

wolf. He throws an enormous number of men into the mountains within wolf journey of the sheep, and takes up every wolf trail to see whether it leads to the sheep. The method of the future may similarly be paralleled by supposing the hunter to go to the sheepfold and follow out the one and only wolf trail to the den in the mountains.

The work of to-day neglects for a moment the route; it goes to the bedside and so carries on its fight that the spread of infection shall stop here. Then from the patient there is followed back the route to the source, and the source once found it may be stopped. But in the following of the routes they are seen to be of two general classes, public and private, and in them two or three kinds of cases, the known, the missed and the carriers. "Were the ability to find public routes of infection in water, food, fly and milk outbreaks the only value of epidemiology," writes Dr. Hill, "its services would have no value in the great mass of infectious disease, for the great mass arises chiefly by contact"; it is its ability to find missed cases, light cases not having the services of the physician and consequently not reported, and the carriers that makes epidemiology the pivotal factor of modern public health. It furnishes means, with the aid of true detective principles, to locate the important private routes of infection, which are to-day the important ones.

### Cows and Housing.

The cows supplying milk to Toronto are, in most cases, better housed and fed than many of the citizens of Toronto. So says Dr. Hastings, M.H.O., in the *Bulletin of the Toronto Department of Health*. Recently, the *Bulletin* says, one of the dairy farms supplying certified milk to Toronto was visited by the director of the laboratory. The cows were housed in a large, bright, well-ventilated stable, with cement floor, and plenty of clean sawdust for bedding. Each cow had a drinking fountain at its head, and the stable was as clean as hose, broom, and scrubbers could make it. For three hours in the middle of the day the cows had been out to pasture on the new grass. When brought back, they were all cleaned in the following manner, just as they are before each milking: Each cow was taken in turn by a man equipped with

a pail of warm water and a cloth, and washed and wiped off until there was no evidence of dirt. Even the tail was carefully cleaned, so that no dirt could be flecked into the milk during the process of milking. Special attention was paid to cleaning the udder, and the legs of the animal were washed down with a hose. Fresh, clean sawdust was then sprinkled in the cow stalls, and the udders were afterwards wiped dry with clean towels, a fresh towel being used for each cow.

The animals were then milked, the milk immediately chilled in ice water, bottled, the bottles packed in ice, and immediately delivered to the city. By such means only, the bacterial count of the milk can be kept within the limit of 10,000 per c.c. (quarter teaspoonful) demanded by the regulations for certified milk. In other words, cleanliness and cold are essential to the production of milk of a low bacterial count, and conversely we know that a high bacterial count means dirt and warm milk.

Certified milk, when held at a low temperature, will keep for a week without souring. Ordinary milk, drawn from the cow in the early morning, not cooled, and brought into the city by wagon, is frequently sour when it reaches the city. This illustrates how clean milk is obtained from a dairy herd kept and housed under ideal conditions.

Dr. Hastings wants householders to be careful to clean all milk bottles returned to the milkmen. "If a bottle is left uncleaned, so that the milk dries on the glass, it is extremely difficult for the milkman to get it cleaned, and yet if it is not properly cleaned he is fined," he says. Dr. Hastings says also that the law compels householders to clean bottles before returning them, and such bottles must not be used for other purposes.

### Reference Guide to Other Journals.

*American Journal of Clinical Medicine* (Vol. XIX, No. 6)—"Medical Photography," by Malcolm Dean Miller; "No Marriage License Without a Physician's Certificate of Freedom from Venereal and Mental Disease," by Wm. J. Robinson; "Electrotherapeutics for the General Practitioner," by Homer C. Bennett.

*American Journal of Nursing* (Vol. VII, No. 9)—"The Habit Poisons," by C. E. S. Webster.

*American Journal of Public Health* (Vol. II, No. 6)—"The Methods of Accounting in Collection of City Waste," by P. M. Hall; "Standard Form for Statistics of Municipal Refuse," by