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Contributors

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On the
Sanitary Requirements
of a
Dairy Farm.

By
The Medical Officer of Health of Glasgow.



*Drawn up at the request of and issued by the
Local Authority of Glasgow
for the Information of persons engaged in the Milk-Supply
of their District.*

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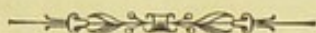
EXTRACT FROM MINUTES OF COMMITTEE ON HEALTH.

"The Medical Officer reported that his "Memorandum on the Sanitary Requirements of a Dairy Farm," referred to in minutes of 31st December last, had been printed, and a copy sent to each member of the Health Committee. The Committee approved of the report, and authorised the Medical Officer to get it distributed among persons interested."—*Approved of by Local Authority, 4th February, 1889.*



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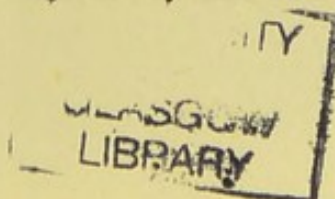
ON THE SANITARY REQUIREMENTS OF A DAIRY FARM.



I.—THE FARM-STEADING AS REGARDS THE HEALTH OF THE INMATES.

A FARM-HOUSE should, like every other house, be wholesome in structure, and furnished with all the usual requisites of health. That this should be so is more vital to the interests of the residents than of any other people ; but the remote consequences of disease in the farmer's household may spread so far through the milk which he produces that their health and the conditions which affect it assume direct importance to every consumer of the milk. Therefore, though there may be here and there a farmer who is indifferent to the welfare of his family, he cannot be left alone, because the health of himself and his family, and the health of his distant customers, are bound up together.

A farm-house, including servants' quarters, should be so constructed as to be in all parts dry, well-ventilated, and well-lighted. It ought to have a good water supply, sufficient for man and beast all the year round, brought from some point distant from the area of the steading, from a gathering-ground which is not arable ; or, if that is not possible, from such a depth as to exclude surface drainage. The house-drainage ought to be conveyed below ground through vitrified pipes jointed with cement. There ought always to be at least one privy, and where there are male and female servants, one for each sex, built of stone or brick, placed with regard to decency, and apart from the byres ; lime-washed inside and out periodically, and kept scrupulously clean always.



II.—THE FARM-STEADING IN RELATION TO THE BUSINESS OF MILK PRODUCTION.

A farm-house may be in all respects wholesome as a residence, and yet be badly planned as regards the business of a dairy farm. All the arrangements of the structure and the habits of life ought to have in view one cardinal principle—the separation so far as possible of the domestic life from the milk, in its production, manipulation, storage, and despatch. The reasons of this are two—(1) that milk is prone to contamination from exposure to disease in the persons of those working among it; (2) the risk of contamination by disease is just in proportion to the closeness of the relation between the ordinary domestic life of the farm-house and the structure and arrangements necessary to the business of the dairy. If the bedrooms, the washing-house, the conveniences, &c., are mixed up with the milk-house, the boiler-house, the byres, &c., then whenever disease appears in the family or household mischief is certain to follow. If these various parts of the steading are separated, then the chances are that, before the nature of the disease is recognised, no harm will have been done, and after a few precautions will enable the farmer to carry on his business without interruption. The main points to be attended to in the arrangement of structure are these:—

1. A domestic washing-house placed as remote as possible from the milk-house, boiler-house, scullery, and byres, is indispensable. No farm-house which is without a separate washing-house can be a safe source of milk supply; yet the almost universal habit is at most to use for boiling clothes a separate boiler beside the boiler used for scalding milk-vessels; and to wash in any convenient place, it may be in some passage opposite the door of the milk-house, or in the scullery. In health this may be only convenient, but the moment infectious disease invades the family the results are disastrous and unavoidable. Explosions of enteric fever and scarlet fever have been traced to the washing-day, when the soiled clothing has been brought to the boiler-house, or washed opposite the milk-house door.

2. The milk-house ought always to have its door opening into the free air. It ought to have no other apartment above it, especially no bedrooms. It ought to be well-ventilated, have no

internal communication with drains, be entirely free from damp, and so placed that the air which reaches it shall be pure, not near the dung-pit. It will be observed that the usual practice of having the milk-house incorporated with the dwelling-house, opening off the lobby, or kitchen, or scullery, is condemned.

3. The dung-pit ought to be placed as far as possible from the house, especially from the milk-house. It ought not to be a mere hole in the earth, but have retaining walls, an impervious bottom, and over it a light roof, raised on pillars, so as to permit free ventilation, and yet keep the rain out, and so preserve the strength of the manure, and avoid the foul drainage which usually streams from a dungstead.

III.—THE FARM-STEADING AS REGARDS THE HEALTH OF THE COWS.

It seems unnecessary to expend words in proving the statement that only healthy cows can produce wholesome milk. The health of cows depend upon the same general conditions as the health of human beings—fresh warm air, cleanliness, pure water, proper food. The cowhouse or byre ought to be well lighted and ventilated, evenly paved, not over-crowded, kept clean by regular removal of filth, and by periodic lime-washing of the walls. The influence of warmth on the flow of milk is so great that in the absence of any source of heat but the bodies of the cattle, the temperature is generally maintained by preventing the access of fresh air. This has the same effect on stalled cattle as the same practice in the houses of the poor has upon the inmates—it promotes disease of the lungs, especially consumption. Without artificial heat it is impossible to maintain the temperature of a byre in a normal winter in this country; but this assistance is unknown in our dairy-farms, and hence the truth of the statement recently made by Professor Brown of the Agricultural Department, Privy Council Office, that “nothing worse than the insanitary conditions of the life of the average dairy-cow can be imagined.” All that can be said is that in cold weather, without heat from steam or hot-water pipes led through the byre, a comfortable temperature can only be maintained by shutting out the fresh air and storing up the animal heat, and that this is necessarily unwholesome.

IV.—DISEASE IN MAN IN RELATION TO MILK.

By the Dairies, Cowsheds, and Milkshops' Order it is declared to be unlawful for "any person suffering from a dangerous infectious disorder, or having recently been in contact with a person so suffering," to milk cows or otherwise engage in the business of milk production or distribution. "Contact" ought to be regarded as meaning any sort of communication, direct or indirect, with infectious disease, *e.g.*, it would be obviously dangerous for any one who had been in the sick room, or who had washed an infected washing, to proceed at once to milk cows, &c.

The only safe rule for a farmer to follow is to let no one who is not in perfect health handle his milk. Infectious diseases taper off into slight forms, only recognizable when associated with well-marked cases. Scarlet fever, especially in adults, may produce merely a sore throat, or a blush on the skin which may never be observed. Enteric fever may lurk in what seems to be a simple diarrhœa or "weed." It is not ill-health which has continued for some time, so much as the sudden indisposition which overtakes a previously robust and healthy person, which has to be suspected.

V.—DISEASE IN THE COW IN RELATION TO MILK.

By the Dairies, Cowsheds, and Milkshops' Order, the milk of a diseased cow is forbidden to be mixed with other milk, or sold or used for human food, or given to other animals, unless and until it has been boiled. But this enactment refers only to cattle-plague, pleuro-pneumonia, and foot-and-mouth disease. These are acute diseases which soon stop the flow of milk. Tuberculosis is a more insidious disease which does not do so until it enters on the last stages. Yet the milk is unquestionably unwholesome, and may convey tubercle (the cause of "consumption") to man. Therefore any animal having rapid breathing, a short cough, or emaciation should be examined by a veterinary surgeon; and the milk of no animal showing signs either of local or constitutional disease should be given to man.

A grave suspicion has recently arisen in the minds both of medical men and veterinary surgeons that certain eruptive diseases

affecting the teats and udder of the cow are associated with the propagation of scarlet fever among the consumers of the milk. It is not necessary to accept this as more than possible to justify the advice that careful inspection of the cattle as to the existence of any affection of the teats and udder is demanded, and *careful exclusion of the milk of any animal so affected from human consumption is absolutely necessary*. The teats are liable to different kinds of injury or disease. They may in cold weather be chapped or hacked just as the hands of men and women are chapped or hacked by the influence of cold air upon them, especially when wet. This leads to occasional bleeding in the act of milking, and although no actual influence on health may follow the use of such milk, it is disagreeable to think of using it. But there are also eruptions, probably of different distinct kinds, of the nature of vesicles or pustules which, through the friction of milking, are broken and give rise to scabs and ulcers. These are well-known to be infectious from cow to cow through the milker. Whether or not it be the case that one or other of these eruptive diseases in the cow may produce scarlet fever in man, it certainly is not pleasant to think of the consumption of milk contaminated with blood and matter, and therefore for this reason alone the milk of cows so diseased should not be distributed with the general produce of the dairy. It is a question of sacrificing the milk of one cow or of running the risk of poisoning the milk of a whole dairy.

VI.—CLEANLINESS IN GENERAL IN RELATION TO MILK.

As a rule nothing could be desired more than is generally practised by the Scotch farmer, or rather by his wife, as regards the careful scalding and cleaning of milk-vessels. It is impossible to be too scrupulously careful in this respect. It is unfortunate that in Scotland a barrel is the sort of vessel in use for the conveyance of milk. Wood is porous, and difficult to cleanse in any circumstances, but the structure of the barrel, the inside of which cannot be reached and cannot even be seen, is the worst which could be devised. Only live steam has any chance of making it sweet. Some form of tin vessel, to all the internal surface of which the hand can reach, and which is open to inspec-

tion, such as is in common use in England, would be much preferable.*

A little advice, also, as to the cleanliness of the udder and teats of the cows, and of the hands of the milkers, is not unnecessary. Attention to the bedding of the cow, and the removal of droppings from the place where the animal lies, will prevent the soiling of the udder. If soiled, the teats ought to be washed before milking. As to the hands, no instrument requires such careful washing as the human hand, considering the variety of offices to which it is applied, before it is engaged in the work of the dairy. Every drop of milk may be said to have passed through the hands of a milker, and before milking every milker's hands ought to have been carefully washed. Convenience for the comfortable and efficient use of soap and warm water is an indispensable requisite of every dairy.

Dairy farmers and dealers in milk, however sceptical as to the argument in favour of these precautions on the ground of the likelihood of disease being conveyed by milk, ought not to forget the commercial aspect of failure to be careful and cleanly in every detail of their business. In the first place, if by any chance even suspicion arises in the public mind as to the milk of any farmer or dairyman, his business is for the time ruined. Naturally, the first effort at self-protection is to change the source of milk supply. But apart from this, the milk which is produced from the healthiest cow, in the cleanest byre, handled by the cleanest milkers, collected in the cleanest vessels, and stored in the cleanest milk house, keeps the longest. In hot weather this means money. A thoughtful customer at once infers, and is right in inferring, that if one man's milk keeps longer than another man's it is to be preferred. It is not merely because of the loss implied by the "turning" of the milk, but because it is some want of cleanliness which causes the "turning."

In conclusion, the attention of farmers is requested to the following extract from a Report to the Veterinary Department of

* The objection on the score of the effects of sun heat, which, of course, tells more upon metal than upon wood, is not beyond being obviated by a little ingenuity.

the Privy Council "On Eruptive Diseases of the Teats and Udders of Cows, in Relation to Scarlet Fever in Man," by Professor Brown, from which a sentence has already been quoted. Not being the words of a medical man, but of a distinguished veterinarian, they are free from the suspicion which attaches to merely medical opinion in the eyes of those who are engaged in farming and dairy-keeping :—

"Milk is often collected, both in country and town, with contemptuous disregard of the most elementary sanitary precautions, amidst surroundings which can only be characterised as filthy. Dirty premises, diseased and dirty udders and teats, to say nothing of the state of milkers' hands, are stern realities which may be seen by anyone who is curious in such matters, and they must inevitably lead to contamination of milk with septic bacteria, and often with infective matter, not only from consumptive cows, but also from the attendants, who are subject to little or no supervision.

"It is true that in some model dairies a contrast to the above description is exhibited, where absolute and scrupulous cleanliness is insisted on. The health of the attendants is strictly watched, and any temptation to conceal a trifling ailment is counteracted by the arrangement which allows the milkers full pay during absence from illness. The slightest sign of udder disease or other disease in any of the cows is accepted, as it certainly should be, as a sufficient reason for excluding the animal's milk from the common stock. Under such conditions milk may be collected as free as possible from specific or common micro-organisms. This degree of care has not yet been generally taken, nor will be until the authorities interpose and insist that the cleanliness and perfect sanitary arrangements, which are now exhibited in a few dairy establishments, must be the only conditions under which the trade of a dairyman can be permitted to continue."

SUMMARY.

1. A farm-house ought to be wholesome in structure, and the steading well supplied with pure water, drained by vitrified pipes, and with privy accommodation for both sexes.

2. The house ought to stand apart from the premises used for dairy purposes. A distinct domestic washing-house is indispensable. The milk-house ought to open into the free air, and be at a distance from the dung-pit. The dung-pit ought to have retaining walls, an impervious bottom, and a light roof borne on pillars.

3. The byre ought to be well lighted, ventilated and paved, and regularly cleaned.

4. No person who suffers from infectious, or any recent indefinite illness, or who has been in any way in communication with an infected person or thing, should engage in the milk business.

5. The milk of no animal which seems to be ill, or which has any sore about udder or teats, ought to be sold for human consumption.

6. The udders and teats, if soiled, ought to be washed before milking. Soap, warm water, and towels ought to be at hand, and every milker ought to wash hands before beginning.

7. Healthy cattle, healthy servants, cleanliness in every detail of the business of the dairy farm, mean money to the producer and retailer of the milk.

J. B. R.

SANITARY DEPARTMENT,
1 MONTROSE STREET,
GLASGOW, 31st December, 1888.