sick cattle without becoming so themselves. When the animals inoculated have received $\frac{1}{100}$ cc. of lymph they are already immune to a considerable extent.

The cost is 30 to 50 pfennig ($3\frac{3}{4}$ d. to 6d.) per head of cattle.

The different methods of prophylactic vaccination are all employed in practice, according to circumstances. One should use :—

1. On farms where the epidemic has broken out—

For pigs and sheep—injections of concentrated horse serum ; dose, 5 to 20 cc., according to the mixture.

For cattle—injections of concentrated bovine serum ; dose, 0.3 cc. per kilogram.

2. On contaminated farms, where no animal has as yet fallen sick : for cattle—

(a) Injections of moderate doses, 15 to 20 cc., of concentrated bovine serum, repeated every eight to ten days.

(b) The new method.

3. For healthy stocks, but living near contaminated farms—

Either the method of repeated doses of serum or the new method.

4. For healthy stocks into which animals of exterior origin have been introduced—

The method of repeated doses of serum.

For a general prophylactic vaccination, when the epidemic propagates itself in menacing fashion, only the new method need come into question, it being so cheap, and protecting for so long a time.

The vaccinations termed obligatory ought to be extended, because the amount of transmissible infectious virus is considerably augmented by these vaccinations.

The substances necessary for prophylactic vaccinations should be placed by the State *gratuitously* at the service of owners, for the suppression of epidemics is a question of general interest.

RECENT EXPERIENCES AS TO THE INFECTION OF MAN WITH ANIMAL DISEASES (WITH ESPECIAL REGARD TO MEN PURSUING DIFFERENT TRADES).

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THE diseases shown by previous experience to be transmissible from animals to man are the following : tuberculosis, foot-and-mouth disease, anthrax, rabies, glanders, trichinosis, and, according to some recent experiences, swine erysipelas, and botryomycosis. Besides these, there are some other diseases which we observe in man only in isolated cases, and whose importance in human pathology has yet to be proved.

The transmission of tuberculosis from cattle to man is, as we know, admitted as a fact by the majority of investigators. The contrary view is held by Robert Koch and his followers. The question is a weighty one, not only from the point of view of sanitation but also from that of political economy. Experience goes to show that the tuberculosis of man and that of cattle are caused by the same pathogenic germ, for it has been observed in numerous cases that the disease may be transmitted from the animal to man in the following manners :

1. It has been remarked that cow-milkmen, and farmers having to do with cattle, fall sick of tuberculosis ; 2. tuberculosis may arise from injuries of the

skin coming in contact with the bodies of tuberculous animals during the processes of slaughtering, skinning, cutting up, or dissection; such diseases are acquired by veterinarians, butchers, and those employed in slaughter-houses; 3. consumption of the milk of tuberculous cows, or of the butter prepared therefrom, may set up primary intestinal tuberculosis.

Anthrax is transmitted to man from sick animals—cattle, sheep—or those which have succumbed to the disease, or been slaughtered on account of it; also by parts of these animals which are consumed or otherwise employed. The disease is transmitted from diseased animals to those who tend them, also to shepherds, keepers, drivers, and veterinarians; from the carcasses of animals it passes to knackers, butchers, and veterinarians; by means of infected hair to horsehair-weavers, and those employed in brush and paint-brush factories and wool-sorting establishments, as also to weavers and furriers; by means of the skins, tanners and those employed in leather-works are infected.

Rabies is transmitted to man principally by means of the bites of dogs, cats, and wolves, and especially to people who are obliged by their calling or mode of life to pass much time in streets or fields; such as workmen, and day and field labourers. But the disease may also be caused by the saliva of rabid animals coming into contact with injuries to the human body, or when a person thus injured comes into contact with the diseased parts, especially the nerve parts, of rabid animals.

Glanders is mostly transmitted to man by his coming into contact with the infectious parts of animals which are suffering from this disease or have succumbed to it; it is mostly transmitted to people who, owing to their callings, have much to do with such animals or the carcasses of such; ostlers, drivers, farmers, veterinarians, and knackers; in rarer cases, soldiers, or butchers who sell horse flesh.

Foot-and-Mouth Disease is principally a cattle disease; the transmission of this disease to man depends strictly upon its prevalence among animals. It is so transmitted by means of occupation with animals and consumption of products—milk, cheese, butter—of sick animals; dairy farmers, cow milkers, those employed in the milk business, and butchers, are those chiefly exposed to catching the disease by touching sick animals or infected objects. The disease is not rare, but as the cases are mostly of a mild description, they are seldom commented upon; weakly persons and infants in arms may, however, succumb, and epidemics with several fatal cases occur.

The pathogenicity of the bacillus of swine erysipelas for man has only been recently observed. Experience shows that no harm arises from consumption of the flesh of diseased animals; it has, however, often been remarked that wounds which have come into contact with diseased animals when being inoculated have developed symptoms of a local inflammation. In the literature of the subject we also find recorded the case of a butcher who, injuring his finger when cutting up a pig which had been slaughtered because of swine erysipelas, fell sick of the same disease.

Botryomyces is a disease of the horse, and is transmitted from sick horses to such persons as have much to do with them, chiefly ostlers and drivers. Many writers have observed the disease in man also, but most deny that it is an independent infection caused by a specific germ.

Trichinosis is a far from rare disease in several countries, and may appear as an epidemic among animals and men also. A slight epidemic of this kind was observed in Hungary in 1891.

In single isolated cases other animal diseases have also been observed in man, e.g., the psittacosis of the parrot; the part played by this disease in human pathology requires, however, a searching investigation.