

done for others and so the Queen Mary House was established for the care and treatment of nurses who had broken down with tuberculosis. Another of her special projects was the establishment of the Dower House, for the care and comfort of the nursing staff grown old in the service of the Settlement. It is now known as Borne House.

Miss Borne met several members of the Royal family who always showed great interest in the work of the Settlement. Her own work was officially recognised by the award of the Order of the British Empire. She retired towards the end of the last war having been much affected by the death, in 1941, of her chief Sir Pendrill-Varrier Jones.

Meat Hygiene.

Close of Copenhagen Seminar.

THE SEMINAR ON MEAT HYGIENE organised in Copenhagen by the Regional Office for Europe of the World Health Organisation closed on Saturday, February 27th.

Discussions ranged from such specific questions as the design of loading-ramps for cattle and the use of cellophane for wrapping up meat, to broad organisational problems of national food inspection and legislation.

Food Poisoning.

Emergency-slaughtered meat apart, it was clearly recognised that, in countries with developed meat-inspection services, by far the greater number of meat-borne infections are caused by processed meat and meat dishes. Fresh meat is but rarely at fault. Danger arises not because germs may be present, but because, if precautions are inadequate, the germs will multiply. Gelatine used in brawn, for example, is an ideal medium for the growth of bacteria. The favourable range of temperature is from 15 deg. Centigrade to 50 deg. Centigrade, and in food-serving establishments meat should not be kept at this range of temperature for any length of time.

Butchers, Cooks, Waiters.

Should food-handling personnel be given compulsory periodic medical examination?

It was agreed that in children's hospitals, school canteens, youth camps and the like, where a highly susceptible population is served, stringent precautions should be taken. In addition, food-handlers suffering from infectious diseases—e.g. typhoid fever and jaundice—should be taken off the job. In the spread of poliomyelitis, the food-handler probably also plays a part if he is in everyday contact with an active case. Yet it was agreed that some of the energy, time and money that would be required to establish periodic examinations of all professional food-handlers might better be put to use in other directions, notably for the enlightenment of the public.

The importance of such enlightenment was stressed again and again. Professional food-handlers should know about the dangers of contamination as should the housewife. Enlightenment would create public demand for better services and, in countries where meat inspection is poor or practically non-existent, best results might be expected from a public campaign combined with the building-up of a nucleus of keen professional men, rather than from an attempt to impose meat hygiene from above with a governmental blueprint.

A good way of informing the public might be to give full details on the causes and the development of a specific epidemic. With all too many outbreaks, however, this will not be possible, as reporting is at present inadequate in all countries. The epidemiologist is lucky who can convincingly show how an outbreak started and where it ends. For example, the explosive Swedish salmonellosis epidemic of last summer with its thousands of cases was traced back to the Alvesta abattoir; but how exactly the infection entered the abattoir was never finally established, despite the excellent and thorough investigations carried out by the Swedish authorities.

Environment.

Two factors, however, played a vital role.

There had been a strike at the abattoir until a week before the epidemic started on June 15th which meant that the abattoir was dealing with greater quantities of meat than usual. In addition, the weather was hot, the average temperature being 29 deg. Centigrade instead of the usual 19 deg. Centigrade, and this placed an overload on refrigeration facilities.

The importance of these two environmental factors—strike and weather—means that the exclusively bacteriologic approach to food-borne disease is out of date. Meat inspectors and epidemiologists must take everyday social, economic and other environmental factors into account if repetitions of what happened in Sweden—50 to 200 new cases a day, peak on July 1st with 1,222 cases, isolated cases infected through human carriers still occurring in January and February of this year—are to be avoided.

Low resistance among the Swedish population because of high standards of hygiene was a third factor that played a part in this outbreak.

Beef Tapeworm.

This parasitic infection is on the increase in many European countries, and meat inspection has failed to reduce its incidence because routine examination in the abattoir does not always reveal mild infections in cattle. Inadequate sanitation and the eating of raw meat are the two greatest factors in its spread.

The human being is an essential part of the tapeworm's life-cycle, and, in countries where in rural areas uncooked meat is scarcely eaten (*beefsteak tartare* and *châteaubriand saignant* are mostly town specialities), seagulls probably play a part in its transmission, as they do in foot-and-mouth disease. The seagulls feed in sewage infested waters in or near coastal towns, where the eggs of the tapeworm are present. Flying inland, they deposit the eggs on grazing grounds for cattle. Insects may perhaps also play a part. Improved facilities for the disposal of human waste matter (e.g. sand-filtration of sewage water) and public campaigns against eating uncooked meat are ways of combating this disease.

Professional Status.

There was sharp disagreement at the W.H.O. seminar in Copenhagen on whether meat inspection should be the exclusive task of fully qualified veterinarians, or whether they might legitimately be assisted by so-called lay inspectors. The inspectors were defended notably by participants from the Netherlands, France, Great Britain and Yugoslavia, whereas participants from Denmark and Austria thought that meat should be inspected by veterinarians only, as is done at present in Ireland and Spain, for example. It was agreed, however, that in countries with an insufficient number of qualified veterinarians "lay" inspection was obviously better than none.

Other Points of Agreement.

The humane treatment of animals on the farm and during transport is called for on moral as on economic grounds. Well-treated animals yield better meat.

Inclined wooden ramps with horizontal strips of wood used in the loading and unloading of animals should be replaced by gently sloping stairs with wide steps, which the animals can get up or down much more safely. The electric goad should replace the stick.

The stunning of animals prior to slaughter is highly desirable, and will be compulsory in Denmark as from April, 1954. The electric method is satisfactory from a number of points of view—there is little or no doubt that genuine anaesthesia is painlessly induced—but carbon dioxide gas is the direction in which future developments may be expected. In one

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