

Epidemic Diarrhœa.—This is a disease which is almost universally propagated by means of tainted milk, as has been the case on more than one occasion in the colony—in fact, it is not too much to say that the summer outbreaks of diarrhœa which occur in our chief cities, and which are most fatal to children under one year of age, are due to this cause.

Drs. Hope, Newman, Richards, and others find that 79 per cent of the children under one year who die of epidemic diarrhœa are fed on artificial or cow's milk, or milk exposed to contamination.

Tuberculosis.—The possibility of the transmission of this disease by means of milk has been recognised by authorities for some years. At the recent Congress on Tuberculosis held in London the possibility of transmitting tuberculosis from animals to man was contested by Professor Koch. Since then recent British, American, and German reports entirely support the intercommunicable theory. It is questionable, however, whether the milk from a cow suffering from tuberculosis in other parts of the body than the udder can transmit the disease, but there is no doubt that in a cow with a tubercular deposit in the udder the power of infection is a most potent one. Hence it is of the greatest importance that udder-disease in a cow should be recognised as early as possible, and without doubt mammitis, whether due to inflammation, streptococcus, or tubercular infection, should be made a notifiable disease.

According to the Chief Veterinarian's estimate, about 15 per cent. of our milch-cows are affected by tuberculosis, and as each cow gives some 400 gallons of milk a year, some extent of the danger of propagating the disease by this means may be understood.

And here again is another danger. In New Zealand as in other parts of the Empire there is a tendency on the part of the population to flock to towns. By this tendency therefore a gradually increasing proportion of the population suffers from the unnatural conditions of milk supply and storage which are bound to occur in towns where the source of the milk-supply is comparatively remote. In 1896 to every 100 persons living in the counties there were 78 living in boroughs, whereas according to the census of 1901 the latter had increased to 84.

(4.) *The Increasing Disability of Mothers to suckle their Young.*

This disability has become very noticeable during the last two decades, and unfortunately is not confined to the Anglo-Saxon race.

With the help of his pupils—medical practitioners in Austria, Germany, and Switzerland—Professor V. Bunge has been able to collect particulars of some two thousand families. The Professor states that most of the mothers who do not suckle are physiologically incapable of doing so, and he attributes this defect to degeneration in the parents. A well-known American authority, Dr. Holt, states that 25 per cent. of mothers are unable to suckle their infants for the first three months, and that it is quite an exception to find a mother who can "nurse" her child for a year.

It is often stated that this disability to suckle is largely confined to women of the upper classes, who, owing to the demands of society on their time are unwilling to feed their infants naturally. Without doubt this is true in a small percentage of cases, but this selfishness on the part of mothers is by no means so common as is generally supposed. Moreover, this disability to suckle is not confined to women of the leisured classes—it is noticeable in women of all classes in this colony.

As time goes on therefore we are gradually becoming more and more dependent on cows' milk as a food for our infant population. At the same time the present tendency to urbanisation makes the public more dependent on, and increases the difficulties of obtaining, a pure milk-supply.

COMPOSITION OF MILK.

Not only does milk possess all the constituents of food for man, but also for the lower forms of animal life. Bacteria will thrive in it and multiply rapidly.

Bacteria require for their diet nitrogenous matter, proteids, non-nitrogenous matter containing carbon and hydrogen—carbohydrates; also salts. All these constituents are found in milk—proteids represented by casein and lactalbumen; carbohydrates represented by lactose; fat as palmitin and olein; salts as potassium, calcium, phosphates, &c. Moreover, the reaction of milk neutral or alkaline is suitable for the growth of bacteria. Strongly acid or alkaline solutions hinder their growth. Milk is therefore a particularly favourable medium for the growth of bacteria.

It is certainly true that when fermentation occurs changes rapidly set in in milk, and the growth of bacteria is hindered. Foster and Cunningham have also shown that fresh-drawn milk has a decided germicidal action on certain bacteria, but this germicidal power is rapidly lost when the milk is dirty, especially when its temperature is over 60° Fahr. Hence the importance of taking every possible precaution to prevent the entrance of bacteria to a medium so favourable to their growth and development.

It now remains to consider to what milk is subjected in its collection, storage, and distribution.

Before discussing the means by which milk is polluted, I may be pardoned for stating that for some years I practised my profession in a district exclusively devoted to dairying. With profit and instruction to myself I was the possessor (for some three years) of a herd of fifteen cows. I am therefore not without practical knowledge of the difficulties of dairying, and flatter myself that this report contains no unreasonable or unpractical demands on those concerned in the trade.

During last summer I personally inspected some ninety dairies. Of the 259 dairies supplying Wellington I inspected 58. Of the latter only 11 were satisfactory. In only 3 were the conditions as good as possible under the circumstances surrounding them.

Milk is liable to pollution (1) at the time of milking; (2) in preparation; (3) in storage (at the farm); (4) in transit to town; (5) in collection and storage—(a) by the middleman, (b) by the householder.