

During the tour of the Hospital Her Excellency showed great interest in the work and patients, speaking to many of them.

The Babyfold and Nursery for motherless and unwanted infants and toddlers, is a strong feature of Ludhiana, and the 3-4 year olds were lined up at the entrance to the department, to salaam. Knowing their tendency to rush headlong towards a friendly face, we had warned the nurses to restrain them, but one small person, looking charming in a lemon frock, escaped, and, quite oblivious of all the strange faces, made one dash to the one of the party whom she knew. Her Excellency said: 'I like the one in the yellow frock who escaped.'

Both Her Excellency and Lady Anne showed much interest in this branch of our work, and the toddlers and bigger babies, recognising the kindness extended to them were most friendly.

Her Excellency also showed much interest in the Tuberculosis Department; and in the Sanatorium enquired into the condition of each patient, and most especially into the child patients, one of whom, from her spinal frame, presented Her Excellency with a bouquet of roses.

We nurses much appreciated Her Excellency's tribute to our profession, and feel that as it comes from one in so high a position in this land it should be a clarion call to the young women of India to devote their talents and their lives for the prevention of the spread of disease in this country, and for caring for the sick. Can any nobler service be rendered or one which will give greater happiness or satisfaction to those who devote their lives to the fulfilling of this task?

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UNDULANT OR MALTA FEVER

During the Crimean War, 1854-1856, the British troops quartered in Mediterranean areas suffered greatly from an obscure, irregular fever. Nothing was known of its origin till the beginning of the present century when Sir David Bruce, after a long and discouraging research for the microbe of the disease on the Island of Malta, discovered it and called it *Micrococcus melitensis*. A British Commission, guided by Bruce, studied the disease in Malta from 1904 to 1907. It was found that the drinking of raw goat's milk was enough to give the disease to human beings. When the consumption of raw goat's milk was prohibited in the Island, there was an immediate and rapid decline in the occurrence of the disease.

It always takes some time for a new discovery to be accepted and acted on, and Bruce's incrimination of the Maltese goat did not at once put it on the black list. In August 1905, the ship *Joshua Nicholson* left Malta for Antwerp with a cargo of 61 milch goats and 4 male goats selected from the best herds on the Island and intended for the U. S. A. Before Antwerp was reached, 8 of the 12 officers and men had fallen ill. In quarantine at Antwerp, it was noted that the 8 patients had drunk large quantities of raw goat's milk. Two of the four who had escaped the illness had boiled the milk before drinking it, while the other two had drunk only a little of it. There was therefore little doubt that the milk was at the bottom of the trouble. The goats were then transferred to the ship *St. Andrew*, and when it arrived at a quarantine station in the U. S. A. it was found that the milk contained large quantities of the germ recently identified as the cause of undulant or Malta fever. Though the goats were slaughtered, a woman at the quarantine station contracted the disease.

The story now shifts to Denmark where, about 11 years after Bruce's discovery, Prof. Bernhard L. F. Bang, a veterinary surgeon, discovered the

germ responsible for contagious abortion in cattle. This germ came to be known as *Bacillus abortus*, and for a long time it was supposed to have interest only for farmers and veterinary surgeons. No one at that time dreamt of any connexion between the germ of undulant or Malta fever and that of contagious abortion in cattle.

During the World War, a hitherto obscure research worker, Alice Evans, was quietly working in the laboratory of the Public Health Service at Washington. Some of the cultures with which she worked were those of contagious abortion in cattle. As her studies progressed she became more and more impressed by the similarity of the two germs. Might not, she asked herself, the identical behaviour of these germs in her laboratory be paralleled by an identical behaviour in nature? In other words, might not the germ of contagious abortion give rise to undulant or Malta fever and *vice versa*?

The answer to this question in the affirmative has been the outcome of painstaking research in many parts of the world. The undulant fever which was confidently thought limited to Malta is now known to be a world-wide infection. Cattle, as well as goats, may spread the disease, and the problem of eradicating it is no longer confined to a ban on the consumption of raw goat's milk.

No accurate estimate can yet be formed of the frequency of undulant fever in different parts of the world, but it is significant that in the United States only 46 cases were reported in 1926, whereas in 1933 this number had jumped to 1,659. This does not necessarily mean that the disease is many times more common now than it was a few years ago. A more likely explanation for the great difference in the above two figures is that in the past many cases of undulant fever have been overlooked and mistaken for typhoid fever or some other complaint responsible for weeks of illness with intermittent bouts of fever.

No completely satisfactory treatment has yet been discovered. Prevention is therefore better than cure. Infected cattle and goats can be tracked down and destroyed and the milk from suspected sources can be pasteurized. In country districts where pasteurization is not feasible, the housewife may sterilize the milk by heating it to 155°F while stirring it constantly. The vessel containing the milk should then be put in cold water, and the stirring should be continued till the milk is cold. The only vitamin that is affected by pasteurization is Vitamin C, and the loss of this vitamin in the milk can easily be made good by feeding with a little orange juice or tomato juice which will prevent the development of scurvy due to lack of Vitamin C.

As for the stamping out of contagious abortion in cattle, the problem is somewhat similar to that of stamping out tuberculosis in cattle. The owners of herds are the more willing to co-operate in preventive measures as the cows suffering from contagious abortion are notoriously poor milk producers. Infected cows are discovered by a simple and inexpensive blood test which is all the more valuable as the disease is not always betrayed by abortion. Indeed an infected cow may suffer from neither abortion, inflammation of the udder, sterility nor a lessened milk yield.

Undulant fever has been described by a gloomily prophetic bacteriologist as the disease of the future. But before it has fully earned this title, it is to be hoped that the intensive investigation now proceeding will have given us the clue to its successful control.

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