

A HUNDRED AND FIFTY YEARS AGO

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THE PROPAGATION OF ENTERIC FEVER BY A MILKMAN

A SUMMARY OF DR BALLARD'S INVESTIGATION OF AN OUTBREAK OF ENTERIC FEVER AT ARMLEY, BOROUGH OF LEEDS, IN 1872¹

ARMLEY, A SUBURB OF LEEDS, is scarcely ever free from enteric fever. Up to the end of April 1872 two deaths from the disease had occurred in the village, and two other cases only. From the end of April to the end of the first week of September, there were a total of 107 new cases coming under observation (11 of them were fatal) and 68 houses newly invaded.

The houses attacked were confined to a particular part containing 449 houses, including dwellings of the well-to-do inhabitants as well as cottages of the poorer classes.

The epidemic commenced suddenly and almost as suddenly abated. The 107 cases occurred in persons of all ages up to 65 years, but most of the children (10 under five years of age) were attacked at a late period of the epidemic. There were defective conditions of drainage, very likely to favour the development of enteric fever in the village, but common to the whole village.

The medical man who had charge of most of the earlier cases, Mr Coleman, was early impressed with the idea that the distribution of milk from a particular source had something to do with the outbreak. Every family attacked up to the end of the first week in July dealt with a dairyman who had suffered from enteric fever in May, and first came under Mr Coleman's observation on the 17th of May; so did every family, with the exception of one, invaded in the second week of July; so did every family invaded in the third week of July.

Dr Ballard's inquiry¹ showed that of the 68 houses attacked 51, including that of the milk-seller, were supplied with milk by the dairyman in question; 13 were supplied by various other milk-sellers; one had no milk from anybody, and the source of milk supply to three was doubted or unknown.

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Of the 449 houses in the defined district, 132 were supplied by the dairyman who had been ill, and 317 obtained their supply from 18 other milk-sellers. Altogether, 37.8 per cent of the families the dairyman supplied with milk, after he himself had been attacked with enteric fever, were invaded by the same disease, while only 5.3 per cent of the families supplied by other milk-sellers, or not taking milk at all, suffered from the fever.

As to the 17 families who suffered, not having milk from this source, with one exception, all cases occurred during the fourth week of the outbreak and in subsequent weeks, and probably were from the ordinary mode of propagation of the disease through infected privies, drains and soil.

The inquiry also showed that the fever picked out the customers of the dairyman in various rows and blocks of houses in a remarkable way; and also that the largest consumers of the infected milk were amongst the earliest, and the smallest consumers among the latest attacked.

The dairyman whose milk was infected came under observation during the third week of May. The discharges which passed from him in his sickness were thrown partly into a privy, partly into a blocked drain, and partly into a dung-pit on his filthily kept premises, all of which receptacles were in near contiguity to the surface-well from which the water for dairy purposes was obtained. The first and second weeks of May were dry; during the second and third weeks much rain fell, and during those weeks foul matters from the privy, dung-pit, and fouled surface would be washed into the soil and percolate into the well. Leakage from the fouled porous soil into the well was proved during the inquiry. The first week in July the outbreak began, that is to say, after the ordinary period of incubation of the disease, assuming that the polluted water of the well was the chief agent in the subsequent events.

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On July 10th Dr Robinson, the Medical Officer of Health for Leeds, had the handle of the pump removed; on the 27th occurred the sudden cessation of the disease, which means, that the cause of the epidemic had ceased a fortnight or more previously.²

This lucid and elaborate report appears to us conclusive as to the occasional propagation of enteric fever by the milkman. The moral of the story is best given in Dr Ballard's words: “The Adulteration of Food Act of last session enables local authorities to deal with persons who add water to milk; but if a dairyman's own drinking water is permitted by local authorities to be a fluid little better than sewage, is it not rather a reflection on those authorities than an aggravation of his commercial fraud, that he, only meaning to dilute his milk, ignorantly supplied infection to his customers?”

References

¹ Report on an outbreak of enteric fever at Armley, in the Borough of Leeds. By Edward Ballard, M.D., Medical Inspector of the Local Government Board

² Report on the sanitary condition of Leeds, for the year 1872. By M.K. Robinson, M.D., Medical Officer of Health.

