amounts to approximately ¼ of 1¢ per each pound of butter fat.

Penalty for violation of this law is a fine of $25-$100 and/or 30 days--one year imprisonment. Appeal from administrative orders of the board may be had through the Supreme Court of Appeals for review.

WISCONSIN

Wisconsin adopted in 1937 a milk control law entitled, Regulation of Milk Distribution and Licensing of Milk Dealers, Section 100.03 Wisconsin Laws. This law provided for the vesting of regulatory power of the fluid milk industry in the hands of the Department of Agriculture and Markets. No special board of enforcement was created. The machinery of this Department of Agriculture and Markets have already been established.

This department was given additional general powers in a sweeping and unspecified manner to supervise and regulate the market and to investigate all complaints against violations of rules as laid down by the department. Jurisdiction and authority of this department was left to the initiative of the department as the necessity of certain occasions might arise.

Wisconsin has been granted the power to fix prices to producers and prices both wholesale and retail.

Fees for carrying on the work of the Wisconsin board are collected from distributors only, and then at the rate of $10 per year for each distributor. The general expenses for carrying on the work of the department are paid out of the general treasury. Most expenses of this department are already established and set up, so that no appreciable increase of operating costs was incurred. Penalty for vio-

lation of rules of the Department of Agriculture and laws, are fines of from $5-$25 for each offense.

CHAPTER XI

PRESENT LEGAL STATUS OF MILK CONTROL

An interpretation of the present legal status of milk control involves an approach from three different angles. Cases in point revolve about the consideration of the right of the public to control milk supply from each of these three viewpoints. First, is the question of the right to demand pasteurization of milk. Second, is the question of the right of the public to require other sanitary controls on the farm and in processing. This phase of the question involves the inspection of dairy cattle against the presence of contagious diseases. Third, is the more important question of the right of the industry or the public to demand control over quantities of milk supplies to the market and prices to be charged for this milk supply. Each of these matters will be taken up in order.

The right of the municipality or political sub-division of any nature to impose regulations upon the fluid milk industry requiring pasteurization, has been upheld in five notable cases, vis., Koy v. Chicago, (Illinois), People v. McGowan, (Illinois), Moll v. City of Lockport (N. Y.), State v. Edwards (N. C.), Pfeffer v. Milwaukee (Wis.). These five cases covered the entire field of pasteurization, and while other cases have been decided in other courts on pertinent

matters are fully brought out in the above instances. All told, approximately 200 court decisions have been rendered on various phases of milk control. In all important cases but one, the right of a municipality to regulate pasteurization of milk has been sustained. In this one case decided in Missouri St. ex rel Knese v. Kinsey, 282 S.W. 437, it was held that raw milk was better than pasteurized milk. The reason for such a decision was that the case was very poorly argued on the part of the state. Hardly any case at all was presented on behalf of the state.

Under the authority of the state law, St. Louis had passed an ordinance requiring all milk not certified to be pasteurized. The final documentary form of this ordinance was a crude jumble of words, inconsistent and difficult of any coherent interpretation. When several milk dealers refused to pasteurize their milk, the milk board refused to issue permits. One dealer brought a mandamus action to compel the board to issue permits. The case was heard by a commissioner appointed by the court who took a great volume of evidence.

Evidence introduced by the state was inconclusive and vague. On the other hand, evidence introduced by the plaintiff was collaborative as to good reputation, sanitary means of processing, etc. Many friends appeared and vouched for his integrity, and actual customers appeared to testify as to the healthful effects of the milk purchased from this

dairyman. The case was decided on the basis of non-technical and non-expert evidence.

This Missouri case won, but held anyway an advance in the field of pasteurized control.

Suffice to say, present law in all states justifies the enforcement of pasteurization of raw milk on the basis of police powers inherent within the state and municipalities.

In other fields of milk control, there is little question as to the right of municipalities to regulate all phases of milk production necessary to guarantee the public a safe and pure and wholesome supply of fluid milk. Regulation of milk and milk supplies by virtue of police power has repeatedly been upheld. This police power inherent within the state to enact such laws within the constitutional limitation as to protect public health, safety, morals, comfort and welfare, are now almost undisputed. As a matter of fact, these police rights were inherent in the states prior to the adoption of the constitution itself. Milk regulation forms a valid exercise of this police power.

Delegation of control of milk to boards of health has been sustained in the case of Lieberman v. Van de Carr. A long line of decisions has ruled that the fixing of standards of milk is a proper function of health authorities. This has been featured in several state supreme courts and in the United States Supreme Court, as noted in the cases to follow. Control over cattle for inspection and con-

demnation has been upheld in such decisions as Hill v. Fetherolf (Penn.), Walton v. Toledo (Ohio), and Creaghan v. Baltimore (Md.). The right to require tuberculin tests of animals has been sustained by a score or more of cases which are listed below. Certain of these outstanding cases are, Adams v. Milwaukee, before the United States Supreme Court, Borden v. Montclair (N. J.), Nelson v. Minneapolis, and State v. Nelson (Minn.). Adulteration or contamination of milk has been held by innumerable cases to be a violation of the ordinances of states and municipalities. Probably no other subject has come before the courts more often than this one of adulteration. Penalties for it have always been upheld. United States Supreme Court passed on the matter in the case of Hebe Co. v. Shaw and People v. Cipperly (N. Y.), also Commonwealth v. Wait (Mass.). These are but a few of the instances of upholding milk laws for this reason.

The power to license milk dealers, dairies and retailers has been pronounced valid in such cases as, Cofman v. Outerhous (N. D.), Niles v. Smith (Fla.), State v. McKinney (Mont.), Newport v. French (Ky.) and many others. The only limitation against this exercise of police power is that there be no discrimination in the granting of licenses. This has been brought out clearly in the case of Read v. Graham (Ky.). One further right upheld by many court decisions is that of taking samples of milk in order

to make tests to determine bacteria count. The contention is often made that this should be considered as evidence against oneself. And that for a party to supply a sample of his milk was to supply evidence against himself. This, however, has been ruled against in such cases as, Commonwealth v. Carter (Mass.), State v. Dupaquier (La.). Impure milk or milk handled in an improper manner may be declared a nuisance and destroyed by the police authority. This right has been sustained in such cases as Shivers v. Newton (N. J.), Deems v. Baltimore (Md.), Kaiser v. Walsh (Ohio), Adams v. Milwaukee (Wis.). Proper bottling and labeling of milk is demanded by all regulatory laws. This right has been sustained in cases of Mannix v. Frost (N. Y.), State v. Stokes (Conn.), Jury v. State (Ohio).

The following long list comprises cases which bear pertinently upon public health questions of milk control. As brought out previously, it has been this tendency toward more strict regulation of the fluid milk industry by the imposition of laws designed to control public health standards, which has contributed most toward the transition of the milk industry from a business of private competition to one of public utility control. While it has been inevitable that certain economic forces have been brought to play to complete this transition, nevertheless, the primary influence in this trend toward public utility control has been the public health regulation. No other single factor

has been more universal than this. Certain economic forces have been at play in the United States, but these same economic forces have not been at play throughout the entire civilized world. And yet wherever milk is subject to strict public health regulation in urban communities, it is subject to public utility control. This is true not only in the United States but in England, in Scotland, in Wales and in Ireland, also in New Zealand and Australia. It must be remembered here that the spread of sanitary regulations for the milk industry in most parts of the world has been concurrent. Particularly is this true in large urban communities. This point can be borne out by a study of centralized milk distribution in New Zealand and also in what was formerly Austria. In this latter country, monopoly distribution has been encouraged to an extreme. It is for that reason that such emphasis is placed upon public health laws as they have contributed toward the creation of this most modern public utility.

Many decisions have been rendered within the past few years on relative aspects of the actual control of the physical marketing of milk by means of pool regulations and fixed prices to producer and to consumer. The legal status of this phase of milk control is at present at a state of flux, decisions being rendered every week or so, bringing the law more closely up to date.

It will be difficult to state anything conclusive of

law which will surely be in effect a few years hence.

As mentioned earlier, the famous case of People v. Nebbia 262 (N. Y.) 259, determined the right of milk control boards to fix resale prices. This case was further examined in the United States Supreme Court in 291 U. S. 502. Thus the constitutionality of price fixing power has been well established.

New York State has been the source of most important written decisions bearing upon the power of the state to control the distribution of milk and its prices. This state has blazed the way by the Nebbia case in the establishment of precedence for other written court decisions on the matter. In Baldwin v. Seelig 292 U. S. 311, the right of the state to prohibit the sale of milk brought into New York at lower prices than required to be paid for milk produced in New York, was held unconstitutional. At this time the disposal of the question of original package was accomplished. It was held that whether the milk was in the original package or not, it could not be sold at prices lower than those established for milk produced within the State of New York. It remained for a case, originating in Vermont, 294 U. S. 511, to state that milk originating in another state could not be controlled in price by the laws of the State of New York. The Supreme Court thus reversed the trend and created the necessity for complete federal and state collaboration and joint control over milk, subject

to interstate commerce.

This Baldwin v. Seelig case did not determine the question of minimum prices dealers should pay for milk shipped in from other states in interstate commerce. It was not until recently that a case in point was decided. It was held against the power of the state to fix dealer's purchase price for milk produced outside of New York. This decision has resulted in the necessity of abandoning certain fundamental provisions of the New York Milk Control Act. However, this abandoning of parts of the act has only resulted in the strengthening of enforcement and procedure through collaboration of the Federal Government under the marketing division of the A.A.A. in working out a uniform federal-state system of price enforcement in New York.

The trend now, where questions of interstate traffic are concerned, is toward federal-state cooperation in control of interstate milk.

In the case of Hageman Farms Corp. v. Baldwin 293 U. S. 163, it was held that the milk control board need not fix such a price as will guarantee a profit for every distributor. Thus it was held that the board's obligation was to fix such a price as it deemed desirable or reasonable under the circumstances of the market. This is a far-reaching case bearing definitely upon the price philosophy which may be adopted by a milk control board.

The right of the milk control board to grant and re-

voke a license or permit to business, was upheld in Rosasco v. Cohen, reported at length in New York Law Journal on January 8, 1937. In this case a dealer whose license had been revoked, sought to remain in business by purchasing milk from a licensed dealer. It was held that the licensed dealer could not recover from the unlicensed party buying from him. It is a question whether this reasoning would be carried to a point of restricting an unlicensed dealer from the market entirely.

The right of a cooperative association to demand special privileges and annuities by reason of its character as a cooperative, was denied in the case of a matter of Eisenberg Farms v. Baldwin, 265 N. Y. 662, Mayflower Farms v. Baldwin, 267, N. Y. 9 and the matter of Fort Hunter-Tribes Hill Co-operative v. Baldwin, 243, App. Div, 846. This latter case determined the right of the board to revoke the license of a cooperative for selling to a dealer upon terms lower than the minimum prices from producers and dealers.

In New York the question of price differential has long been the troublesome matter. In the case of Borden's Farm Products Company v. Ten Eyck, 297 U. S. 251, it was held that the right to sell an unadvertised brand of milk at a 1¢ differential was justifiable, but that, as decided by Mayflower Farms, Inc., v. Ten Eyck, 297, U. S. 266, no restriction could be placed upon this privilege by imposing a date limitation, saying that only dealers in

business on a certain date could thereafter so sell.

Practically all milk control legislation was enacted by reason of the declaration of an emergency. Courts, therefore, have written their decisions with the qualifying provision that such powers were granted by reason of the existence of the emergency. Therefore, there appears some question as to what interpretation will be adopted when the emergency period is over. This has been the circumstance in the cases of Borden's Farm Products Company v. Ten Eyck and Mayflower Farms, Inc., v. Ten Eyck.

The milk control board cannot exercise arbitrary authority without first having called a hearing on the subject matter under consideration. This has been held in Matter of Grandview Dairy v. Baldwin, 239 App. Div. 640 and Coney Island Dairy v. Baldwin, 239 App. Div. 178. The right to restrict the market to existing dairies and prevent new dairies from coming onto the market was upheld in the Matter of Buffalo Creamery v. Baldwin, 243, App. Div. 664. A contrary decision on this matter was rendered for purely technical reasons in the case of Matter of Elite Dairy Products Company, 271, N. Y. 488.

The right to revoke the license of a dealer repeatedly found guilty of numerous violations of the statute, was upheld in the case of Linden Farms Milk and Cream Company v. Ten Eyck, 284 N. Y. S. 721, also in Bridgeville Farms v.

Baldwin, 265 N. Y. 32.

Practically all matters of importance bearing upon milk regulation by control boards, had been sustained by superior courts. Certain procedural questions and technical questions of due process have been held against milk control legislation, but in general, decisions have been entirely favorable to the general philosophy of milk control as a public utility.

There is little need of exhaustive exposition of cases decided in various other states. New York State pioneered the way in establishing legislation on controversial issues, and these decisions have been held consistently in other states. Thus far regulation has been confined to minimum prices which may be charged, but the trend, however important, must inevitably be toward a control of maximum as well as minimum prices. This trend, it would appear, will greatly strengthen the case of the milk industry in establishing milk control as a necessary public utility protecting the public.

An important procedure in every state has been to file charges against individual dairies. Once these charges were filed, in most instances the owner would make satisfactory restitution or correction of the complaint. Thus, many hundreds of cases have been filed through the United States in every state, with very few actually coming on for trial. A noteworthy example of this procedure has taken

place in Massachusetts where the board has collected large sums of money from distributors. In one case the sum amounted to $30,000.

A brief review by listing decisions in other states follows. This listing does not tend to state all cases thus far decided or cited in the various states.

CONNECTICUT

Morton E. Pierpont v. Board of Milk Control and Milk Producers-Dealers Association v. Board of Milk Control, Superior Court of Hartford County. Kent E. Stoddard v. Board of Milk Control.

ALABAMA

State v. Newark Milk Company, 179 Atl. (N. J.) 116; Reynolds v. Milk Commission, 179 S. E. (Va.) 507; Albert v. Milk Control Board, 200 N. E. (Ind.) 688.

INDIANA

Kroger Grocery and Baking Company v. Milk Control Board, Equity case No. 623 U. S. District Court for Northern District of Indiana, South Bend Division. This decision rendered July 29, 1926. Milk Control v. Frank Albert and Delbert Schafer, in the St. Joseph Superior Court No. 2. Frank Albert, et al v. Milk Control Board, State Supreme Court.

NEW HAMPSHIRE

Ferretti v. Jackson 188 Atl. Rep. 474.

PENNSYLVANIA

Wayne L. Rohrer, trading as Rohrer's Med-O-Farms Dairy, Appellant v. Milk Control Board, 186 Atl. 336.

VIRGINIA

R. J. Reynolds v. Milk Commission, 163 Va. 957; Munn v. Illinois, 94 U. S. 113; Highland Farms Dairy, Inc., and Luther W. High v. Milk Commission, in Equity No. 363 (16 Federal Supplement 575). Sonneborn Bros. v. Cureton, 262 U. S. 506.

WISCONSIN

State v. Dairy Distributors, Inc., 258 N. W. 286. State ex rel. Finnegan, Atty. Gen., et al. v. Lincoln Dairy Co., 265 N. W. 197, 851.

The above cases represent but few of the many taken to superior courts. Actually, thousands of small cases have been tried, fines and punishment imposed. In Wisconsin alone, the first year of operation of the milk control law, more than 1500 small cases were tried and penalties imposed.

These cases do not, in the main, rule on the question of the right of milk control boards to pool the output of many producers. They do, however, establish the unquestionable right to fix minimum prices, whether the pooling provision is fully upheld or not, the price regulating power can in many instances control pooling authority and accomplish desired results without the necessity of reverting to principles of pooling all the producer's output.

Many cases formerly decided as justifying milk control legislation on the ground of emergency expediency, have since determined the continuous validity of this legislation as a permanent part of our regulatory laws.

APPENDIXES

PASTEURIZATION DEVELOPMENTS

1857

Louis Pasteur reported to Scientific Society of Lille, France, that heating would postpone souring of milk.

1873

Dr. Abraham Jacobi, New York City, advised boiling milk for infant feeding.

1881

Weigmann stated--first "Continually working apparatus for the heating of milk for the purpose of preserving same" invented by Alb. Fesca of Berlin, Germany.

1885

At convention of Medical Society, Munich, Germany, Dr. Soxhlet proposed an apparatus for sterilizing milk in the home.

1886

Thiel invented first gravity flash pasteurizer.

1886-1890

Franz Hochmuth designed first regenerative pasteurizer of gravity type; Prof. N. J. Fjord invented Danish type pasteurizer with agitator.

1888

Dr. A. Caille introduced Soxhlet sterilizer in America.

1890-1891

By holding milk in a small home-made apparatus for 30 min-

utes at 154° F. Bitter found, "In all cases this process is sufficient to thoroughly pasteurize the milk"; Bitter constructed and recommended first batch pasteurizer with spiral heating coil.

1892

L. B. Halsey, then head of Sheffield Farms Company, installed a German pasteurizer in Bloomville, N. Y. plant.

1893

Nathan Straus opened milk pasteurizing stations in New York City; Dr. Howland G. Freeman invented improved form of pasteurizer for use in the home; milk pasteurized in bottles, Chicago World's Fair.

1894

An annular vat with stirrer by D. H. Burrell & Co.; design of holding tank with continuous heater by Monrad; a centrifugal heater of Danish type and a series of nested cans with alternating perforated bottoms and top connections, also designed by Monrad; a heating vat with agitator by H. Correll; a tank heater designed by N. S. Andrews; a jacketed cream vat with swinging coil by John Boyd; series of large cans arranged in a tank by The Creamery Package Mfg. Co.

1895

Prof. H. L. Russell, Wisconsin University, designed covered holding vat with agitator, built by Cornish, Curtis & Greene Manufacturing Co.; S. M. Heulings designed tank-type con-

tinuous system, manufactured by D. H. Burrell & Co., operated at Cornell University; D. H. Burrell & Co. imported a Danish centrifugal heater; A. Jensen designed a continous and a batch pasteurizer for sweet cream.

1896

Babcock and Russell studied effect of pasteurization on cream layers.

1897

A. Jensen designed and built a continuous revolving, vertical cylinder pasteurizer.

1898

Potts, Reid, Hill and Moseley & Stoddard Mfg. Company advertised pasteurizers previously developed.

1899

Farrington and Russell demonstrated that high pasteurizing temperatures reduce cream layers; De Laval Co.'s continuous pasteurizer and Curtis heater advertised.

1900

A. H. Reid advertised continuous pasteurizing system; The Creamery Package Mfg. Co. brought out Nelson pasteurizer; The Sharples Co. advertised Triumph machine.

1901

A. Jensen developed new flash pasteurizer; at National Creamery Buttermakers Association's convention, Sturges, Cornish & Burn showed a new tubular milk heater and the

Miller Pasteurizing Machinery Co. showed a vertical vat consisting of two nested upright milk tanks, the inner revolving and a wooden exterior jacket; Creamery Package Mfg. Co. offered a revolving disc type heater.

1903

Doctors W. H. Park and L. E. Holt reported mortality among tenement babies of New York City materially lessened by use of pasteurized milk; Joseph Willmann introduced upright regenerative system of pasteurization using milk-against-milk principle; D. H. Burrell & Co. built Simplex regenerative pasteurizer, a horizontal machine with rotary corrugated drum; D. W. Payne patented combined pasteurizer and cream ripener.

1904

A. Jensen offered a horizontal combination pasteurizer and cream ripener; The Creamery Package Mfg. Co. brought out first spiral disc type Wizard agitator--cream ripener and pasteurizer.

1905

The Creamery Package Mfg. Co. and the Miller Pasteurizing Machinery Co. advertised regenerative systems; Miller-Tyson Co. offered a new centrifugal pasteurizer; A. Jensen developed a helical coil pasteurizer.

1906

In December of this year, Joseph Willmann designed first

positive continuous holding system.

1907

In March, Willmann's holder with eight tank compartments was installed in Sheffield Farms-Slawson Decker Co. plant, New York City; Dairymen's Supply Co. advertised new Peerless pasteurizer and cooler; J. G. Cherry Co. designed and patented a coil vat.

1908

Dr. M. J. Rosenau published his studies on "The Thermal Death Points of Pathogenic Micro-Organisms in Milk".

1909

The first Long Flow pasteurizing holder, invented by Harvey Feldmeier and C. B. Dalzell, was built by D. H. Burrell & Co.; D. H. Burrell & Co., manufactured a pipe-within-a-pipe internal tube heater.

1910

Dr. William H. Park suggested a series of upright holding tanks.

1911

Economy Milk Machinery Co. advertised a gravity retarder pasteurizer; A. H. Reid advertised a holding pasteurizer and Joseph Willmann designed a rotating batch holder.

1912

George B. Kendell, The Pfaudler Co., conceived and built a continuous holder consisting of four glass-lined compart-

ments surrounded by a tank jacket. In same year, company built an insulated glass tank with vertical type agitator.

1913

Wisner Mfg. Company advertised a pasteurizer; J. G. Cherry advertised the Perfection pasteurizer with a revolving coil; also, the Jensen pasteurizer with an improved automatic circulating device; D. H. Burrell & Co. devised the Simplex Spray pasteurizer in which the milk was heated by means of a spray of hot water striking the outside of the inner vat near the top and running down the side.

1914

The Vacuum Churn Corp. showed a combination pasteurizer and cream ripener; Davis Bros. designed a tubular heater and cooler and a porcelain-lined holding tank; Chester Dairy Supply Co. carried an experimental work with short-flow tubular heater-cooler of barrel type; A. H. Reid perfected a regenerative pasteurizer and cooler; Standard Milk Machinery Co. announced a coil vat.

1917

Jensen Creamery Machinery Co. advertised a continuous enclosed pasteurizer, regenerator and cooler.

1918

D. H. Burrell & Co. manufactured Simplex holding tank-type pasteurizer, sale discontinued in 1925; Davis-Watkins Dairymen's Mfg. Co. advertised an enameled vat batch pasteurizer

and ripener.

1920

The Creamery Package Mfg. Co. advertised the Liberty continuous-process flash vertical pasteurizer; Bureau of Dairy Industry, U. S. Department of Agriculture, developed tests for gauging holding time of milk pasteurized in retarders or continuous flow machines.

1921

Endicott (N. Y.) Experiments began in December, concluded in April 1923.

1924

C. Mortensen built and patented first Mortensen Holder.

1926

Office of Milk Investigations of the U. S. Public Health Service started researches into efficiency of commercial milk pasteurization equipment.

1927

Pennsylvania State Department of Health first accepted the electrical method of short-time high-temperature pasteurization. This system was first introduced from England about the year 1912.

1930

New York State Department of Health first approved hot water short-time high-temperature pasteurization.

1931

The Creamery Package Mfg. Co. developed precision tank holder system.

1934

To further the purposes of the United States Public Health Service in its efforts to secure higher standards of pasteurizing specifications, The Creamery Package Mfg. Co. allowed general usage of its patented leakage diverting valve, and the Cherry-Burrell Corp. permitted similar general usage of its outlet valve without applying for patent; the first Technical Committee was appointed by the Dairy and Ice Cream Machinery and Supplies Association to advise with its representative on the Public Health Service Milk Sanitation Advisory Board.

1937

On June 8th, the Dairy and Ice Cream Machinery and Supplies Association published a resolution offering its cooperation in an effort to bring about a nation-wide adoption of dairy equipment specifications.

WORLD EVENTS AND EPIDEMICS

1857

March 6th, Dred Scott decision of the United States Supreme Court denied that a negro slave was a citizen of the United States.

1873

June 20th, the United States National debt was reported at $2,234,482,993.

1881

March 4th, James A. Garfield inaugurated President of the United States.

1885

Three recorded outbreaks of milk-borne diseases during previous five-year period.

1886

October 28th, Statue of Liberty, in New York Harbor, dedicated.

1887-1889

February 4, 1887, Interstate Commerce Law became effective.

* * * *

February 5, 1889, Bacillus of diphtheria recognized at Pasteur Institute, Paris.

1888

May 21st, Congress made the Department of Agriculture an executive department.

1890-1891

In 1890, fourteen recorded outbreaks of milk-borne diseases during the previous five-year period.

* * * *

November 17, 1890, Dr. Robert Koch discovers remedy for tuberculosis.

1892

December 27, French Academy of Sciences awarded gold medal to Pasteur.

1893

January 6th, Great Northern Railroad reached the Pacific.

1894

April 29th, "Coxey's Army" made up of 20,000 unemployed workers marched from midwestern states to Washington.

* * *

May 5th, International exhibition opened in Antwerp.

* * *

July 25th, Chinese-Japanese war began. Treaty of Shimonoseki, April 17, 1895 gave Japan its first claim to Chinese territory.

1895

Twenty-six recorded outbreaks of milk-borne diseases during previous five-year period.

* * *

September 28th, Louis Pasteur died.

1896

January 5th, Phenomena of the X-rays was made public by Professor Roentgen.

1897

March 4th, William McKinley inaugurated President of the United States.

1898

February 15th, the United States battleship Maine was sunk in Havana harbor, Cuba. This disaster led to Spanish-American War.

1899

January 1st, Spain ceded Cuba to the United States.

* * *

March 3rd, George Dewey made admiral of U. S. Navy.

1900

Thirty-three recorded outbreaks of milk-borne diseases during the previous five-year period.

1901

May 9th, financial panic in New York City began.

* * *

September 6th, President William McKinley shot by an anarchist. Died September 14th.

* * *

December 12th, Marconi signalled letter "S" across Atlantic from England to Poldhu, Newfoundland. First radio message

sent in December 1902.

1903

January 27th, John D. Rockefeller announced gift of $7,000,000 to be used in tuberculosis research.

* * *

December 12th, first successful mechanical aeroplane flight by the Wright brothers, from Kill Devil Hill on the North Carolina seacoast, four miles south of Kitty Hawk.

1904

April 30th, Louisiana Purchase Exposition opened at St. Louis, Mo.

1905

Sixty recorded outbreaks of milk-borne diseases during previous five-year period.

* * *

July 16th, Peary sailed from New York for North Pole.

1906

April 18th, earthquake and fire nearly destroyed San Francisco, Calif.

1907

In January, in Noblesville, Ind., 18 cases of typhoid fever reported, no deaths, 15 cases of which used raw milk, purchased from farmer who had had typhoid.

* * *

January 1st, United States Pure Food Law became effective.

1908

In March-May, in Jamaica Plains, Mass., 410 cases of typhoid fever reported, no deaths, 348 cases of which used raw milk supplied by dairies. Probable means of infection through interchange of infected cans.

1909

In April-May, in Cranford, N. J., 20 cases of typhoid fever reported, no deaths, 19 cases of which used raw milk. Bottles from first case probable source.

1910

In April, in Boston, Mass. and vicinity, 842 cases of scarlet fever reported, no deaths, 673 cases of which used raw milk. Case found on producing farm. Milk pasteurized and outbreak stopped.

1911

In May-June, in Minneapolis, Minn., 75 cases of diphtheria reported, 1 death, 68 cases of which used milk. All users of this milk cultured (221) and 67 found with diphtheria bacilli. One of 4 milkers found to be a carrier.

1912

In February, in Baltimore, Md., 2,000 to 3,000 (estimated) cases of septic sore throat reported, 16 deaths, from pasteurized milk, flash. Origin: early cases largely on one supply; epidemic later became prosodemic. Pasteurization not used between January 28th and February 5th.

1913

In April-May, Cortland and Homer, N. Y., 669 cases of septic sore throat reported, 14 deaths, 470 cases of which used raw milk. Origin: garget among cows. Cultures from these cows gave streptococci--the same organisms isolated from several cases.

* * *

January 1st, parcel post was put into operation in the United States.

1914

In May, at State Hospital, Massilon, Ohio, 20 cases of diphtheria reported, 4 deaths, from raw milk. Cases on one supply. Several milk cases of sore throat at dairy before outbreak.

* * *

June 28th, Direct wireless communication was established between Germany and the United States.

1917

In February-March, in Galesville, Wis., 325 cases of septic sore throat reported, no deaths, due to milk and ice cream. Origin: users of milk and ice cream from one dairy. Severe case in dairyman. Case on farm. Streptococci in milk of six cows, three of them with mastitis.

* * *

April 6th, the United States declared war against Germany.

1918

In April, in Holliston, Mass., 125 cases of scarlet fever reported, no deaths, from milk. Milker and son had scarlet fever on farm.

* * *

November 11th, end of World War.

1920

In October, in Hillsdale, Mich., 83 cases of typhoid fever reported, 8 deaths, from milk. Origin: all on one route. Dairyman found to be carrier.

1921

In April, in Williamstown, Mass., 53 cases of scarlet fever reported, no deaths, from milk. Case in producer's family.

1924

In January-February, in Harrogate, Tenn., Lincoln Memorial University, 100 cases of typhoid fever reported, 8 deaths, using raw milk, from unsanitary farm where dairyman had typhoid.

1926

In September, in towns south of Guilford and New Haven, Conn., 80 cases of septic sore throat reported, no deaths, from certified milk. Origin: case ill on farm one week before going to hospital. Pasteurization checked outbreak.

1927

May 20th, Charles E. Lindbergh left Roosevelt Field, Long

Island, in "Spirit of St. Louis" for first non-stop flight between New York and Paris. Arrived following day.

1930

October 5th, the British $5,000,000 dirigible balloon, R-101, largest in the world, crashed near Allone, France. 47 were killed.

1931

June 20th, President Hoover proposed a 1-year moratorium on inter-governmental debts.

1934

February 17th, Albert I, King of the Belgians was killed by falling from a cliff overlooking the River Meuse, east of Namur.

* * *

March 22nd, U. S. Congress granted Philippine independence, later ratified by the Philippine Legislature, effective in 1945 or soon thereafter.

1937

Farmers received $1,475,000,000 from sale of milk--an increase of $490,000,000 over milk income for the year 1932.

REPORT ON CITY WIDE SURVEY
OF PORTLAND MILK CONSUMERS

PURPOSE OF THE STUDY

The purposes of the following study and survey were to obtain statistical information as to consumer reaction on various pertinent factors determining the motives which impel the purchase of dairy products. Other objects of the study were to determine statistically the consumption of dairy products per family and the relative increase or decrease of family consumption as the number of the persons in the family increased. Also, an endeavor was made to determine consumer preference for pasteurized or raw milk. The preferred medium through which consumers placed orders for milk were also determined. Other objects of the survey can be seen by a review of the questionnaire submitted. Following is a copy of same:

1. Do you favor milk prices being set by a milk board?
   Yes____ No____
2. Do you favor other regulation of the industry by a milk board? Yes____ No____
3. Indicate number of persons in family____ Adult___ Children___
4. Indicate number of quarts of milk used each day____
5. Indicate number of quarts purchased from store____ from delivery man____
6. When buying milk at a grocery store do you ask for it by brand or trade name___or do you just ask for milk___?
7. Do you pour off the cream and use it in coffee or tea____ or do you mix the entire milk and use it whole____?
8. Indicate the reason or reasons why you prefer raw or pasteurized milk. If immaterial as to which you use, check here____

PASTEURIZED MILK

1. Safer____
2. Lower bacteria count____
3. More food value____
4. Better flavor____
5. Doctor's advice____
6. Other reasons_____

RAW MILK

1. Safer____
2. Lower bacteria count__
3. More food value___
4. Better flavor___
5. Doctor's advice___
6. Other reasons_____

9. All milk sold in Portland is Grade A milk whether raw or pasteurized.
   1. Indicate if you believe there is any difference in taste between raw milk and pasteurized milk Yes__No__
   2. Do you believe one milk is as good as another and that there is no difference in quality. Yes__No__
   3. Indicate if you believe milk to be fattening. Yes__No__
   4. Have you ever been inside a Grade A Pasteurizing plant? Yes__ No__
   5. Have you ever been inside a Grade A Raw milk Dairy? Yes__ No__

10. Indicate by checking the reason or reasons below why you now take from your present dairyman.
   1. Have confidence in the quality of milk we receive___
   2. Believe the quality of this milk superior to others___
   3. Doctor advised me to buy from this dairy___
   4. Personal friendship with the owner___
   5. Like the routeman personally___
   6. Bought to help a milk solicitor___
   7. Like the time of delivery best___
   8. Like the trucks of this dairy better___
   9. Like method of collections better___
   10. Dairy gives me extra little services___
   11. Believe the cream line on this milk better than others___
   12. Former dairy merged with this one and we continued___
   13. Business reasons or reciprocity___
   14. Buy at a better price___
   15. No particular reason for preference___
   16. Other reasons_____

11. Check the method of selling that attracted you to purchase from your present milkman.
   1. Radio advertising___
   2. Bill board advertising___
   3. Circulars___
   4. Personal call by owner___
   5. Bought from a solicitor__
   6. Ordered from routeman___
   7. Ordered from phone book___
   8. Recommended by another customer___

12. Indicate the number of years you have taken milk from

your present milkman___
13. Indicate the number of years you took from your previous milkman___
14. Indicate the reason or reasons below why you discontinued with your previous milkman.
    1. Quality seemed to fall off and we changed then___
    2. Changed because dairy was not as clean as we thought it should be___
    3. Change of driver___
    4. Didn't like the driver___
    5. Employee was discourteous to one of the family___
    6. We moved and milkman couldn't serve us at new address___
    7. Dairy sold out and we didn't wish to continue with new firm___
    8. Went on vacation and ordered from solicitor when we returned___
    9. Changed to help solicitor___
    10. Discontinued temporarily and didn't start again___
    11. Changed for business reasons of reciprocity___
    12. Changed because of better price___
    13. Other reasons_____
15. Indicate the substitutes you use for milk. Coffee__ Tea__ Cocoa___ Orange juice___ Beer___ Others_____

TERMINOLOGY

Various terms used in the questionnaire are self-explanatory, as they all refer to common experiences of the average family. The interpretation of the information herein obtained is the more important factor.

By way of explanation, the Portland milk shed distributes only Grade A milk. This is either raw or pasteurized, but in no case is there a lower grade of milk than Grade A.

SCOPE OF STUDY

This survey covers 2,000 questionnaires submitted to the retail trade on five milk routes in various parts of

the City of Portland, Oregon. These routes covered districts of all classes, from the merely well-to-do to the middle classes and the poor classes. Actually 5% of the questionnaires went to people on county relief.

These five routes covered by the questionnaires are the routes of Goss Brothers Dairy, and the people interviewed were actual present customers and past customers who had discontinued service for one reason or another. It is the writer's belief that these families interviewed actually represent a reasonable cross-section of the entire milk buying public of Portland; that is, the entire public that buys from route deliverymen. Obviously, the survey does not cover those residences who buy dairy products exclusively from the grocery store or who do not buy dairy products at all. It is reasonable to say that the figures here assembled are fairly representative of the active dairy products market in Portland.

The method of sampling used was to mail a questionnaire as indicated above to the family to be interviewed, including with the questionnaire a self-addressed, stamped, return envelope. It was emphasized on the questionnaire that no names were desired and that the person did not need reveal his or her identity. Despite this fact a large percentage signed the questionnaire.

Actual returns were quite gratifying, as 20% answered

the questionnaire, or accurately, 408. Of those answering approximately half did so by return mail; the other half came in within one week. An effort was made to determine if there was any difference in consumer reaction between those making immediate returns and those making delayed returns. No appreciable difference could be noted other than that those answering immediately more often signed their names to the questionnaire and made additional remarks. In several cases these additional remarks amounted to lengthy letters of opinions on various matters touched upon by the questionnaire. Particular among those matters commented on were the facts; first, that since milk prices had increased, their consumption had dropped off; second, there was no actual substitute for milk; that instead of substituting for milk other beverages were used in addition.

It is interesting to note that the time element has been a big factor in this survey. Six weeks prior to mailing this questionnaire the price of milk in Portland had been increased one cent. This market to some extent, affected the return, coloring the answers with a slight consumer prejudice against the governmental regulation of prices. At this point it is important to mention that milk prices in Portland are controlled and set by the Oregon Milk Control Board, a state commission appointed by

the governor. The important statistics here obtained were in no way affected by any consumer prejudice. It was only in the questions calling for opinions that this consumer prejudice had any effect, and even here it is difficult to determine to what extent this prejudice colored the answers.

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The first matter of inquiry was as to consumer reaction to prices being set by the Oregon Milk Control Board. The question was put in this manner: "Do you favor milk prices being set by a milk board?" The answer here was that 36% actually favored the price fixing by the Board, and 59% objected to price fixing. Those not answering constituted 5% of all reporting. This same matter was inquired into in the next question: "Do you favor other regulation of the industry by a milk board?" Here the reaction reversed in that 62% favored other regulation of the industry and 27% opposed regulation, 11% not answering. These reactions are revealed in the following table.

TABLE A - Regulation of milk prices and the milk industry by a milk board

Question 1 - Do you favor milk prices being set by a milk board?

Not answering	No. in favor	Against	% not answering	% in Favor	% against
20	144	236	5%	36%	59%

Question 2 - Do you favor other regulation of the industry by a milk board?

Not answering	No. in favor	Against	% not answering	% in Favor	% against
44	248	108	11%	62%	27%

This survey revealed that close to 408 families reported, that the total number of persons in these families was 1,436 with an average of 3.6 persons per family. Of these 952 were adults and 484 were children. No endeavor was made to obtain the various divisions of children by age. The average number of children per family was 1.18. The average number of adults per family was 2.42. The average daily consumption per family was 1.76 quarts or 12.32 quarts of milk per week. This latter figure is very close to the actual average consumption of all families, as has been proven by a survey conducted in 1929 of the Philadelphia milk market, in which 12.19 quarts of milk per week constituted the average consumption of 1370 families surveyed. Of those interviewed 95% indicated that they bought from a regular route man. Of these 24% bought additional quantities of milk from the grocery store. Apparently 5% of those interviewed bought no milk at all.

This questionnaire endeavored to ascertain whether or not milk purchased from grocery stores was asked for by brand or trade name or was just asked for as milk. This question revealed that 26% asked for milk by trade name, that is asked for the product of some particular dairy, whereas 47% merely asked for milk. Those undetermined in their own minds or otherwise failing to answer amounted to 27%.

The manner in which milk is used is important in determining milk consumption. It is a recognized fact that the desirable butterfat content of milk is 4%, for the reason that 4% butterfat is the average consistency of human milk. With this in mind the survey endeavored to determine what per cent of the public poured the butterfat or cream off the top of the milk and used it as cream for various purposes; in coffee, on cereals, etc., and what per cent mixed the milk and drank it whole. Results showed that actually 50% of the families poured off the cream and 50% used whole milk. These figures, however, must be interpreted after considering certain psychological factors involved, and it may be reasonably stated that more than 50% poured cream off for use in coffee and for other purposes for the reason that many people are reluctant to admit that they rob whole milk for drinking purposes of its essential butterfat.

The above information has been compiled in statistical form as follows.

TABLE B - Consumption of milk by average families

No. of families reporting	408
No. of persons in families	1436
No. of persons per family	3.6
No. of children	484
No. of adults	952
Children per family	1.18
Adults per family	2.42
Qts. per family per day	1.76

Qts. per family per week	12.32
Families buying from regular routeman	95%
Families buying extra milk from store	24%
Families buying no milk at all	5%
Families asking for milk by trade name	26%
Families asking for just milk	47%
Families undetermined	27%
Families pour off cream	50%
Families drink whole milk	50%

As the size of the family increases this survey disclosed that the reported per capita consumption of milk decreases. The greater the number of children per family it would appear from the standpoint of health the more milk should be used by that family, but actually the reverse of this situation has proven the fact. There must be a definite relationship between size of family and income, since the poorer families seem to be the larger families, and the larger families show the least per capita consumption of milk.

This is borne out in the following table showing the number of families reporting with from one person to nine persons, also showing the distribution of these families according to adult population and children. The total family consumption seems to increase up to a point of four persons per family. At this point the average family of four persons takes two quarts of milk per day, or an average of one pint of milk per person. From this point the per capita consumption materially drops until it reaches a low

point of .22 of a quart per person in the largest family of nine persons.

These statistical conclusions may be questioned in the smaller family groups and the larger family groups because of the limited number of families reporting, but on the whole the data can be considered as quite accurate, as it conforms very closely to the report from Philadelphia's 1929 survey. Milk being divided into quart and pint units seems to cause some restriction on milk consumption among the larger family groups. Many reported the use of additional cream and whipping cream at various times during the week. These were considered in arriving at the average consumption. The following table accurately reveals the trends in this respect.

TABLE C - The daily per capita consumption of milk by size of family

No. in family	No. of families	No. of adults	No. of children	% of adults	% of children	Daily consumption	Daily consumption
1	4			100%		.75	.75
2	96	186	6	97%	3%	.85	.43
3	100	236	64	78%	21%	1.32	.44
4	116	336	128	73%	27%	2.	.50
5	56	168	112	60%	40%	2.21	.442
6	24	52	92	36%	64%	2.66	.44
7	4	12	16	43%	57%	2.33	.42
8	4	8	24	25%	75%	2.	.22
9	4	8	28	17%	83%	2.	.22
Average	408	952	484	59%	41%	1.76	.437

It would be interesting to survey these same families in the light of their different income groups. The variation in income would undoubtedly correspond closely to the scale of milk consumption. Also, it would be interesting to cover these same points on the basis of nationality of the families surveyed.

There is an active preference among various people for either pasteurized or raw milk; various reasons are given for the preferences of each group. In order to make some statistical comparison of the relative importance of these preferences the survey has endeavored to learn the reason or reasons given by various people why they make an actual preference. Pasteurized milk has by far the greater consumer preference for the two reasons that people believe it to be safer and that it has a lower bacteria count. Raw milk is preferred for the principal reason that a better flavor is claimed for it. The following table reveals the relative number of times the reasons were given for preferences. These are all opinionated reactions and can be attributed to additional factors which influence milk purchasers. For an example, considerable information has been broadcast from time to time as to the relative safety of raw milk and pasteurized milk. This education has been directed to create the impression that pasteurized milk is far the safer, and this survey discloses the fact that this is

uppermost in the consumer's mind. Second in importance and very closely associated with the first reaction is the belief that pasteurized milk generally has a lower bacteria count. It is interesting to note the one controversial point in which the medical profession is credited with recommending pasteurized milk to 56 of those reporting and raw milk to 16 of those reporting.

The table of results follows:

TABLE D - Reasons for preference of raw or pasteurized milk. Of those answering 40 stated that it was actually immaterial to them whether they used raw or pasteurized milk.

PASTEURIZED MILK	RAW MILK
1. Safer 176	1. Safer 8
2. Lower bacteria count 162	2. Lower bacteria count 12
3. More food value 32	3. More food value 76
4. Better flavor 76	4. Better flavor 88
5. Doctor's advice 56	5. Doctor's advice 16
6. Other reasons 32	6. Other reasons 12

Two questions were asked in order; one, whether or not the consumer believed there to be any difference in taste between raw and pasteurized milk; the other, whether or not the consumer believed there to be an actual difference of quality in various milk sold on the market. The first question was designed to determine the consumer reaction to a technical controversy in which, on the one hand, the advocates of pasteurized milk claimed that raw milk has a decided "cowy" or "barny" taste, and the advocates of raw

milk claimed that pasteurized milk has a burnt or scorched taste. Advocates of pasteurized milk, on the other hand, claimed it to have a neutral and pure taste, whereas advocates of raw milk claimed it to have a natural and normal taste. The second question was designed to determine whether consumers actually believe one milk to be as good as another or felt that there was an actual noticeable difference. Those believing that there is a difference in taste were 308 as against 76 believing there was no difference in taste between raw and pasteurized milk. Those believing one milk was as good as another were 76 against 308 believing there was an actual difference. In the light of the above question determining the preference for pasteurized or raw milk it would seem these two latter questions were answered very earnestly in that the answers balanced each other perfectly. One must conclude that the preference was for pasteurized milk.

TABLE E - Opinions as to difference in tastes and quality of milk.

	YES	NO
1. Indicate if you believe there is any difference in taste between raw milk and pasteurized milk.	308	76
2. Do you believe one milk is as good as another and that there is no difference in quality.	76	308

In answer to the question as to whether the consumer believes milk to be fattening--134 stated they did; 140 stated they did not believe it fattening. On many of those questionnaires returned in the negative it was stated that the consumer believed milk to be nourishing instead of fattening. This was stated many, many times. The question was designed to determine whether there existed any actual consumer prejudice against milk on the assumption that it was fattening. Apparently the suspicion that such prejudice existed has been fully confirmed.

Two other questions are designed to determine to what extent consumers were acquainted with the dairy industry. It was asked how many had ever been inside a Grade A milk pasteurizing plant. By far the majority of people have never been inside either a pasteurizing plant or a Grade A raw milk farm. The distributors or pasteurizers of milk have apparently done a much better job of acquainting the public with the production and distribution facilities in that 124 reported they had been inside various pasteurizing plants as against 92 who stated they had been inside a Grade A raw milk dairy. It would seem from these figures that the average dairyman has a great deal to accomplish in the way of enlightening the public as to the facilities offered for serving their milk requirements.

The chief purpose of this study has been to determine consumer reaction as to the relative importance of various

factors in the process of selling milk. To this end a list of fifteen reasons were given why consumers take from a particular dairyman. The following chart shows these reasons enumerated together with the number of times each reason was checked by a consumer as a factor leading to his or her preference, by far the most important reason given was that the consumer had confidence in the quality of the milk received. Next important was that the consumer believed that the products he or she was receiving were superior to the products of other dairies. The most relevant fact developed from the five milk routes studied was that the customers bought from this particular dairy because of personal friendship with the owner, as the chart shows this factor to have been checked 120 times. Some allowance must be made for the first two items having the greatest indicated preference because they were listed 1 and 2 on the questionnaire. However, the fact that No. 3 on the questionnaire received only eight indications of preference leads to the conclusion that No. 1 and 2 must have been given only fair consideration along with other items on the list. The writer believes that the consumers' reaction to these questions were entirely fair in that the tabulation shows no exact gradation from 1 to 14, but on the contrary No. 14 showed no marks of preference, No. 15--44.

It would seem entirely axiomatic that a consumer must

have "confidence in the quality of milk received." Therefore, this factor can be eliminated in a comparative study of the other factor. Of these factors, then, the belief on the consumer's part that the milk received is superior to other brands is by far the most impelling factor, causing the consumer to buy from any particular dairyman.

In studying these reactions it is well to bear in mind that the second most important want or desire of human beings is the desire for personal health. It is, therefore, only natural that the consumer believes the quality of milk he receives to be superior to other brands. This fact has long been recognized on the part of dairy salesmen because experience shows that many salesmen run down competitors in an effort to build up their own reputation as having a superior quality.

The most important want or desire of people--the desire for wealth--is graphically represented in this survey by item No. 11 in which the consumers show their preference in the belief that the cream line of one particular line of milk is better than others. This item received 76 check marks showing that many feel that when they get a longer cream line on their milk bottle they are thereby getting more for their money.

Personal friendship with the owner as recorded herewith has 120 marks of preference coupled with the belief

that the quality of one milk is superior to another would seem to be an unbeatable combination; in other words, if the customer has personal knowledge of the dairy ownership or management together with a belief that the product is of higher quality such customer is bound to be more or less permanent.

TABLE F - Reasons for preference of present milkman.

1. Have confidence in the quality of milk we receive	280
2. Believe the quality of this milk superior to others	128
3. Doctor advised me to buy from this dairy	8
4. Personal friendship with the owner	120
5. Like the routeman personally	48
6. Bought to help a milk solicitor	20
7. Like the time of delivery best	64
8. Like the trucks of this dairy better	12
9. Like method of collections better	36
10. Dairy gives me extra little services	40
11. Believe the cream line on this milk better than others	76
12. Former dairy merged with this one and we continued	12
13. Business reasons or reciprocity	32
14. Buy at a better price	00
15. No particular reason for preference	44
16. Other reasons	24

An effort was made in this survey to determine the method of selling to persuade the customer to buy from this particular dairy. It is interesting at this point to note a report made by the United States Department of Agriculture, Statistics for 1936, to the effect that during the past twenty years milk dealers have made an intensive effort to increase the per capita consumption of milk, and during this entire period large sums have been expended in encouraging the greater use of dairy products, particularly of milk. The net result of these endeavors is that in the United States

the per capita use of milk is not far from where it was at the beginning of this effort.

The following chart shows the relative importance of various sales methods in the acquisition of retail customers for this particular dairy. Far above all others in importance is the personal call by the owner which accounts for 140 sales out of 328 reported. Next in importance was the recommendation of this dairy's products by other customers which accounted for 80 sales. Next in importance was the paid solicitor which accounted for 52 sales, and next the effort of the regular routeman, accounting for 40 sales.

TABLE G - Methods of selling that attracted purchasers.

1. Radio advertising------ 0	5. Bought from a solicitor-52
2. Bill board advertising- 0	6. Ordered from routeman---40
3. Circulars------------- 4	7. Ordered from phone book-12
4. Personal call by owner-140	8. Recommended by another customer----------80

This information coupled with the fact that many purchase because of personal acquaintance with the owner of the dairy leads us to make but one conclusion: that the entire business is a very personal one and that the personal equation is by far the largest factor to be considered.

The next two questions presented in this survey were aimed to determine the number of years the customers had been taking from their present milkman and the number of years they took from their previous milkman.

TABLE F - Indicated number of years taken from present and previous milkmen.

No. of years	1	2	3	4	5	6	7	8 to 19
Present milkman	124	76	64	84				
Previous milkman	76	44	52	20	12	4	4	40

Not enough information is obtained on this point from which to make long-time conclusions. However, it is obvious that on the five routes surveyed the customers are staying with the dairy a much longer time than they did with their former dairy. As a general matter it would seem that no more than 20% of the retail customers stay with a dairy four years or longer. The routes under survey have been in existence for less than five years. It is, therefore, difficult to make any determination as to a customer turn-over on these routes, but from the record of length of time with the former dairies it would seem that the minimum yearly turn-over would be 33%. This question of customer turn-over has been variously estimated by dairy officials as from 25% per year to 125% per year. It is therefore obvious that customer turn-over is a matter of individual concern, and figures for one business would not be entirely comparable to another business.

The next major factor under consideration by this survey was the cause of customers discontinuing with one dairy and going to another. Questions asked in this connection and the returns made are indicated by the following

chart.

TABLE I - Indicated reasons for the discontinuance of milk with previous milkmen.

1. Quality seemed to fall off and we changed then	64
2. Changed because dairy was not as clean as we thought it should be	4
3. Change of driver	0
4. Didn't like the driver	16
5. Employee was discourteous to one of the family	0
6. We moved and milkman couldn't serve us at new address	32
7. Dairy sold out and we didn't wish to continue with new	40
8. Went on vacation and ordered from solicitor when we returned	8
9. Changed to help solicitor	8
10. Discontinued temporarily and didn't start again	60
11. Changed for business reasons of reciprocity	24
12. Changed because of a better price	0
13. Other reasons	72

The most important single reason given for changing from one dairy to another was that the quality of the product seemed to fall off. This reason is justifiable and explainable when we realize that during various seasons of the year the quality of milk given by cows will vary. The actual butter-fat solids will vary and solids not fat will vary. These changes are evidenced by a change in the cream line on the milk bottle and a change of density of the milk. Both changes are visible and both indicate change of quality; but, as a matter of fact, these variations occur with all dairies at approximately the same time. Therefore, when a person changes from one dairy to another for this reason, it is seldom that the customer has improved himself.

The second most important cause for change from one dairyman to another is that the customer discontinued temporarily but failed to start again with their old dairyman. This is a business factor and can be controlled entirely by the dairy management by means of proper follow-up on discontinued accounts.

The final matter under consideration in this survey was that of substitutes used for milk. Nearly everyone reporting on this question enumerated three or more substitutes for milk. The table of preference is as follows:

TABLE J - Substitutes for milk

Coffee	276	Orange juice	160
Tea	220	Beer	20
Cocoa	160	Others	60

This survey has been made by one individual. Because of the scope of the information inquired into the survey had to be limited to five routes of one dairy. It undoubtedly would have been more desirable had several interviewers entered into this task together and reported their findings from personal interviews. In order to get a representative cross-section of the active consuming public it would have been impossible for a single interviewer to have covered the ground within a reasonable time. That is the chief reason for the survey being conducted by mail.

It is possible that this survey undertook too ambitious a program in that it covered such a large field of inquiry. The consumers answering these questions must have often wearied of their task before reaching the bottom of the page. Had such a big questionnaire been presented by personal interview, various means could have been used to maintain the consumers' interest to the end.

This is not the first survey to be conducted in Portland. The leading dairy of the city recently surveyed the consuming public who bought dairy products from the grocery stores. This company's information revealed that 70% of the people buying from grocery stores specified the milk they wished by brand or trade name, that 36.1% picked up milk at the grocery store, that 5.2% of the people had milk delivered by their grocery man, that 52.9% of the people had milk delivered by their regular routeman and that 5.8% of the entire population used no milk at all. These surveyors divided the market into an upper market and a lower market and determined that in the upper market 66.2% of the people had milk delivered to the home by a regular dairyman, and that in the lower market only 42.5% had daily home delivery; that in the upper market 7.3% of the people bought extra milk from the grocery store and in the lower market 3.7% bought extra milk from the grocery store. In the upper market they found that 24.4% of the people

buying milk from the grocery store picked it up and that in the lower market 45.2% of those who purchased milk from the grocery store picked it up at the store. They further found in the upper market that 2.1% of the people used no fresh milk at all, and that in the lower market 8.6% of the public used no milk at all. They found average family consumption to be 11.3 quarts per week in the upper market and 7.7 quarts per week in the lower market.

These figures have some significance, but at the same time one can observe a certain tampering of facts to fit the particular market served by the surveying dairy. It must be noted that the dairy making this survey specializes in wholesale delivery to grocery stores.

An important survey has been conducted by the Pennsylvania State College, School of Agriculture and Experiment Station, Department of Agricultural Economics, and the United States Department of Agriculture, the Bureau of Agricultural Economics, on the question of the consumption of fluid milk and other dairy products in Philadelphia, Pennsylvania. This was carried on in June, 1934. This particular survey covered fluid milk, condensed and evaporated milk, butter, and other dairy products. In this survey twenty-one young men and women from Pennsylvania State College served as enumerators. They interviewed 3,413 families. These families were selected at random

throughout Philadelphia, a certain number from each section of the city; thus they obtained a representative cross-section of the entire population of Philadelphia. In their survey they endeavored to determine actual butter substitutes and the per capita consumption of all items carried by a dairy, such as cream, milk, condensed milk, evaporated milk, chocolate milk, buttermilk, butter, ice cream, and cheese. This report has been made and is available in mimeograph form.

In their survey they aimed to determine milk drinking habits and the motivating factors behind the habit such as doctor's orders, special appetite, a meal beverage, etc. They differentiated between the habits of various ages and determined the relative consumption of different age groups. They also compared the consumption of milk over a period of years during prosperity and depression and then made a different tabulation as to milk consumption by native white population, colored population, Jewish, and Italian. Their survey showed that 98.5% of the milk used in Philadelphia was purchased from the regular delivery wagons. The remaining 1.5% of the milk used in homes was obtained from stores.

This survey also endeavored to determine the length of time the customers purchased from their present dealers. Each family that purchased milk from a delivery truck or

distributor was asked the length of time the family had been purchasing from their present dealer: 16% had been buying from their present source for one year or less; 44% had been purchasing for five years or less, 25% from five to ten years, 15% from ten to fifteen years.

The reasons given for buying from a particular dairyman were 28% because of confidence in their present supply, and 20% because of cleanliness of their present supply. In Philadelphia it is significant to note that only 5% of the reasons given by the consumers for dealing with their present dairymen were that they had an acquaintance with some owner or employee of the firm.

This Philadelphia survey endeavored to obtain information on the type of store, either chain or individual ownership, from which the milk was purchased, also the type of container, a bottle or can, and the type of bottle cap preferred by certain consumers.

It is interesting to note that Philadelphia has both Grade A and Grade B milk. Philadelphia has a milk control board comparable to the Oregon Milk Control Board.

SUMMARY

Those favoring milk price fixing by a board are 36%; those against, 59%; not interested, 5%.

Those in favor of some form of regulation in the industry, 62%; against, 27%; not interested, 11%.

The average number per family, 3.6 persons, of which 1.18% are children and 2.42% adults. The average consumption per family is 1.76 quarts, average weekly consumption, 12.32 quarts. Those buying from regular route men, 95%; those buying some from grocery stores, 24%; those buying no milk at all, 5%.

Of those buying milk at grocery stores, 26% ask for it by trade name; 47% ask for just milk.

An even 50% of milk purchasers pour off the cream.

The per capita milk consumption is less in large families than in small families. Some of this per capita consumption may be due to lower incomes in the larger family groups.

Consumer preference is for pasteurized milk; the reasons given being that it is safer and has a lower bacteria count.

Consumers can tell the difference between pasteurized and raw milk and believe that there is an actual difference in quality.

A general prejudice exists against milk on the ground

that it is fattening.

Very few consumers ever visit their milk distributor's plant or Grade A farm.

The chief reasons for preference of one dairy over another are confidence in quality of milk received by one dairy and the belief that this quality is superior to other dairies.

The most effective sales methods are personal contact by solicitors and the regular deliveryman.

The average yearly turn-over milk customers is not less than 33%.

The greatest reason indicated for changing from one dairy to another is variation or falling off of quality of product.

The most important substitutes for milk are coffee and tea.

MILK CONTROL BILL

Enacted by the Second Special Session of the Oregon Legislative Assembly, 1933

AN ACT

To provide for the supervision and control of the milk industry of the state of Oregon; to create a milk control board to exercise such supervision and control pursuant to the provisions of this act; to provide for the manner of selecting the members of said milk control board and fixing their compensation; to prescribe and define the powers and duties thereof, providing penalties for violation of this act, making an appropriation therefor; and declaring an emergency.

Whereas the production and distribution of milk and cream is a paramount industry upon which to a substantial degree the prosperity and health of the people of the state of Oregon depend; and the present economic emergency is in a large part the result of the disparity between the prices of milk and cream and other commodities, which disparity has diminished the power of milk producers to purchase industrial products, has broken down the orderly production and marketing of milk and cream and has seriously impaired the agricultural assets supporting the credit structure of the state and the local political subdivisions thereof; and

Whereas unhealthful, unfair, unjust, destructive and demoralizing economic trade practices have grown up and are now carried on in the production, sale and distribution of milk and cream and milk and cream products in this state which impair the dairy industry in the state and the constant supply of pure, wholesome milk to the inhabitants thereof, and constitute a menace to the health and welfare of the inhabitants of the state; and

Whereas, in order to protect the well-being of the people of the state of Oregon and promote the public welfare, the production, transportation, manufacture, storage, distribution and sale of milk and cream in the state hereby is declared a business affecting the public health and interest which should be supervised and controlled in the manner hereinafter provided; therefore,

Be It Enacted by the People of the State of Oregon:

Section 1. As used in this act, unless otherwise expressly stated, and unless the context or subject matter clearly indicates otherwise:

"Person" means any person, firm, corporation or association;

"Board" means the milk control board created by this act;

"Milk dealer" means any person who purchases or handles milk within the state for sale in this state, or sells milk

within the state, except when consumed on the premises where sold. A producer who delivers milk only to a milk dealer shall not be deemed a milk dealer;

"Producer" means a person producing milk within the state of Oregon;

"Consumer" means any person other than a milk dealer who purchases milk for human consumption;

"Milk" means fluid milk and sweet cream sold for human consumption in fluid form;

"Market" means any city, town or village of this state, or in two or more cities, towns or villages and surrounding contiguous territory designated by the board as a natural marketing area;

"Store" means any grocery store, hotel, restaurant, soda fountain, dairy products store or any other mercantile establishment wherein milk is sold as an article of merchandise.

"Producer-distributor" means any producer who maintains his own herd, prepares and puts in containers for human consumption the milk produced from such herd and distributes and sells either partially or exclusively his own product direct to stores or consumers. The terms "Milk dealer" and "Producer" heretofore defined, wherever used in this act, shall include the term "producer-distributor".

Section 2. There hereby is created a milk control board

consisting of three (3) members, who shall be appointed by the governor and may be removed at any time. One member of the board shall be a resident of the first congressional district, one a resident of the second congressional district and one a resident of the third congressional district of the state. No member of the board shall be a milk dealer or producer as the terms herein are defined, nor shall any member have any financial interest in or own stock in any business or enterprise carrying on business as a milk dealer or producer. Any vacancies occurring in the board shall be filled by appointment of the governor. The members of the board shall not receive any salary, but shall be paid the sum of ten dollars ($10) per day for each day actually spent in the performance of their official duties, plus their actual and necessary expenses. The total compensation of any member of the board, except for actual and necessary expenses, for services performed in any one calendar month shall not exceed the sum of one hundred fifty dollars ($150).

The director of the department of agriculture shall act as executive secretary of the board. He may designate some member of his staff to act in his place and stead. The executive secretary shall receive no compensation. The executive secretary shall exercise such powers as may be conferred, and perform such duties as may be imposed by the board. The department of agriculture shall assist the board

in every convenient manner in the execution of the purposes of this act.

Section 3. The board hereby is declared to be an instrumentality of the state, vested with power (a) to confer and to cooperate with the legally constituted authorities of other states and of the United States, with a view to securing a uniform system of milk control with respect to milk coming into this state and going out of this state in interstate commerce, and particularly to cooperate with the duly constituted authorities of the United States vested with the administration of the agricultural adjustment act and the national industrial recovery act and such other acts of Congress as are designed to encourage and promote agricultural and industrial recovery, and to coordinate the activities of and the powers exercised by the board with said other duly constituted authorities with a view to accomplishing the purposes of this act and to enter into compact or compacts for such uniform system of milk control; (b) to investigate with Oregon State college all matters pertaining to the production, manufacture, storage, transportation, distribution and sale of milk in the state of Oregon; (c) to supervise and regulate the milk industry of the state, including production, as defined in section 13 hereof, transportation, manufacture, storage, distribution and sale of milk; (d) to act as mediator or arbiter in any

controversial issue that may arise among or between milk producers and milk dealers as between themselves, or that may arise between them as groups; (e) to examine into the business, records and accounts of any milk dealer, to issue subpenas to milk dealers and to require them to produce their records, books and accounts; to subpena any other person from whom information is desired; (f) to take depositions of witnesses within or without the state; (g) to adopt and enforce all rules, regulations and/or orders necessary to carry out the provisions of this act; (h) to exercise such other powers as hereinafter are specified.

Section 4. No milk dealer shall buy milk from producers or others for sale within this state, or sell or distribute milk within the state, unless such dealer is duly licensed so to do as provided in this act. It shall be unlawful for a milk dealer to buy milk from or sell milk to a milk dealer who is not licensed under this act. It shall be unlawful for any milk dealer to deal in or handle milk if such milk dealer has reason to believe it has previously been dealt in or handled in violation of the terms and provisions of this act. The board may by official order exempt from the license requirements provided by this act milk dealers selling milk in any quantities in markets of 15,000 population or less.

Section 5. An application for a license to operate as

a milk dealer shall be made within thirty (30) days after this act takes effect. The applicant shall state the nature of the business to be conducted, the full name and address of the person applying for the license, if an individual, and if a copartnership the full name and address of each member thereof, and of a corporation the full name and address of each officer and director, the name of the town and street number at which the business is to be conducted, the facts showing that the applicant has adequate personnel and facilities to properly conduct the business of handling and selling milk, that the applicant has complied with all rules, regulations and orders of the board, and such other facts with respect to the applicant as may be required by the board. The application shall be made on blanks furnished by the board for the purpose, and when filed with the board shall be accompanied by the license fee required to be paid by this act. The license granted to the applicant by the board shall be subject to the provisions of this act.

Section 6. The board may decline to grant the license, or may suspend or revoke a license of any applicant, upon due notice and opportunity to the applicant to be heard, when it appears (a) that the milk dealer has failed to account and make payment, without reasonable cause, for milk purchased from a producer; or (b) that a milk dealer

has committed any act injurious to the public health, welfare or to trade or commerce in milk to such an extent as to obstruct the purposes of this act; or (c) where a milk dealer has continued in a course of dealing of such nature as to satisfy the board of his inability or unwillingness properly to conduct the business of handling or selling milk; or (d) where a milk dealer has continued in a course of dealing of such nature as to satisfy the board of an intent to deceive or defraud the producers or consumers; or (e) where a milk dealer has failed either to keep records or to furnish the statements or information required by the board; or has failed to pay the license fees required by this act to be paid; or has failed to obey any lawful subpena, rule, regulation or order of the board; or (f) where any material statement upon which the license was issued is or was false or misleading; or (g) where a milk dealer has violated any of the provisions of this act.

Section 7. Applicants for licenses shall pay the following license fees:

(a) All stores shall pay an annual license fee of one dollar ($1). Each separate place of business at which milk is sold by any store shall be deemed a separate store for which a license must be obtained and a license fee paid;

(b) All other milk dealers shall pay a license fee of one dollar ($1) per year and in addition thereto one-half

of one cent on each pound of butterfat contained in milk received and handled by the licensee, commencing with the effective date of this act. Such fee on the butterfat poundage shall be paid to the board monthly by each such licensee on the fifth day of each month as to all quantities of milk received and handled by such licensee in the previous calendar month. The one dollar annual fee shall be paid on the fifth day of the month following the effective date of this act and annually thereafter. Each such licensee shall keep such records and make such reports as shall be required by the board for the purpose of computing the payment of the license fee. The provisions of subdivision (b) of this section shall not apply to any producer who is also a milk dealer, who produces milk from only one cow, and who distributes or sells only the milk produced from such cow.

Section 8. Any order of the board in refusing to issue a license or suspending or revoking a license may be reviewed upon writ of review by the circuit court of the state of Oregon for the county in which the applicant has his place of business.

Section 9. The board may classify licenses and may issue licenses to dealers to store or manufacture or sell milk limited to a particular city or village or to a particular market or markets within the state, and may define what shall constitute a natural market area and define and

fix the limits of the milkshed or territorial area within which milk shall be produced to supply any such marketing area; provided, that producers, producer-distributors, or their successors now shipping to any market may continue so to do until they voluntarily discontinue shipping to designated milkshed.

Section 10. Licensees under this act shall keep adequate books and records showing (a) all milk received, with butterfat content, prices paid, deductions or charges made, the name and address of each person from whom milk was received; (b) all milk sold, classified as to grade, the prices and amounts received therefor and the market outlet and size and style of container; (c) the quantity of each milk product manufactured and quantity of milk used in the manufacture thereof; (d) all wastage or loss of milk or butterfat; (e) the items of the spread or handling expense and profit or loss represented by the difference between the prices paid and the prices received for all milk; and (f) such other records and information as the board may deem necessary for the proper enforcement of this act.

Section 11. The licenses required by this act shall be in addition to any other licenses required by existing laws of the state of Oregon or by any municipal ordinance. Nothing in this act shall be construed to conflict with or repeal any laws now in force in the state of Oregon relating

to any board of health or sanitary code now in force in this state or in any municipality thereof, nor any municipal ordinances relating to the inspection, grading, production, sale or distribution of milk.

Section 12. The board shall ascertain, as far as feasible, what prices for milk in the several localities and markets of the state will best protect the milk industry and insure a sufficient quantity of pure and wholesome milk in the public interest. The board shall take into consideration all conditions affecting the milk industry, including the price necessary to produce a reasonable return to the producer and to the milk dealer.

After making such investigation the board shall, by order, fix the minimum wholesale and retail prices to be charged for milk handled and sold within the state for human consumption in fluid form, and including the following classes: (a) by producers or associations of producers to milk dealers; (b) by milk dealers to stores for consumption on the premises, or for resale to consumers or to others; (c) by stores to consumers or to others except for consumption on the premises where sold; (d) by producer-distributor and distributor for deliveries to homes of consumers; provided, that based upon differences in cost of said various services, if any, the board, upon facts found by it, may establish differentials in prices between house-to-house

sales by dealers, house-to-house deliveries by stores, and sales on credit and over-the-counter sales by stores for cash.

Where by statute, regulation adopted thereunder, or municipal ordinance, various grades of milk are specified, the board shall fix the minimum price as aforesaid, applicable to each grade. Orders fixing minimum prices may vary in different markets, and each shall designate the market to which it is applicable.

After the board shall have fixed the prices to be paid to the producer or association, and the prices at which milk shall be sold as provided in the preceding paragraph hereof, it shall be unlawful to buy or offer to buy, sell or offer to sell, any milk at prices other than the prices fixed by order of the board; and any method, device or transaction whereby any person buys or offers to buy, sells or offers to sell at a price less than that fixed by order of the board applicable to the grade of milk involved in the transaction occurred, whether by discount, rebate, free service, advertising allowance, gift or otherwise, hereby is declared unlawful.

The board may on its own motion or upon application, from time to time alter, revise or amend any order theretofore made with respect to prices to be charged or paid for milk, designating and defining the limits of markets,

milksheds, or upon any other matter within the jurisdiction of the board. After making any such investigation and before making, revising and amending any such order, the board shall give notice to interested parties and the public generally of the time and place of hearing thereon, in such newspaper or newspapers as in the judgment of the board shall afford reasonable notice and publicity; provided, however, that before any order is made denying an application for a license or revoking a license which has been issued, the board shall fix the time and place for hearing of such matter and give notice to the applicant or licensee, as the case may be, of the time and place so fixed, with reasonable notice to such applicant or licensee to be heard and present evidence. Such notice shall be in writing and may be served either personally or by mail.

Section 13. It is recognized that, due to seasonal fluctuations in milk production, and other causes, there occurs in certain markets in the state a surplus of fluid milk suitable for human consumption, under the laws and ordinances in force in such markets, in excess of the quantities sold as fluid milk for human consumption, and that such surplus varies from day to day and from season to season; that such surplusses must be sold for factory or other purposes at prices usually lower than would be received if sold in the fluid milk trade; and that to stabi-

lize and promote the milk industry it is necessary that uniform prices be paid to all producers who, either directly or through any corporation or cooperative association, furnish milk to any specified market.

To accomplish these necessary purposes the board shall have power: (a) to define and limit the geographical area from which fluid milk shall be produced for any given market or sales area as fixed and designated by the board; provided, that producers, producer-distributors, or their successors now shipping to any market may continue so to do until they voluntarily discontinue shipping to designated milkshed; and (b) under uniform rules and regulations to determine what proportion of the milk produced by each producer shall be considered as marketed as fluid milk for human consumption and what proportion so produced shall be considered as surplus; and (c) to provide for the pooling and averaging of all returns from the sales of fluid milk produced in the geographical area from which fluid milk shall be produced for a designated market or sales area, and the payment to all producers of a uniform pool price for all milk so produced, subject to such equitable adjustments as shall be made by the board and subject to such rules and regulations as may be imposed for the control of surplus production by the establishment of basic averages or other methods; and (d) to appoint, set up, select and

employ agencies for the handling and disposal of the surplus fluid milk; keep, or supervise the keeping of all accounts and records necessary in connection with such transactions, and receive and disburse the funds received in connection therewith; and (e) to make reasonable deductions from the funds so received to pay all necessary expenses incidental to the performance of the duties and the execution of the powers herein conferred, and (f) make any other and further order, rule or regulation and exercise any such further power that may be deemed necessary by the board for the full accomplishment of the aforesaid objects.

Section 14. Any member of the board or any employe designated by the board may sign and issue subpenas and administer oaths to witnesses. Any person failing or refusing to comply with any subpena issued by the board or pursuant to its authority, or to comply with any rule, regulation or order of the board, shall be deemed guilty of a misdemeanor and, upon conviction, may be punished by a fine not exceeding one hundred dollars or by imprisonment not exceeding ninety days, or both, and each day during which such violation shall continue shall be deemed a separate offense. In the event any person shall fail to comply with any rule, regulation or order of the board, or obey any subpena issued thereby, or in the event of the refusal

of any witness to testify to any matter concerning which he lawfully may be interrogated by the board or its representative, it shall be the duty of the circuit court of any county, or judge thereof, upon application of the board, to compel obedience by attachment proceedings for contempt as in the case of disobedience of the requirements of a subpena issued from said court, refusal to testify therein, or disobedience of an order or decree of such court. The proceeding herein authorized in the circuit court to compel obedience shall be in addition to the provisions of this section defining what shall constitute a misdemeanor and providing and prescribing the punishment therefor.

Section 15. The board shall have power to make all necessary rules, regulations and orders to carry out the true intent and purpose of this act. All receipts from license fees paid under this act shall be paid by the board to the state treasurer and shall be by the state treasurer placed to the credit of the general fund to an account to be known as the "milk control account" and such amount as may be necessary, and no more, hereby is appropriated out of such milk control account for the payment of all expenses incurred by the milk control board in administering and enforcing this act. The secretary of state hereby is authorized and directed to audit all duly approved claims, which have been incurred in pursuance of

law and the foregoing appropriation and to draw his warrants on the state treasurer for the payment thereof, payable out of the milk control account of the general fund. The board shall have authority to employ such persons as may be necessary and to fix their compensation and to incur all expenses necessary to carry out the purposes of this act.

Section 16. No provision of this act shall be deemed or construed to prevent or abridge the right of a cooperative corporation or association organized under the laws of the state of Oregon and engaged in marketing or making collective sales of milk produced by its members, from blending the net proceeds of all its sales in various classes and paying its producers such blended price, with such deductions therefrom and/or differentials as may be authorized under contracts between such corporation and its members, or from making collective sales of the milk of its members and/or other producers represented by or marketing through it at a blended price based upon sales thereof in the various classes and markets, or to prevent or abridge the right of any milk dealer from contracting for his milk with such cooperative association upon such basis, or to affect or impair the contracts of any such cooperative association with its members or other producers marketing their milk through such corporation, or to impair or affect any contracts which any such cooperative association has with milk

dealers or others, or affect or abridge the rights and powers of any such cooperative association conferred by the laws of the state of Oregon under which it is incorporated; provided, that the prices to be paid for milk marketed by or through any such corporation shall be those fixed by the order of the board.

Section 17. Any person violating any provision of this act shall be guilty of a misdemeanor and may be prosecuted and punished therefor, and, upon conviction, shall be punished by a fine of not less than twenty-five dollars ($25) nor more than one thousand dollars ($1,000), or by imprisonment in the county jail for not less than thirty (30) days nor more than ninety (90) days, or by both fine and imprisonment. Justice courts and district courts hereby are given concurrent jurisdiction with circuit courts of all criminal offenses provided for in this act.

Section 18. It hereby is adjudged and declared that existing conditions are such that this act is necessary for the immediate preservation of the public peace, health and safety; and an emergency hereby is declared to exist, and this act shall take effect and be in full force and effect from and after its passage.

Passed by Senate December 6, 1933.

Passed by House December 9, 1933.

Amended November 15, 1935.

MILK ORDINANCE

FOREWORD

The following milk ordinance, approved by the Public Health Service, United States Treasury Department, and the Bureau of Dairy Industry, United States Department of Agriculture, is recommended for adoption by States and communities in order to encourage a greater uniformity of milk-control practice in the United States.

This ordinance embodies the best information at present available on milk-control legislation, but it should be considered subject to change as improvements are developed.

In order that it may have at its command the technical advice of a comprehensive group of experts in the various phases of the public health control of milk and milk products, and in allied problems relating to production, processing, and distribution, the United States Public Health Service has appointed a board of consultants, termed the "Public Health Service Milk and Milk Products Sanitation Advisory Board", composed of the following members:

Mr. H. A. Whittaker, director, division of sanitation, State health department, Minneapolis, Minn., chairman.

Mr. C. A. Abele, director, bureau of inspection, State health department, Montgomery, Ala., member.

Dr. Paul B. Brooks, deputy commissioner of health,

State health department, Albany, N. Y., member.

Mr. W. D. Dotterrer, Bowman Dairy Co., 140 West Ontario Street, Chicago, Ill., member.

Mr. V. M. Ehlers, director, bureau of sanitary engineering, State board of health, Austin, Texas, member.

Mr. Alfred H. Fletcher, City health department, Memphis, Tenn., member.

Dr. John G. Hardenbergh, Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J., member.

Mr. Henry F. Judkins, Sealtest, Inc., 120 Broadway, New York, N. Y., member.

Mr. Ernest Kelly, Chief, Division of Market-Milk Investigations, U. S. Department of Agriculture, Washington, D. C., member.

Mr. H. A. Kroeze, director, bureau of sanitary engineering, State board of health, Jackson, Miss., member.

Mr. Paul F. Krueger, Board of Health, Chicago, Ill., member.

Mr. Alan Leighton, Bureau of Dairy Industry, U. S. Department of Agriculture, Washington, D. C., member.

Mr. Geo. W. Putnam, Creamery Package Mfg. Co., Chicago, Ill., member.

Mr. Seth W. Shoemaker, 825 Sunset Street, Scranton, Pa., member.

Mr. E. S. Tisdale, chief engineer, division of sanitary

engineering, State health department, Charleston, W. Va., member.

Mr. L. C. Frank, Senior Sanitary Engineer, Sanitation Section, U. S. Public Health Service, Washington, D. C., secretary.

Advantage has been taken of the recommendations of the Advisory Board in preparing this edition of the ordinance.

PART I

SHORT ENABLING FORM OF UNITED STATES PUBLIC HEALTH SERVICE MILK ORDINANCE

(1939 Edition)

(This short form is suggested for adoption by municipalities, counties, or health districts, subject to the approval of the local legal authority, to reduce cost of publishing and printing, and to promote keeping the milk ordinance up to date. In many States the adoption of this short form is considered legal.)

An ordinance to regulate the production, transportation, processing, handling, sampling, examination, grading, labeling, regrading, and sale of milk and milk products; the inspection of dairy herds, dairies, and milk plants; the issuing and revocation of permits to milk producers and distributors; the placarding of restaurants and other establishments serving milk or milk products; and the fixing of penal-

ties.

The city of _____ ordains:

SECTION 1. The production, transportation, processing, handling, sampling, examination, grading, labeling, re-grading, and sale of all milk and milk products sold for ultimate consumption within the city of _____, or its police jurisdiction, the inspection of dairy herds, dairies, and milk plants, the issuing and revocation of permits to milk producers and distributors, the placarding of restaurants and other establishments serving milk or milk products, and the fixing of penalties, shall[1] be regulated in accordance with the terms of the 1939 edition of the United States Public Health Service milk ordinance, a certified copy of which shall be on file in the office of the city clerk: Provided, That the blank spaces following the words "city of" in said Public Health Service milk ordinance shall be understood to refer to the city of _____: Provided further, That in Section 7, item 1r, of said Public Health Service milk ordinance the abortion testing requirement shall be effective within _____ years after the adoption of this ordinance: Provided further, that Sections 8, 16, and 17 of said Public Health Service milk ordinance shall be replaced, respectively, by Sections 2, 3, and 4 below.

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[1]Municipalities, counties, and health districts in which

the adoption of legislation by reference is not considered legal may delete the remainder of Section 1 and substitute the following: " . . conform with the regulations which the health officer (or Board of Health) of the city of _____ may adopt under authority hereby conferred." If the regulations then adopted conform to the 1939 edition of the U. S. Public Health Service milk ordinance said city will be considered as having adopted the ordinance.

SEC. 2. From and after twelve months from the date on which this ordinance takes effect no milk or milk products shall be sold to the final consumer, or to restaurants, soda fountains, grocery stores, or similar establishments except _____ (insert here grades desired). This section shall not be construed as forbidding the sale of lower grades of milk and milk products during temporary periods of degrading not exceeding thirty days, or in emergencies such longer period as the health officer may deem necessary.[1]

SEC. 3. Any person, firm, or corporation violating any provision of this ordinance shall upon conviction be punished by _____.

SEC. 4. All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed; and this ordinance shall take effect _____ its

adoption and publication.

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[1]Communities which do not wish to authorize the health officer to punish upper grade violations by the degrading method, but wish instead to limit punishment of violations to permit revocation, may delete this sentence.

PART II

THE UNITED STATES PUBLIC HEALTH SERVICE MILK ORDINANCE

(1939 Edition)

(This unabridged form of the ordinance should be adopted only where the short enabling form in Part I is not considered legal.)

An ordinance defining "milk" and certain "milk products", "milk producer", "pasteurization", etc., prohibiting the sale of adulterated and misbranded milk and milk products, requiring permits for the sale of milk and milk products, regulating the inspection of dairy farms and milk plants, the examination, grading, labeling, placarding, pasteurization, regrading, distribution, and sale of milk and milk products, providing for the publishing of milk grades, the construction of future dairies and milk plants, the enforcement of this ordinance, and the fixing of penalties.

Be it ordained by the _____ of the city of _____ as follows:

SECTION 1. Definitions.- The following definitions shall apply in the interpretation and the enforcement of this ordinance:

A. Milk.- Milk is hereby defined to be the lacteal

secretion obtained by the complete milking of one or more healthy cows, excluding that obtained within 15 days before and 5 days after calving, or such longer period as may be necessary to render the milk practically colostrum free; which contains not less than 8 percent of milk solids not fat, and not less than 3-1/4 percent of milk fat.

B. Milk fat or butter fat.- Milk fat or butter fat is the fat of milk.

C. Cream and sour cream.- Cream is a portion of milk which contains not less than 18 percent milk fat. Sour cream is cream the acidity of which is more than 0.20 percent, expressed as lactic acid.

D. Skimmed milk.- Skimmed milk is milk from which a sufficient portion of milk fat has been removed to reduce its milk-fat percentage to less than 3-1/4 percent.

E. Milk or skimmed-milk beverage.- A milk beverage or a skimmed-milk beverage is a food compound or confection consisting of milk or skimmed milk, as the case may be, to which has been added a sirup or flavor consisting of wholesome ingredients.

F. Buttermilk.- Buttermilk is a product resulting from the churning of milk or cream, or from the souring or treatment by a lactic acid or other culture of milk, skimmed milk, reconstituted skimmed milk, evaporated or condensed milk or skimmed milk, or milk or skimmed-milk powder. It

contains not less than 8 percent of milk solids not fat.

G. Vitamin D milk.- Vitamin D milk is milk the vitamin D content of which has been increased by a method and in an amount approved by the health officer.

H. Reconstituted or recombined milk and cream.- Reconstituted or recombined milk is a product resulting from the recombining of milk constituents with water, and which complies with the standards for milk fat and solids not fat of milk as defined herein. Reconstituted or recombined cream is a product resulting from the combination of dried cream, butter, or butter fat with cream, milk, skim milk, or water.

I. Goat milk.- Goat milk is the lacteal secretion, free from colostrum, obtained by the complete milking of healthy goats, and shall comply with all the requirements of this ordinance. The word "cows" shall be interpreted to include goats.

J. Homogenized milk.- Homogenized milk is milk which has been treated in such manner that after a storage period of 48 hours tests of the 100 cc portion decanted from the top of a quart bottle of milk will not show a difference in fat content over tests of the remainder of the milk after thorough mixing exceeding 5 percent of the total fat content. For example, on 4 percent milk the difference shall not exceed 0.2 percent.

K. Milk Products.- Milk products shall be taken to mean and include cream, sour cream, homogenized milk, goat milk, vitamin D milk, buttermilk, skimmed milk, reconstituted or recombined milk and cream, milk beverages, and skimmed-milk beverages.

L. Pasteurization.- The terms "pasteurization", "pasteurized", and similar terms shall be taken to refer to the process of heating every particle of milk or milk products to at least 143° F., and holding at such temperature for at least 30 minutes, or to at least 160° F., and holding at such temperature for at least 15 seconds, in approved and properly operated equipment; provided that nothing contained in this definition shall be construed as disbarring any other process which has been demonstrated to be equally efficient and is approved by the State health authority.

M. Adulterated milk and milk products.- Any substance claimed to be any milk or milk product defined in this ordinance, but not conforming with its definition as given in this ordinance, or which carries a grade label unless such grade label has been awarded by the health officer and not revoked, shall be deemed adulterated and misbranded.

N. Milk producer.- A milk producer is any person who owns or controls one or more cows a part or all of the milk or milk products from which is sold or offered for sale.

O. Milk distributor.- A milk distributor is any person

who offers for sale or sells to another any milk or milk products for human consumption as such.

P. Dairy or dairy farm- A dairy or dairy farm is any place or premises where one or more cows are kept a part or all of the milk or milk products from which is sold or offered for sale.

Q. Milk plant.- A milk plant is any place or premises or establishment where milk or milk products are collected, handled, processed, stored, bottled, pasteurized, or prepared for distribution.

R. Health officer.- The term "health officer" shall mean the health authority of the city of _____, or his authorized representative.

S. Average bacterial plate count, direct microscopic count, reduction time, and cooling temperature.- Average bacterial plate count shall be taken to mean the logarithmic average of the bacterial plate counts of the last four consecutive samples, taken upon separate days, irrespective of periodic grade announcements. Average direct microscopic count shall be taken to mean the logarithmic average of the direct microscopic counts of the last four consecutive samples, taken upon separate days, irrespective of periodic grade announcements. Average reduction time shall be taken to mean the arithmetic average of the reduction times of the last four consecutive samples, taken upon separate days, irrespective of periodic grade announcements. Average

cooling temperature shall be taken to mean the arithmetic average of the temperatures of the last four consecutive samples, taken upon separate days, irrespective of periodic grade announcements.

T. Grading period.- The grading period shall be such period of time as the health officer may designate within which grades shall be determined for all milk and milk products, provided that the grading period shall in no case exceed 6 months.

U. Person.- The word "person" as used in this ordinance shall mean "person, firm, corporation, or association."

V. And/or.- Where the term "and/or" is used "and" shall apply where possible, otherwise "or" shall apply.

SEC. 2. The sale of adulterated, misbranded, or ungraded milk or milk products prohibited.- No person shall within the city of _____, or its police jurisdiction, produce, sell, offer, or expose for sale, or have in possession with intent to sell, any milk or milk product which is adulterated, misbranded, or ungraded. It shall be unlawful for any person, elsewhere than in a private home, to have in possession any adulterated, misbranded, or ungraded milk or milk product.

SEC. 3. Permits.- It shall be unlawful for any person to bring into or receive into the city of _____, or its police jurisdiction, for sale, or to sell, or offer

for sale therein, or to have in storage where milk or milk products are sold or served, any milk or milk product defined in this ordinance, who does not possess a permit from the health officer of the city of _____.

Only a person who complies with the requirements of this ordinance shall be entitled to receive and retain such a permit.

Such a permit may be suspended by the health officer, or revoked after an opportunity for a hearing by the health officer, upon the violation by the holder of any of the terms of this ordinance.

SEC. 4. Labeling and placarding.- All bottles, cans, packages, and other containers enclosing milk or any milk product defined in this ordinance shall be plainly labeled or marked with (1) the name of the contents as given in the definitions in this ordinance; (2) the grade of the contents if said contents are graded under the provisions of this ordinance; (3) the word "pasteurized" only if the contents have been pasteurized; (4) the word "raw" only if the contents are raw; (5) the phrase "for pasteurization" if the contents are to be pasteurized; (6) the name of the producer if the contents are raw, and the name of the plant at which the contents were pasteurized, if the contents are pasteurized; and (7) in the case of vitamin D milk, the designation "Vitamin D milk" and the source of the vitamin

D. The label or mark shall be in letters of a size, kind, and color approved by the health officer and shall contain no marks or words which are misleading.

Every restaurant, cafe, soda fountain, or other establishment serving milk or milk products shall display at all times, in a place designated by the health officer, a notice approved by the health officer, stating the lowest grade of milk and/or milk products served.

SEC. 5. Inspection of dairy farms and milk plants for the purpose of grading or regrading.- At least once during each grading period the health officer shall inspect all dairy farms and all milk plants whose milk or milk products are intended for consumption within the city of _____, or its police jurisdiction. In case the health officer discovers the violation of any item of sanitation, he shall make a second inspection after a lapse of such time as he deems necessary for the defect to be remedied, but not before the lapse of 3 days; and the second inspection shall be used in determining the grade of milk and/or milk products. Any violation of the same item of this ordinance on two consecutive inspections shall call for immediate degrading.

* Cities in which only grade A pasteurized milk or only certified milk and grade A pasteurized milk are permitted to be sold may delete this paragraph.

One copy of the inspection report shall be posted by the health officer in a conspicuous place upon an inside wall of one of the dairy farm or milk plant buildings, and said inspection report shall not be defaced or removed by any person except the health officer. Another copy of the inspection report shall be filed with the records of the health department.

SEC. 6. The examination of milk and milk products.- During each grading period at least four samples of milk and cream from each dairy farm and each milk plant shall be taken on separate days and examined by the health officer. Samples of other milk products may be taken and examined by the health officer as often as he deems necessary. Samples of milk and milk products from stores, cafes, soda fountains, restaurants, and other places where milk or milk products are sold shall be examined as often as the health officer may require. Bacterial plate counts and direct microscopic counts shall be made in conformity with the latest standard methods recommended by the American Public Health Association.* Examinations may include such other chemical and physical determinations as the health officer may deem necessary for the detection of adulteration, these examinations to be made in accordance with the latest standard methods of the American Public Health Association and the Association of Official Agricultural

Chemists.* Bacterial plate count, direct microscopic count, reductase test, and cooling temperature results shall be given to the producer or distributor concerned as soon as determined if said results fall without the limits prescribed for the grade then held. Samples may be taken by the health officer at any time prior to the final delivery of the milk or milk products. All proprietors of stores, cafes, restaurants, soda fountains, and other similar places shall furnish the health officer, upon his request, with the names of all distributors from whom their milk and milk products are obtained. Bio-assays of the vitamin D content of vitamin D milk shall be made when required by the health officer in a laboratory approved by him for such examinations.

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* Municipalities in which the adoption of legislation by reference is not considered legal may substitute the following wording: " . . in conformity with the regulations of the health officer (or Board of Health)." If the regulations then adopted by the health officer are equivalent to those contained in the reference thus replaced, they will not be considered as constituting a downward revision of the U. S. Public Health Service milk ordinance.

All other references in this ordinance to standards and methods not specifically described may be treated in the same manner, such as the requirements of the American As-

sociation of Medical Milk Commissions under the definition of Certified Milk-Raw, the requirements of the Bureau of Animal Industry relative to accredited herds and modified accredited areas in item 1r, and the U. S. Public Health Service milk code in Section 15.

SEC. 7. The grading of milk and milk products.- At least once every 6 months the health officer shall announce the grades of all milk and milk products delivered by all producers or distributors and ultimately consumed within the city of _____, or its police jurisdiction. Said grades shall be based upon the following standards, the grading of milk products being identical with the grading of milk except that the bacterial standards shall be doubled in the case of cream, and omitted in the case of sour cream and buttermilk. Vitamin D milk shall be only of grade A or grade B pasteurized, certified, or grade A raw quality.

Certified milk-raw.- Certified milk-raw is raw milk which conforms with the requirements of the American Association of Medical Milk Commissions* in force at the time of production and is produced under the supervision of the Medical Milk Commission of the Medical Society of _____ County, and of the State board of health or of the city or county health officer of _____.

Grade A raw milk.- Grade A raw milk is raw milk the

average bacterial plate count of which as determined under sections 1 (S) and 6 of this ordinance does not exceed 50,000 per cubic centimeter, or the average direct microscopic count of which does not exceed 50,000 per cubic centimeter if clumps are counted or 200,000 per cubic centimeter if individual organisms are counted, or the average reduction time of which is not less than 8 hours, provided that if it is to be pasteurized the corresponding limits shall be 200,000 per cubic centimeter, 200,000 per cubic centimeter, 800,000 per cubic centimeter, and 6 hours, respectively; and which is produced upon dairy farms conforming with all of the following items of sanitation.

ITEM 1r. Cows, tuberculosis and other diseases.- Except as provided hereinafter, a tuberculin test of all herds and additions thereto shall be made before any milk therefrom is sold, and at least once every 12 months thereafter, by a licensed veterinarian approved by the State livestock sanitary authority. Said tests shall be made and any reactors disposed of in accordance with the requirements approved by the United States Department of Agriculture, Bureau of Animal Industry*, for accredited herds. A certificate signed by the veterinarian or attested to by the health officer and filed with the health officer shall be evidence of the above test. Provided that in modified accredited counties in which the modified accredited area plan

is applied to the dairy herds the modified accredited area system approved by the United States Bureau of Animal Industry* shall be accepted in lieu of annual testing.

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* See footnote to Section 6.

Within _____* years after the adoption of this ordinance all milk and milk products consumed raw shall be from herds or additions thereto which have been found free from Bang's disease, as shown by blood serum tests for agglutinins against Brucella abortus made in a laboratory approved by the health officer. All such herds shall be retested at least every 12 months and all reactors removed from the herd. A certificate identifying each animal by number, and signed by the laboratory making the test, shall be evidence of the above test.

Cows which show an extensive or entire induration of one or more quarters of the udder upon physical examination, whether secreting abnormal milk or not, shall be permanently excluded from the milking herd. Cows giving bloody, stringy, or otherwise abnormal milk, but with only slight induration of the udder, shall be excluded from the herd until re-examination shows that the milk has become normal.

For other diseases such tests and examinations as the health officer may require shall be made at intervals and by methods prescribed by him, and any diseased animals or reactors shall be disposed of as he may require.

ITEM 2r. Dairy barn, lighting.- A dairy or milking barn shall be required and in such sections thereof where cows are milked windows shall be provided and kept clean and so arranged as to insure adequate light properly distributed, and when necessary shall be provided with adequate supplementary artificial light.

ITEM 3r. Dairy barn, air space and ventilation.- Such sections of all dairy barns where cows are kept or milked shall be well ventilated and shall be so arranged as to avoid overcrowding.

ITEM 4r. Dairy barn, floors.- The floors and gutters of such parts of all dairy barns in which cows are milked shall be constructed of concrete or other approved impervious and easily cleaned material, provided that if the milk is to be pasteurized tight wood may be used, shall be graded to drain properly, and shall be kept clean and in good repair. No horses, pigs, fowl, calves, etc., shall be permitted in parts of the barn used for milking.

ITEM 5r. Dairy barn, walls and ceilings.- The walls and ceilings of all dairy barns shall be whitewashed once each year or painted once every 2 years, or oftener if necessary, or finished in an approved manner, and shall be kept clean and in good repair. In case there is a second story above that part of the barn in which cows are milked, the ceiling shall be tight. If the feed room adjoins the

milking space, it shall be separated therefrom by a dust-tight partition and door. No feed shall be stored in the milking portion of the barn.

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* The number should be inserted when the ordinance is adopted. It should not exceed 5 years if the community wishes to be recognized as having adopted this ordinance.

ITEM 6r. Dairy barn, cow yard.- All cow yards shall be graded and drained as well as practicable and kept clean.

ITEM 7r. Manure disposal.- All manure shall be removed and stored or disposed of in such manner as best to prevent the breeding of flies therein or the access of cows to piles thereof.

ITEM 8r. Milk house or room, construction.- There shall be provided a milk house or milk room in which the cooling, handling, and storing of milk and milk products and the washing, bactericidal treatment, and storing of milk apparatus and utensils shall be done. (a) The milk house or room shall be provided with a tight floor constructed of concrete or other impervious material, in good repair, and graded to provide proper drainage. (b) It shall have walls and ceilings of such construction as to permit easy cleaning, and shall be well painted or finished in an approved manner. (c) It shall be well lighted and ventilated. (d) It shall have all openings effectively screened including outward-opening, self-closing doors, unless other

effective means are provided to prevent the entrance of flies. (e) It shall be used for no other purposes than those specified above except as may be approved by the health officer; shall not open directly into a stable or into any room used for domestic purposes; shall, unless the milk is to be pasteurized, have water piped into it; shall be provided with adequate facilities for the heating of water for the cleaning of utensils; shall be equipped with two-compartment stationary wash and rinse vats, except that in the case of retail raw milk, if chlorine is employed as the principal bactericidal treatment, the three-compartment type must be used; and shall, unless the milk is to be pasteurized, be partitioned to separate the handling of milk and the storage of cleansed utensils from the cleaning and other operations, which shall be so located and conducted as to prevent any contamination of the milk or of cleaned equipment.

ITEM 9r. Milk house or room, cleanliness and flies.- The floors, walls, ceilings, and equipment of the milk house or room shall be kept clean at all times. All means necessary for the elimination of flies shall be used.

ITEM 10r. Toilet.- Every dairy farm shall be provided with one or more sanitary toilets conveniently located and properly constructed, operated, and maintained, so that the waste is inaccessible to flies and does not pollute the sur-

face soil or contaminate any water supply.

ITEM 11r. Water supply.- The water supply for the milk room and dairy barn shall be properly located, constructed, and operated, and shall be easily accessible, adequate, and of a safe sanitary quality.

ITEM 12r. Utensils, construction.- All multi-use containers or other utensils used in the handling, storage, or transportation of milk or milk products must be made of smooth nonabsorbent material and of such construction as to be easily cleaned, and must be in good repair. Joints and seams shall be soldered flush. Woven wire cloth shall not be used for straining milk. All milk pails shall be of a small-mouth design approved by the health officer.

ITEM 13r. Utensils, cleaning.- All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk and milk products must be thoroughly cleaned after each usage.

ITEM 14r. Utensils, bactericidal treatment.- All multi-use containers, equipment, and other utensils used in the handling, storage, or transportation of milk or milk products shall between each usage be subjected to an approved bactericidal process with steam, hot water, chlorine, or hot air.

ITEM 15r. Utensils, storage.- All containers and other utensils used in the handling, storage, or transportation of

milk or milk products shall be stored so as not to become contaminated before being used.

ITEM 16r. Utensils, handling.- After bactericidal treatment no container or other milk or milk product utensil shall be handled in such manner as to permit any part of any person or his clothing to come in contact with any surface with which milk or milk products come in contact.

ITEM 17r. Milking, udders and teats, abnormal milk.- The udders and teats of all milking cows shall be clean and rinsed with a bactericidal solution at the time of milking. Abnormal milk shall be kept out of the milk supply and shall be so handled and disposed of as to preclude the infection of the cows and the contamination of milk utensils.

ITEM 18r. Milking, flanks.- The flanks, bellies, and tails of all milking cows shall be free from visible dirt at the time of milking.

ITEM 19r. Milkers' hands.- Milkers' hands shall be clean, rinsed with a bactericidal solution, and dried with a clean towel immediately before milking and following any interruption in the milking operation. Wet-hand milking is prohibited. Convenient facilities shall be provided for the washing of milkers' hands.

ITEM 20r. Clean clothing.- Milkers and milk handlers shall wear clean outer garments while milking or handling

milk, milk products, containers, utensils, or equipment.

ITEM 21r. Milk stools.- Milk stools shall be kept clean.

ITEM 22r. Removal of milk.- Each pail of milk shall be removed immediately to the milk house or straining room. No milk shall be strained or poured in the dairy barn.

ITEM 23r. Cooling.- Milk must be cooled immediately after completion of milking to 50° F. or less, and maintained at that average temperature, as defined in section 1 (S), until delivery. If milk is delivered to a milk plant or receiving station for pasteurization or separation, it must be delivered within 2 hours after completion of milking or cooled to 70° F. or less and maintained at that average temperature until delivered.

ITEM 24r. Bottling and capping.- Milk and milk products shall be bottled from a container with a readily cleanable valve, or by means of an approved bottling machine. Bottles shall be capped by machine. Caps or cap stock shall be purchased in sanitary containers and kept therein in a clean dry place until used.

ITEM 25r. Personnel, health.- The health officer or a physician authorized by him shall examine and take a careful morbidity history of every person connected with a retail raw dairy, or about to be employed, whose work brings him in contact with the production, handling, storage, or

transportation of milk, milk products, containers, or equipment. If such examination or history suggests that such person may be a carrier of or infected with the organisms of typhoid or paratyphoid fever or any other communicable diseases likely to be transmitted through milk, he shall secure appropriate specimens of body discharges and cause them to be examined in a laboratory approved by him or by the State health authorities for such examinations.

Such persons shall furnish such information, submit to such physical examinations, and submit such laboratory specimens as the health officer may require for the purpose of determining freedom from infection.

ITEM 26r. Miscellaneous.- All vehicles used for the transportation of milk or milk products shall be so constructed and operated as to protect their contents from the sun and from contamination. All vehicles used for the transportation of milk or milk products in their final delivery containers shall be constructed with permanent tops and with permanent or roll-down sides and back, provided that openings of the size necessary to pass the delivery man may be permitted in the sides or back for loading and unloading purposes. All vehicles shall be kept clean, and no substance capable of contaminating milk or milk products shall be transported with milk or milk products in such manner as to permit contamination. All vehicles used for the distribution of milk or milk products

shall have the name of the distributor prominently displayed.

The immediate surroundings of the dairy shall be kept in a neat, clean condition.

Grade B raw milk.- Grade B raw milk is raw milk which violates the bacterial standard for grade A raw milk, provided that its average bacterial plate count, as determined under sections 1 (S) and 6, does not exceed 1,000,000 per cubic centimeter, or its average direct microscopic count does not exceed 1,000,000 per cubic centimeter if clumps are counted or 4,000,000 per cubic centimeter if individual organisms are counted, or its average reduction time is not less than 3-1/2 hours, and which complies with all other requirements for grade A raw milk except the provision for abortion testing of item 1r.

Grade C raw milk.- Grade C raw milk is raw milk which violates any of the requirements for grade B raw milk, and which shall be plainly labeled "cooking only".

Certified milk-pasteurized.- Certified milk-pasteurized is certified milk-raw which has been pasteurized, cooled, and bottled in a milk plant conforming with the requirements for grade A pasteurized milk.

Grade A pasteurized milk.- Grade A pasteurized milk is grade A raw milk, with such exceptions as are indicated if the milk is to be pasteurized, which has been pasteurized,

cooled, and bottled in a milk plant conforming with all of the following items of sanitation and the average bacterial plate count of which at no time after pasteurization and until delivery exceeds 30,000 per cubic centimeter, as determined under sections 1 (S) and 6.

The grading of a pasteurized milk supply shall include the inspection of receiving and collecting stations with respect to items 1p to 14p, inclusive, and 17p, 19p, 21p, and 23p, except that the partitioning requirement of item 5p shall not apply.

ITEM 1p. Floors.- The floors of all rooms in which milk or milk products are handled or stored or in which milk utensils are washed shall be constructed of concrete or other equally impervious and easily cleaned material and shall be smooth, properly drained, provided with trapped drains, and kept clean.

ITEM 2p. Walls and ceilings.- Walls and ceilings of rooms in which milk or milk products are handled or stored or in which milk utensils are washed shall have a smooth, washable, light-colored surface and shall be kept clean.

ITEM 3p. Doors and windows.- Unless other effective means are provided to prevent the access of flies, all openings into the outer air shall be effectively screened and doors shall be self-closing.

ITEM 4p. Lighting and ventilation.- All rooms shall

be well lighted and ventilated.

ITEM 5p. Miscellaneous protection from contamination.- The various milk-plant operations shall be so located and conducted as to prevent any contamination of the milk or of the cleaned equipment. All means necessary for the elimination of flies shall be used. There shall be separate rooms for (a) the pasteurizing, processing, cooling, and bottling operations, and (b) the washing and bactericidal treatment of containers. Cans of raw milk shall not be unloaded directly into the pasteurizing room. Pasteurized milk or milk products shall not be permitted to come in contact with equipment with which unpasteurized milk or milk products have been in contact, unless such equipment has first been thoroughly cleaned and subjected to bactericidal treatment. Rooms in which milk, milk products, cleaned utensils, or containers are handled or stored shall not open directly into any stable or living quarters. The pasteurization plant shall be used for no other purposes than the processing of milk and milk products and the operations incident thereto, except as may be approved by the health officer.

ITEM 6p. Toilet facilities.- Every milk plant shall be provided with toilet facilities conforming with the ordinances of the city of _____. Toilet rooms shall not open directly into any room in which milk, milk

products, equipment, or containers are handled or stored. The doors of all toilet rooms shall be self-closing. Toilet rooms shall be kept in a clean condition, in good repair, and well ventilated. In case privies or earth closets are permitted and used, they shall be separate from the building, and shall be of a sanitary type constructed and operated in conformity with the requirements of item 10r, grade A raw milk.

ITEM 7p. Water supply.- The water supply shall be easily accessible, adequate, and of a safe, sanitary quality.

ITEM 8p. Hand-washing facilities.- Convenient hand-washing facilities shall be provided, including warm running water, soap, and approved sanitary towels. The use of a common towel is prohibited.

ITEM 9p. Sanitary piping.- All piping used to conduct milk or milk products shall be "sanitary milk piping" of a type which can be easily cleaned with a brush.

ITEM 10p. Construction and repair of containers and equipment.- All multi-use containers and equipment with which milk or milk products come in contact shall be constructed in such manner as to be easily cleaned and shall be kept in good repair.

ITEM 11p. Disposal of wastes.- All wastes shall be properly disposed of.

ITEM 12p. Cleaning and bactericidal treatment of con-

tainers and equipment.- All milk and milk products containers and equipment, except single-service containers, shall be thoroughly cleaned after each usage. All containers shall be subjected to an approved bactericidal process after each cleaning and all equipment immediately before each usage. When empty and before being returned to a producer by a milk plant each container shall be effectively cleaned and subjected to bactericidal treatment.

ITEM 13p. Storage of containers and equipment.- After bactericidal treatment all bottles, cans, and other multi-use milk or milk-products containers and equipment shall be stored in such manner as to be protected from contamination.

ITEM 14p. Handling of containers and equipment.- Between bactericidal treatment and usage, and during usage, containers and equipment shall not be handled or operated in such manner as to permit contamination of the milk.

ITEM 15p. Storage of caps, parchment paper, and single-service containers.- Milk bottle caps or cap stock, parchment paper for milk cans, and single-service containers shall be purchased and stored only in sanitary tubes and cartons, respectively, and shall be kept therein in a clean dry place.

ITEM 16p. Pasteurization.- Pasteurization shall be performed as described in section 1 (L) of this ordinance.

ITEM 17p. Cooling.- All milk and milk products received for pasteurization shall immediately be cooled in

approved equipment to 50° F. or less and maintained at that temperature until pasteurized, unless they are to be pasteurized within 2 hours after receipt; and all pasteurized milk and milk products shall be immediately cooled in approved equipment to an average temperature of 50° F. or less, as defined in section 1 (S), and maintained thereat until delivery.

ITEM 18p. Bottling.- Bottling of milk and milk products shall be done at the place of pasteurization in approved mechanical equipment.

ITEM 19p. Overflow milk.- Overflow milk or milk products shall not be sold for human consumption.

ITEM 20p. Capping.- Capping of milk and milk products shall be done by approved mechanical equipment. Hand capping is prohibited. The cap or cover shall cover the pouring lip to at least its largest diameter.

ITEM 21p. Personnel, health.- The health officer or a physician authorized by him shall examine and take a careful morbidity history of every person connected with a pasteurization plant, or about to be employed, whose work brings him in contact with the production, handling, storage, or transportation of milk, milk products, containers, or equipment. If such examination or history suggests that such person may be a carrier of or infected with the organisms of typhoid or paratyphoid fever or any other

communicable diseases likely to be transmitted through milk, he shall secure appropriate specimens of body discharges and cause them to be examined in a laboratory approved by him or by the State health authorities for such examinations.

Such persons shall furnish such information, submit to such physical examinations, and submit such laboratory specimens as the health officer may require for the purpose of determining freedom from infection.

ITEM 22p. Personnel, cleanliness.- All persons coming in contact with milk, milk products, containers, or equipment shall wear clean outer garments and shall keep their hands clean at all times while thus engaged.

ITEM 23p. Miscellaneous.- All vehicles used for the transportation of milk or milk products shall be so constructed and operated as to protect their contents from the sun and from contamination. All vehicles used for the transportation of milk or milk products in their final delivery containers shall be constructed with permanent tops and with permanent or roll-down sides and back, provided that openings of the size necessary to pass the delivery man may be permitted in the sides or back for loading and unloading purposes. All vehicles shall be kept clean, and no substance capable of contaminating milk or milk products shall be transported with milk or milk products in such manner as to permit contamination. All vehi-

cles used for the distribution of milk or milk products shall have the name of the distributor prominently displayed.

The immediate surroundings of the milk plant shall be kept in a neat, clean condition.

Grade B pasteurized milk.- Grade B pasteurized milk is grade B raw milk which has been pasteurized, cooled, and bottled in a milk plant conforming with all of the requirements for grade A pasteurized milk, except the provision of lip-cover caps in item 20p, and the average bacterial plate count of which at no time after pasteurization and before delivery exceeds 50,000 per cubic centimeter, as determined under sections 1 (S) and 6.

Grade C pasteurized milk.- Grade C pasteurized milk is pasteurized milk which does not meet the requirements of grade B pasteurized milk, and which shall be plainly labeled "cooking only".

SEC. 8. Grades of milk and milk products which may be sold.- Two alternative wordings of section 8 are offered because some communities prefer to use the grading and degrading system of improving milk quality, whereas others prefer to use exclusively the system of forbidding the sale of milk and milk products which do not comply with all items of sanitation, and instituting court procedure if the violator persists in selling.

For those communities which prefer the first method the following wording of section 8 should be used:

From and after 12 months from the date on which this ordinance takes effect no milk or milk products shall be sold to the final consumer, or to restaurants, soda fountains, grocery stores, or similar establishments except _____. This section shall not be construed as forbidding the sale of lower grades of milk and milk products during temporary periods of degrading not exceeding 30 consecutive days or in emergencies such longer period as the health officer may deem necessary.

The community should insert in this section the names of the grades to which it desires to restrict the sale of milk except during temporary periods of degrading. The community may prohibit the sale of all except grades of pasteurized milk if it has reached the state of public health education which will permit a majority vote in favor of such action.*

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*See the following Public Health Service publications, copies of which may be secured by writing the United States Public Health Service, Washington, D. C.:

(1) What Every Person Should Know About Milk.

(2) Do Children Who Drink Raw Milk Thrive Better Than Children Who Drink Pasteurized or Other Heated Milk?

(3) The Responsibility of Health Authorities and Physicians With Reference to the Pasteurization of Milk in

Communities in Which Pasteurization Is Not Compulsory.

For those communities which prefer to use exclusively the system of forbidding the sale of milk which does not comply with all of the requirements of the grades listed in this section, and instituting court procedure if the violator persists in selling, the following wording should be used:

From and after 12 months from the date on which this ordinance takes effect no milk or milk products shall be sold to the final consumer or to restaurants, soda fountains, grocery stores, or similar establishments except

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SEC. 9. Supplementary grading prescribed and regrading authorized.- If, at any time between the regular announcements of the grades of milk or milk products, as the result of the findings of two consecutive inspections of any dairy or milk plant, or because the average bacterial plate count, the average direct microscopic count, the average reduction time, or the average cooling temperature exceeds the limit fixed for the grade currently held by the milk supply in question, a lower grade shall become justified, in accordance with section 7 of this ordinance, the health officer shall immediately lower the grade of such milk or milk products, and shall enforce proper labeling and placarding thereof.

Any producer or distributor of milk or milk products the grade of which has been lowered by the health officer, and who is properly labeling his milk and milk products, may at any time make application for the regrading of his product.

Upon receipt of a satisfactory application, in case the lowered grade is the result of an excessive average bacterial plate count, direct microscopic count, reduction time, or cooling temperature, the health officer shall take further samples of the applicant's output, at a rate of not more than two samples per week. The health officer shall immediately regrade the milk or milk products upward whenever the average of the last four sample results indicates the necessary quality.

In case the lowered grade of the applicant's product is due to a violation of an item of the specifications prescribed in section 7, other than average bacterial plate count, direct microscopic count, reduction time, or cooling temperature, the said application must be accompanied by a statement signed by the applicant to the effect that the violated item of the specifications has been conformed with. Within one week of the receipt of such an application and statement the health officer shall make a reinspection of the applicant's establishment, and thereafter as many additional reinspections as he may deem necessary to assure

himself that the applicant is again complying with the higher grade requirements, and, in case the findings justify, shall regrade the milk or milk products upward.

SEC. 10. Transferring or dipping milk; delivery containers; handling of more than one grade; delivery of milk at quarantined residences.- Except as permitted in this section, no milk producer or distributor shall transfer milk or milk products from one container to another on the street, or in any vehicle or store, or in any place except a bottling or milk room especially used for that purpose. The sale of dip milk is hereby prohibited.

All pasteurized milk and milk products shall be placed in their final delivery containers in the plant in which they are pasteurized, and all raw milk and milk products sold for consumption in the raw state shall be placed in their final delivery containers at the farm at which they are produced. Milk and milk products sold in the distributor's containers in quantities less than 1 gallon shall be delivered in standard milk bottles. It shall be unlawful for hotels, soda fountains, restaurants, groceries, and similar establishments to sell or serve any milk or milk product except in the original container in which it was received from the distributor or from a bulk container equipped with an approved dispensing device; provided that this requirement shall not apply to cream consumed on the

premises, which may be served from the original bottle or from a dispenser approved for such service.

No milk or milk products shall be permitted to come in contact with equipment with which a lower grade of milk or milk products has been in contact unless such equipment has first been thoroughly cleaned and subjected to bactericidal treatment.

Bottled milk or milk products, if stored in water, shall be so stored that the tops of the bottles will not be submerged.

It shall be the duty of all persons to whom milk or milk products are delivered to clean thoroughly the containers in which such milk or milk products are delivered before returning such containers. Apparatus, containers, equipment, and utensils used in the handling, storage, processing, or transporting of milk or milk products shall not be used for any other purpose without the permission of the health officer.

The delivery of milk or milk products to and the collection of milk or milk-products containers from quarantined residences shall be subject to the special requirements of the health officer.

SEC. 11. Milk and milk products from points beyond the limits of routine inspection of the city of _____.- Milk and milk products from points beyond the limits of

routine inspection of the city of _____ may not be sold in the city of _____, or its police jurisdiction, unless produced and/or pasteurized under provisions equivalent to the requirements of this ordinance; provided that the health officer shall satisfy himself that the health officer having jurisdiction over the production and processing is properly enforcing such provisions.

SEC. 12. Notification of disease.- Notice shall be sent to the health officer immediately by any producer or distributor of milk or milk products upon whose dairy farm or in whose milk plant any infectious, contagious, or communicable disease occurs.

SEC. 13. Future dairies and milk plants.- All dairies and milk plants from which milk or milk products are supplied to the city of _____ which are hereafter constructed, reconstructed, or extensively altered shall conform in their construction to the requirements of this ordinance for grade A dairy farms producing milk for consumption in the raw state, or for grade A pasteurization plants, respectively. Properly prepared plans for all dairies and milk plants which are hereafter constructed, reconstructed, or extensively altered shall be submitted to the health officer for approval before work is begun. In the case of milk plants signed approval shall be obtained from the health officer and/or the State health department.

SEC. 14. Procedure when infection suspected.- When suspicion arises as to the possibility of transmission of infection from any person concerned with the handling of milk or milk products, the health officer is authorized to require any or all of the following measures: (1) the immediate exclusion of that person from milk handling, (2) the immediate exclusion of the milk supply concerned from distribution and use, (3) adequate medical and bacteriological examination of the person, of his associates, and of his and their body discharges.

SEC. 15. Enforcement interpretation.- This ordinance shall be enforced by the health officer in accordance with the interpretations thereof contained in the 1939 edition of the United States Public Health Service Milk Code, a certified copy of which shall be on file in the City Clerk's office.*

SEC. 16. Penalty.- Any person who shall violate any provision of this ordinance shall be fined not more than _____ at the discretion of the court. Each and every violation of the provisions of this ordinance shall constitute a separate offense.

SEC. 17. Repeal and date of effect.- All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed; and this ordinance shall be in full force and effect immediately upon its adoption and its publication

as provided by law.

SEC. 18. Unconstitutionality clause.- Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason, the remainder of said ordinance shall not be affected thereby.

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* See footnote to Section 6.

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Irish Free State: Act to make provision for regulating the supply and price of milk and to provide for the imposition of levies on milk and to make provisions for other matters connected with the matters aforesaid. (No. 43, acts 1936).

Louisiana--Act to regulate the Production, Manufacture and Sale of Milk, Milk Products and all Substitutes for same the power and authority to make rules and regulations regarding the production, manufacture and sale of milk, milk products and all substitutes for the same and providing penalities for the violation of this act and the violation of any rules and regulations made hereunder by the Louisiana Milk Commission.

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