Second Section

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Sports—Real Estate

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MODEL SANITARY DAIRY PLANT AND HOW IT IS OPERATED

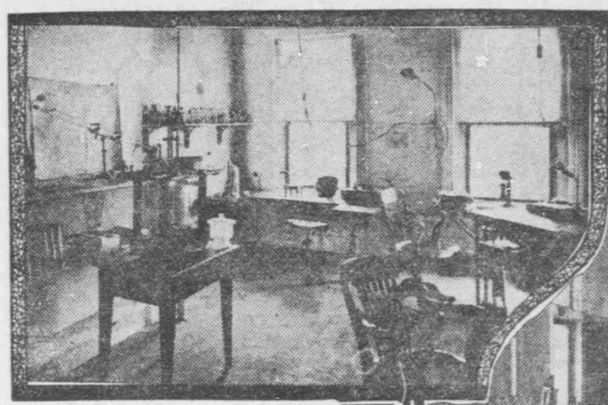
PASTEURIZING PROCESS KEPT IN OPERATION AT CHESTNUT FARMS DAIRY OF G. M. OYSTER, JR.

Science, Experience, Money Combined In Precautions Taken in This Dairy to Preserve High Standard of Quality

Every Precaution of Modern Science Taken to Avoid Impurities.

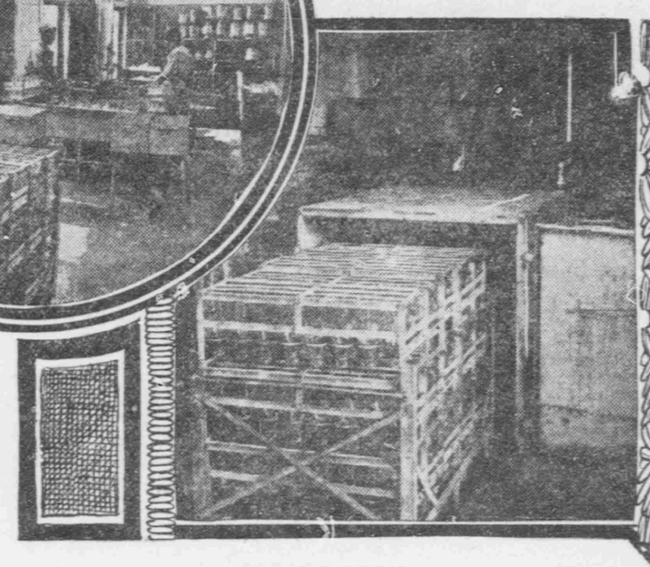
NO CHANCE IS GIVEN GERMS TO THRIVE

From Milk Pail to Consumer, Fluid Is Handled Only by Machinery.

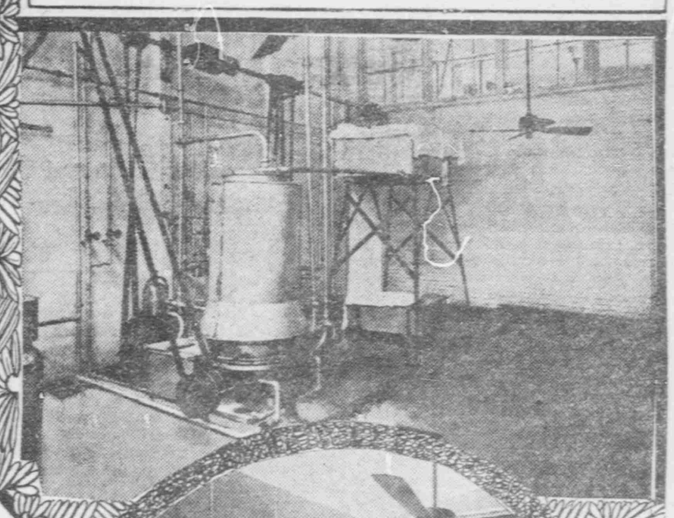


LABORATORY.

WASHING AND STERILIZING BOTTLES.



THE STERILIZER.



PASTEURIZING ROOM.
COOLING AND BOTTLING MACHINERY.

FOR more thousands of years than anyone can estimate, milk has been one of the most important foods of mankind. In infancy, through youth to old age, it has nourished and strengthened the human race during the ages, and even today is depended upon for more needs of sustenance than is any other single article of diet.

It is only within recent years, however, that the true food value of milk has been scientifically appreciated, and only within the last three or four years have people awakened to a full realization of the danger that may lurk in the soft, white fluid that has been a blessing to countless millions—when it has not first cajoled, then killed them.

"As harmless as milk" is a trite saying that has endured for generations. But once let this food product be improperly or uncleanly handled, let a few bacteria become immersed in it from the barn or the bottle, or let it come from a diseased cow, and what is the result? In a few hours the bacteria have increased amazingly in number, and overnight the glass of milk that you sip with your breakfast has become, literally, swarming with millions of bacteria. Some of these may be harmless, but among them may be the deadly typhoid bacillus or the tuberculosis germ, or microbe, or whatever it may please you to call it.

Necessity for Care.

The necessity of having the utmost care taken as regards the source of the milk supply, and the handling and marketing of it, therefore, is only too manifest. Washington is the center of the war that is being waged for pure food, and it is altogether appropriate that this city have a dairy where milk is rendered safe and wholesome, without its quality or flavor being in any way affected. The secret lies in pasteurization.

The Chestnut Farms Sanitary Dairy, conducted by George M. Oyster, jr., at 1116 Connecticut avenue, has one of the few "perfect" pasteurizing processes in the country. Many other dairies in the United States have what is termed the "commercial" pasteurizing process, and there are two or three such in Washington. Mr. Oyster's plant, however, is the only one in the city with the "perfect" process. With this and with sterilization,

Source of Supply Is First Care of the Management.

Absolute Sanitation Marks Various Stages of "Handling" the Milk.

and more sterilization of bottles, machinery, and the plant itself, the entire product of thirty dairy farms is marketed in this District clean, fresh, and sweet, as nourishing and health giving as nature intended it should be.

This plant today is in perfect working order, moving with clock-like smoothness and seeming simplicity. But to bring it to the present point of excellence several years' work and the expenditure of a large amount of money have been necessary. By the time that the neat rows of capped milk bottles are shipped in boxes on the teams of the dairy, skilled labor, mechanical ingenuity, and scientific test have all played their respective parts.

Sources of Supply.

To begin with, the milk arrives at the Chestnut Farms Dairy in great cans which the farmers use exclusively for Mr. Oyster's business. These are washed in running water, and then sterilized with live steam and thoroughly dried over night before they are sent back to the farms for refilling.

At the farms from which the milk comes to the dairy, all of the modern methods of sanitation are in vogue. Time was when the farmers resented the urgings of conscientious milk dealers to observe all the up-to-date forms of cleanliness, but that time passed long ago. Mr. Oyster solved the problem as far as he himself is concerned by contracting for the entire products of the farms selected and paying therefor a litle higher price than the milk producers had been accustomed to receive. Nowadays the milkers are obliged to keep themselves and their uniforms scrupulously clean, the cows are kept clean, the milk cans are sterilized. Furthermore, the cows are being continually inspected for disease, and if there is any suspicion that all is not well their milk is not sent to market. The workers are obliged to report all illnesses in their families, and if any contagious or infectious disease develops they are not allowed to have anything to do with the work of supplying milk to the dairy.

How It Is "Handled."

So much for the sources of the supply. At the Chestnut Farms Dairy the same care is observed by the employes.

Pasteurizing Is Accomplished Solely by the "Perfect" Process.

Even Washing and Filling of Bottles Is Done Automatically.

There are separate sanitary quarters for white and colored workers, where they array themselves daily in spotless white uniforms. The milk flows through chilled pipes into a bottling machine, is automatically bottled and sealed, is kept cold in a storage room, and goes to the customers in boxes, packed with ice. Such in brief is the way the milk is "handled"—coming into contact with nothing but sterilized nickel or sterilized glass.

As one follows the various stages of getting the milk ready for market at the Chestnut Farms Dairy, one is deeply impressed with the absolute sanitation of everything. First comes the machines for washing the bottles. These have revolving brushes, which clean the bottles inside and out. The bottles are rinsed in running water, and are then placed, mouth down, on a large car that goes into the sterilizing plant. They are sterilized with live steam for twenty minutes.

Pasteurizing Process.

On the second floor of the plant, meanwhile, the pasteurizing process is going on. The milk flows into the pasteurizing plant in long pipes. The reservoir is divided into eight compartments, which are alternately filled and emptied. Into the first of these, for instance, the milk flows, and for four minutes is maintained at a temperature of 146 degrees. At the end of the four minutes the compartment automatically empties the milk into the next one, which has previously done the same thing. Into the first compartment comes a fresh supply of milk. The milk thus traverses the eight compartments, always at a temperature of 146 degrees, and there is an unbroken flow maintained. This is the "perfect" process. The "commercial" pasteurizing process involves merely the bringing of the milk to the desired temperature, and then cooling and bottling it. By that process it is impossible to kill all the disease germs.

At the Chestnut Farms Dairy the milk, after being pasteurized, flows over a refrigerating machine, which cools it to about thirty-three degrees. The pipes of this machine are chilled by brine being forced through them. Before the milk is cooled—in fact, even before pasteurization—the milk is strained or filtered through a double thickness of sterilized absorbent cotton, and three layers of cheesecloth. With the filtering, the sterilization, and the pasteurizing processes invariably followed, there is

Expert Chemist Is Employed and Thorough Tests Are Made of All the Products Before Bottling Process Is Begun.

no chance left for any disease germs to exist.

Bottled by Machinery.

After being chilled, the milk goes immediately to the automatic filling machine. This is capable of filling and capping forty-eight quart bottles per minute. Several men attend it, so that it is clear that the value of the machine is in the cleanliness and sterilization it affords, not in its saving of labor. The caps which are fixed in place by the machine are also sterilized. From the time they are cleaned by brushes, the bottles are not even touched by hand. Cars and a miniature railroad take them through the bottling machine, and then they are carried in metal boxes or trays into the cold storage rooms hermetically sealed. The milk has been pasteurized and chilled before being bottled, all the while under cover and in sterilized pipes. Even the air in the various rooms is changed completely every minute by a large exhaust fan. The pipes are sterilized night and morning—after the day's bottling has been done, and before another day's work is started. The floors are of concrete, the walls of cement, and are kept absolutely clean. And all of this means that not a single thing that the human mind can suggest to keep the milk absolutely pure is omitted.

It might seem that by these various processes enough had been done to protect the milk-consuming public. Such is far from being the case, however, for in another part of the building science is keeping its keen eyes on the most important point—the quality and nature of the milk itself.

Made Milk a Study.

For one thing, Mr. Oyster himself has always kept in close touch with investigations into milk problems which have been carried on by experts employed by the Agricultural Department. He has utilized this knowledge to good purpose, and has done considerable investigating on his own account. This has caused him to be regarded as an authority on dairy matters, and dairy men frequently journey long distances from other cities to learn from him and his plant.

Not content with this, Mr. Oyster employs his own chemist and bacteriologist, Dr. B. Meade Bolton, a man of international reputation. Dr. Bolton has made a specialty of the study of milk and its products. In connection with the Chestnut Farms Dairy's plant, is a completely equipped laboratory for his use, and here he acts as inspector of the milk that is marketed by the dairy. He even tests the milk of other dealers, in order that comparisons may be made and the highest quality assured for the Chestnut Farms Dairy. No germs can escape his microscope. If there is any suspicion that aught is the matter with the milk that is being supplied by any of the thirty dairy farms, its effect on guinea pigs is immediately tried. A number of these are always kept on hand near the laboratory. In these sensitive little creatures, milk containing the germ of an acute disease, such as diphtheria or typhoid, shows its effect in about two days; the germ of tuberculosis has an effect noticeable in about ten days. In the meantime, the milk from the suspected farm is withheld, and if the tests prove it faulty, then, to use a colloquialism, "Good-by, farmer!"

How It Is Marketed.

Nowhere else in the District is such care used in the marketing of milk. The dangers to the reckless consumer are many, but where these precautions are taken there remains only the fresh, sweet milk, free from bacteria, to nourish the young and old who use it. According to Mr. Oyster, improper pasteurization is worse than none at all. In his plant, the thirty minutes during which the milk is subjected to the process kill all bacteria, and improve the digestibility of the milk, and at the same time the process does not injure the flavor. This plant is the only one in the District, so far as can be learned, which sterilizes all bottles used. It is the only "perfect" pasteurizing plant in Washington, and is one of the six or seven that exist in dairies anywhere in the country.

The temperature of the pipes which chill the milk, as well as those which keep the storage rooms cold, is regulated by a machine in the basement, which forces the brine through the pipes. The power for this, and for all machinery in the building, is furnished by electricity. This is another detail arranged on behalf of sanitation. The milk is kept at a temperature of from 32 to 36 degrees Fahrenheit until delivered; cream is kept colder, or just above freezing.

Value of Cold Storage.

This cold storage apparatus is of the highest importance. Bacteria do not propagate in a low temperature, and

Official Praise Was Given the Establishment in Report Recently Issued by Public Health and Marine Hospital Service.

as the dairy has almost unlimited quantities of ice on hand at all times, the milk and cream are kept cold without difficulty. Finally, the mechanical apparatus prevents any contact of the milk with human hands, and it reduces expenses somewhat, although a number of workmen are obliged to attend to its operation. The saving of labor is not the primary function of the machinery, as already stated, but it does make it possible for the milk to be sold at regular prices, even after all the advantages of absolute purity have been gained.

To all this care that is being taken of milk, and therefore, of the public health, the eyes of the authorities have not been closed. In a report recently issued by the Public Health and Marine Hospital Service the question of impure milk being a frequent cause of typhoid fever is discussed at some length.

"The large proportion of cases of typhoid fever in families of the better class and the conspicuously large proportion of cases among the children in Washington, suggests that milk plays a larger part in the spread of the infection than we have been able definitely to determine by epidemiological studies," said the report. It continued:

"In this connection it is interesting to note that for both 1906 and 1907, milk dealer No. 10 had a conspicuously small number of cases of typhoid fever proportionate to the amount of milk sold. This dealer is the only one in Washington who both sterilizes the bottles and pasteurizes the milk. The low typhoid fever rate among the customers of milk dealer No. 10 is significant, and perhaps is a fair index of the result which would be accomplished by the pasteurization of the general milk supply of Washington."

Official Praise.

As George M. Oyster, jr., is the only dealer in Washington who both sterilizes his bottles and pasteurizes his milk, it would seem that it certainly must be he who is indicated by "milk dealer No. 10." Unofficial and official praise are two vastly different things. If the official terms quoted were meant to apply to the one dealer who employs both sterilization and pasteurization in his plant, how would an official report read of the results of an ordinary dealer, not to mention such dealers as actually get haled to court for selling poor or impure milk!

Mr. Oyster says that it is clean, good milk that he pasteurizes, milk that most dealers would consider more than good enough for market just as it comes into his dairy. It is with Mr. Oyster, not a case of merely destroying disease germs by pasteurization and letting the quality of the milk take care of itself. Pasteurization will not turn bad milk into good milk, he says. To have good milk free from all possiblity of disease germs, it is necessary to pasteurize good milk. That is the underlying principle at the Chestnut Farms Dairy. The result is that milk from that source is one of the few food products which, in these discriminating times, is regarded as wholly satisfactory, both in quality and in purity.