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NEW-YORK DAILY TRIBUNE, SUNDAY, JANUARY 15, 1905.

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## DISEASE GERMS IN YOUR MILK.

THE VAST MAJORITY OF NEW-YORKERS USE THIS UNSANITARY FLUID.

Out of the 1,500,000 Quarts Sold in This City Daily Only About 6,000 Quarts Are as Clean as They Ought To Be.

Is New-York getting milk as pure as it can be produced? This question could have been answered in the negative at any time since New-York has been dependent on a milk supply. A display of the evidence that the negative answer is true is especially timely just now, when the Department of Health is bringing so many dealers to book for the adulteration of milk, and has begun a more energetic campaign of education among the producers. It is probable that less adulterated milk is coming into New-York now than at any time before in the history of the milk business. While the conviction of a dealer charged with selling adulterated milk and the assessment of a fine are not a pleasant experience, and can hardly fail to have an effect on the business of the one found guilty, the revocation of a license to sell milk in the city, as was done the other day in the case of the Metropolitan Milk and Cream Company, has an effect on other dealers. For this reason probably few of those who bring milk to this city are running any risk of losing their licenses. That much of the milk which comes to this market is not

ing can at the butter or cheese factory, or milk receiving station, it will run a muddy stream as it passes out in the process of draining the can. "In the summer months, when the dairy cow is being disturbed by flies, she often goes to a stagnant pool of water, if one can be found, wades out into the water until her udder is submerged, and, while there, keeps her tail in constant motion, throwing a fine spray of water over her body. This seems to be an assistance in removing the annoyance of flies. The water being stagnant and containing some solid matter, there is no question that it is teeming with all types of bacteria; and when she leaves the pool and the water has evaporated, the hair over her whole body is filled with all types of germ life. This, in my judgment, is one of the direct ways of contamination. The average cow barn of the State of New-York is seldom, if ever, swept. Cobwebs and dust are loaded on every beam and upon the stanchions to which the cows are tied, and in many cases the poultry of the farm are allowed to roost upon the stanchions, because no better place is provided. I

and ten feet in diameter. It is bricked up for the entire depth and is entirely uncovered. The surface of the water, which was about level with the ground, was covered with a green scum, and a flaky sediment was floating about in the water as it was drawn up in pails. A pipe leads from the well to a tank where the milk is set for cooling, and from here it is pumped into the boxes where the grains are mixed for the cows. About thirty cans of milk are made a day, which is sealed by a rabbit as being pure, or 'kosher.' The use of such water as is here used for washing utensils, in my opinion, renders the milk dangerous to health. These reports, with their blunt but graphic language, are not pleasant reading to persons of sensitive imaginations and an innate love of cleanliness. The conditions described, however, are not such as to strike the average dairy farmer as especially remarkable.

### AN INSPECTOR TALKS.

Mr. Kilbourne, who made these reports, in speaking of conditions in New-York State a few days ago, said: "In a great many stables, especially in Orange, Westchester and Putnam counties, where milk has been produced for the New-York market a long time, and the farmers ought to know better, hay and straw are piled over the cattle on loose poles in such a way that the dirt can drop down freely into the milk pails when the cows are milked. No attempt is made to have a flooring over them at all. In one very dirty, dark stable—a compartment so dark that one could hardly see to milk, there being hardly any windows—twenty to twenty-five cows were kept. The stable was rarely cleaned out, the manure being allowed to remain on the floor. It was from three to four inches deep. On another farm I found that

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## Le Boutillier Brothers

West Twenty-third Street.

More than six thousand children under this age have died in this city in one summer from diarrhoeal diseases. The large proportion of these deaths, according to the Board of Health, were due to the bacteria in milk. Dirt from men's hands, clothing, the udders and tails bacteria, and a temperature of 50 degrees accelerates their propagation. They multiply most rapidly at a temperature of 95 degrees and cease to multiply at all at the freezing point. They multiply very little at 45 degrees. Milk tested under good conditions by the Health Department contained immediately after milking 300 bacteria in each drop. It was cooled to 45 degrees and the temperature maintained at this point. After twenty-four hours it contained in each drop only 200 bacteria; after forty-eight hours, 900, and after seventy-two hours, 150,000. The milk curdled on the sixth day. Another specimen, taken in a dirty barn, cooled and kept at 52 degrees, contained at first 2,000 bacteria in each drop; in twenty-four hours, 6,000; in forty-eight hours, 245,000, and in seventy-two hours, 16,500,000. The milk curdled on the fourth day. It is the bacteria in the milk

occurred since 1880, in talking with a representative of The Tribune gave an illustration of how these toxins may affect adults. On the evening of August 7, 1886, after dinner, forty-three persons in two hotels in Long Branch were attacked almost simultaneously with nausea, cramps and collapse. A week later thirty other persons in another hotel were attacked in a similar way. While they suffered great agony all the persons recovered in a few hours. Upon investigation it was found that all of them had drunk of milk furnished by one dealer. This dealer had the curious habit of milking at midnight and midday. The dairy and herd showed no cause for criticism. The milk, however, was not cooled after being drawn, but was immediately after noon started on an eight mile trip over New Jersey's roads to the hotels in Long Branch. A test revealed the presence of noxious toxins. The germs had been able to get in their work in the course of the eight mile trip under a hot sun.

### DANGER OF EPIDEMICS.

What the adult has to fear most from milk produced by careless and thoughtless dairymen is contagious disease. According to Dr. Freeman, there were fifty-three epidemics of typhoid fever attributed to milk, twenty-six of scarlatina, eleven of diphtheria, two of foot and mouth disease, three of throat affection, two of acute poisoning by milk and one of Asiatic cholera in different parts of the world between 1880 and 1895. These were the only epidemics investigated and reported. It is not known how many epidemics have occurred in New-York from infected milk, for no effort is made to learn the name of the milkman who serves the family in which a case of any of these diseases is discovered, and therefore it is not possible to connect the case with any particular supply of milk. There have been, according to Dr. Freeman, two small epidemics in Buffalo as a result of infected milk, and in London there have been three. One of these, an extensive epidemic of scarlet fever, is familiarly known as the Hendon epidemic.

A number of epidemics have occurred within the territory from which New-York City draws its milk supply. In Fort Jervis in the fall of 1884 there was one in which there were 148 cases. Of these 128 were consumers of milk from one dairy. Upon investigation it was found that there had been three cases of typhoid fever at the dairy in the months of August and September. These were nursed by the same person who attended to the dairy work. This person washed the utensils in the house and wiped them on towels also used in the house. In March, 1894, there was an epidemic of the same disease at Montclair, N. J. Of the 115 cases 107 obtained their milk from one dairyman. There were fifteen deaths. The son of the milkman had typhoid just before the outbreak of the epidemic. In Stamford, Conn., an epidemic of typhoid broke out in 1895. Of the 386 cases which developed, 376 were consumers of milk served by one milkman. There were twenty-two deaths. The epidemic was evidently due to washing the cans with contaminated water.

As the causes of the epidemics mentioned indicate, diseases of this character may be communicated very easily. Dr. Freeman said: "On a little farm the utensils are usually cleaned in the house. Farmers usually have one bedroom on the lower floor. In a case of sickness the patient is moved to this room, where it is easier to care for the case. There is great danger from such a condition as this. Milk is a grand medium for developing cultures of bacteria. It is often for this reason used by bacteriologists for this purpose." Illustrating this easy method of spreading disease is the epidemic of typhoid fever which occurred in Springfield, Mass., in August, 1892. There were 150 cases, of which 135 had used one farmer's milk. There were twenty-five deaths. It was found that the water in which the milk was submerged by this farmer, in order to cool it, contained bacilli often associated with those of typhoid fever. The cans were submerged in it with wooden plugs in their mouths to keep out the water. Some of the plugs were found to leak. The farmer's wife had had typhoid fever. These cases prove that too much care cannot be taken to have the condition under which New-York's milk supply is produced entirely sanitary.

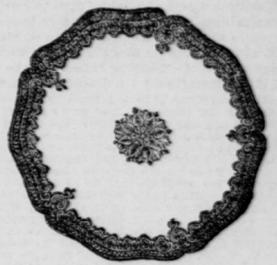
### DR. LEDERLE ON CONDITIONS.

Dr. E. J. Lederle, the predecessor of Dr. Darlington as head of the Health Department, said recently: "It is only in the last few years that the department has given much attention to the matter of a clean supply of milk, and it is only two years since this work has been systematically carried on by it. It began with bacteriological tests of samples of milk as delivered by the dealers, and the tracing of unusually bad samples to the dairy in the country. In almost every case the proof was substantiated that the bacteriological contents are an index to the cleanliness of the milk, the condition under which it was produced, or the method of sub-

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Always the place of places, the coming week is the time of times for the most captivating bargains in the most fascinating merchandise with which it is ever possible to both furnish and ornament a home.

PLEASE NOTE—That one of our Twenty-second Street stores not being large enough to properly display just the Plates in this sale, they will also be found to occupy the larger part of our Magnificent Twenty-first Street store—where carriages can best be accommodated.

In our English China Plate Department will be found hundreds of dozens of richly decorated plates from all the famous factories of England, including Doulton, Minton, Copeland, Coalport and Wedgwood. Every plate in this department is reduced from 10 to 33-1/3 per cent. From what follows judge the rest:

- Doulton Service Plate.** Beautiful Cobalt blue decoration, heavy acid gold border with panels of miniature heads painted by Sutton. Were \$275.00 per dozen, now, per dozen, \$247.50
- Doulton Fruit Plates.** Entree size, Painted design of pears, peaches, pineapples, etc., in colors, in center of plate, with background blended from a dark green to a delicate cream. Painted by Piper. Were \$140.00 per dozen, now, per dozen, \$118.80
- Minton Service Plates.** Heavy acid gold edge. Solid colors running to center of plate, with beautiful design of raised paste gold, in colors of Cobalt blue, Rose du Barry or ivory. Were \$73.00 per dozen, now, per dozen, \$60.00
- Wedgwood Fish Plates.** Heavy gold edge; beautiful design of net work. Hand-painted fish center. Painted by Plant. Were \$56.00 per doz., now, per doz., \$45.00
- Cauldon Service Plates.** In Rose du Barry, Cobalt, green and ivory background of beautiful flat gold decoration. Real value \$75.00 per doz., now, doz., \$60.00
- Copeland Service Plate.** Fine raised paste jewel design. Background of Rose du Barry and ivory. This makes a superb plate and has all the characteristics of the products of this famous English factory, and can be had in either Apple Green or Rose du Barry. Were \$133 per dozen, now, per dozen, \$100.00

Hundreds of dozens of rich Fish, Game, Service, Entree, Tea and Bread and Butter plates in this department for your selection at

### 4 less than elsewhere.

In our French China Plate Department will be found hundreds of dozens of richly decorated plates in all the colors of the rainbow. Many with acid gold borders and effects that are equally as rich as those found in the more expensive English designs. To facilitate selection we have placed them in various lots.

On table No. 1 will be found a beautiful line of all sizes of Plates that range in value from \$30.00 to \$48.00 per dozen.

Reduced price, choice at \$20.00 each. On table No. 2 a beautiful variety of specially priced plates in various sizes, dinner, service, entree, tea, bread and butter, real value, \$24.00 to \$36.00 per dozen, now at \$15.00 each.

On table No. 3 will be found 100 dozen ranging in price from \$12.00 to \$40.00 a dozen. All these have been reduced from 10% to 33-1/3%. In our Twenty-second street store will be found a large table with over 300 dozen plates in various sizes and decorations. For your accommodation these have been placed in groups and priced at 25c., 50c., 75c. and \$1.00 each.

West 21st St. and West 22d St., NEAR SIXTH AVENUE.

sequent handling. The department, of course, had the usual experience of finding that in many instances the milk was produced under such atrociously filthy conditions that the surprise was it could be transported any distance at all. The conditions surrounding many of our cow stables are a disgrace to our civilization, a grave reflection on our sanitary authorities, and a menace to the health and lives of consumers of the milk therefrom. I cannot express myself



UNSANITARY CONDITIONS OF A COUNTRY DAIRY WHICH SENDS MILK TO NEW-YORK.

This cow stable was discovered by New-York City Health Department officials in New-Jersey within a few miles of Hoboken. Men were photographed in the act of drawing water from a well between the big pile of manure in the foreground and the cow stable. The manure pile and the stable were only ten feet apart. The milking utensils were washed with water taken from this well.

produced under such conditions as should prevail is evident to any one who knows anything about the average dairy.

This city is probably in just as much danger of epidemics of typhoid fever, diphtheria and scarlet fever from contaminated milk as it ever was. "It is safe to say that 90 per cent of the milk that comes into this city is produced under conditions that are not satisfactory from a sanitary point of view," said Charles H. Kilbourne, the inspector of the Department of Health, recently. He has been travelling for several years through the country regions, where the milk is produced, and is one of the inspectors whom Commissioner Darlington is sending out for the purpose of securing the co-operation of the farmers in his effort to obtain more sanitary conditions. His statement means that of the 1,500,000 quarts brought into this city each day from the States of Vermont, Massachusetts, Connecticut, New-York, New-Jersey and Pennsylvania, only about 150,000 quarts of it can be considered anywhere near what it ought to be. According to Dr. W. H. Park, the director of research work for the Department of Health and bacteriologist of the milk commission of the Medical Society of the County of New-York, only about 6,000 quarts are sold in this city each day which are entitled to bear the certification of the commission that they contain less than 30,000 bacteria to the quart teaspoonful. The average number of bacteria found in that quantity of the milk drunk by the great proportion of the people of the city, he says, is about 1,000,000.

The milk agent of one of the railroads bringing milk to this city said the other day, when informed that the Department of Health was intending to take steps to prevent the sale of milk in this city produced under unsanitary conditions: "The country's the place to go, and the department's action is the right thing to do. It will be bad for our business, though. When the Department of Health gets up there, it will condemn three out of five of the dairies. I don't believe there's a farmer in New-York State who washes his hands before he milks. On many of the farms the cows drink from wells only a few feet into the ground in the barnyard, where everything can flow into it." An official of the New-York State Dairymen's Association, in a letter to The Tribune a few days ago, said: "I should say that a large majority of the farm barns throughout the State are in such a condition that you and I would consider them unsanitary." In concluding his letter, he added: "Of one thing I am quite sure—that very few people have a better opportunity than myself to witness the manner in which the dairy work is done, as I travel through every dairy county in our State, visiting butter and cheese factories, and necessarily come in contact with dairy farming more or less."

### BAD CONDITIONS.

What are some of the conditions under which the milk is produced? Here is what this official has to say about them: "I think it is safe to say that it is almost a universal habit for milkers to draw a stream of milk from the cow's udder into their hand, and with this milk wet the animal's teats before beginning to draw the milk. I have seen hundreds of cases where this milk would drop from the milkers' hands into the milk pail. I have also seen as many instances where the dirt from the cow's udder would drop into the milk and on the side of the pail. It is a common practice to set farm employees in the process of milking move the stream to the side of the pail and rinse the dust which had accumulated there down into the milk. It is also a common thing to set dirt of this nature settle in the milkcans in such quantities that when the milk is emptied into the weigh-

could relate much more alarming conditions, but the above condition, I think it is safe to say, is an average on dairy farms."

### FOUND BY INSPECTORS.

Perhaps the best way to illustrate some of the conditions to be found in the country is to take some rather graphic extracts from the official reports of the inspectors of the Health Department.

"The first premises inspected," reported one inspector, "were those of — Here I found a long one story building, the front of which is occupied as the living apartments of the family and the rear portion used as a stable for sixteen cows. These are crowded into two stables, 22 by 24 by 10 feet and 8 by 10 by 10 feet, giving only 380 feet of air space to a cow.

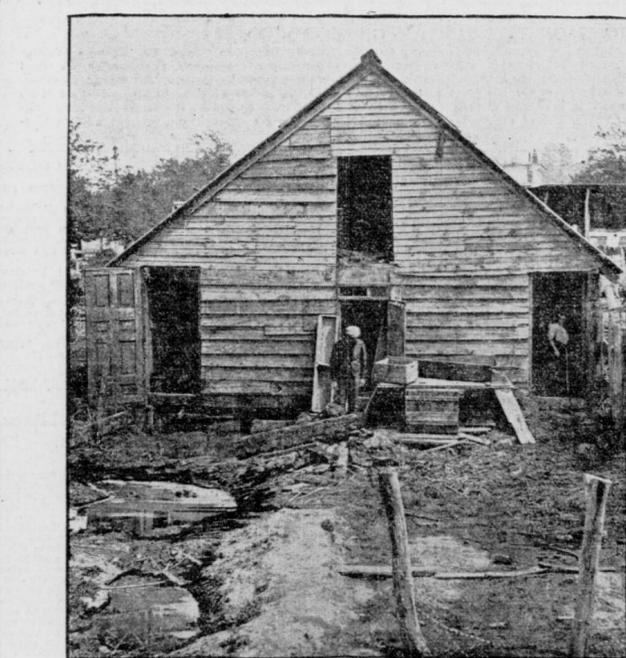
"The cows are fed on brewers' grains, bran, meal, stale bread and hay; no swill is fed them. The walls inside the stable are dirty, apparently never having been whitewashed. The ceiling is low, dirty and extremely liable to drop dirt into the milk while milking is being done. The well from which the water is drawn for watering the cows and for washing the cans and other utensils is situated close to the stable, and between it and a large pile of manure which is thrown out upon the ground at one side. . . . There is a tub set in the ground near the pump containing what was evidently unclean and stagnant water, in which the cans of milk are set when cooling is done. The utensils are washed in the yard near the house. The cans are constantly kept in the stable."

Unless the ventilation was extremely good this could hardly be considered a healthful place for keeping cows, for a cow requires several times as much oxygen as a human being. The latter requires 18,000 cubic feet of air each hour. The manure was only 10 feet from the stable, and the pump was so near to it that one could not use it without standing on the edge of the unsanitary material.

Another case: "The stable is exceedingly dirty, being unwhitewashed, and the manure being thrown out against the sides of the building. . . . The building has an incline allowing the liquid portion of the manure to drain out at the end of the stable, where it stands in a stagnant pool. The well is in swampy ground, is about four feet deep, is uncovered, and had evidently not been cleaned for a long time. The water is pumped into a tank and runs into the stable by means of a pipe. The cattle are fed upon brewers' grains and middlings, these being mixed with water and fed as a sort of swill, no water being given the cows except what they receive in this way. There is no milk room, and the cans are not properly cleaned. . . . The milk is strained into cans, which stand in the stable at the time of the milking, and the cans are washed in the stable in the midst of filthy surroundings. After the night's milking, the milk is set in a vat in the wellhouse, where it stands until morning. I would recommend that this milk be excluded from the city."

The well referred to was only seventy-five feet from the stable, which was drained toward it. It furnished all the water used in the dairy. Both of the above dairy farms were in New-Jersey, within easy driving distance of Manhattan. The following was in the same neighborhood:

"At the premises of —, on the — Plank Road is produced the milk sold by the owner at — st., this city. Here I found a stable 17x50x9 feet. Seventy-five cows, which are fed upon hay, grain and brewers' grains, occupy same. No swill is fed. The manure is thrown out upon the ground, and is within twenty feet of the well from which all the water used is drawn. The well is about ten feet deep



A TYPICAL MENACE TO HEALTH DISCOVERED BY MILK INSPECTORS.

In front of this cow stable are to be seen pools of moisture draining from the stable toward a well 75 feet away. The food for the cows was mixed with water taken from this well and the milk cans were washed with it in the stable. The milk was then sent to this city.

the cattle were kept in a basement. The loose stone wall behind them was plastered over completely with manure in order to keep the cold out.

"Some of the creameries and shipping stations are also in a filthy condition. I found one creamery where the floor was broken and all the drainage went under the floor of the building. The mud and slime were three or four inches deep all over and gave forth a very offensive odor. In another creamery the brick floor was broken and the drainage ran into the ground. In the winter, when the ground was frozen, it was not carried off and gave off a horrible smell. In this particular creamery the water used was taken from a spring dug in the ground under the creamery building, six or eight feet deep. The well was situated in such a way that the water was probably contaminated.

"Another very bad feature of milk in the country is that it is improperly cooled by the farmers. Comparatively few use ice, depending on spring water. At creameries I have found milk being brought in which was over sixty degrees in temperature. In two creameries I visited the milk drawn the night before by half of the farmers had not been cooled below 55 degrees."

### HOW BACTERIA MULTIPLY IN MILK.

This lack of cleanliness in caring for milk is responsible for a large proportion of the bacteria found in milk and the presence of which is so injurious to children under five years of age.