picture, there being many causes to modify the apparent symptoms, and one easily understands how the disease has been subdivided to classify its variations.

Be that as it may, the term influenza pneumonia is the only one suitable for the so-called infectious pneumonia, and for a great many others to which at the present day different names are applied. I hope, however, that further researches and observations will soon complete the results already obtained, and that the pneumonias of the horse will soon admit of a scientific classification.

It seems to me that these first results, if they are well founded, ought to lead to a radical change in the prophylaxis and treatment of pneumonia. The inoculation of healthy subjects with the attenuated bacilli of influenza ought to protect them not only against influenza, but also against the pneumonia of the same nature. Vaccination ought therefore to be employed as a means of prevention in contaminated stables, while the affected animals ought to receive at the same time anti-influenza and anti-strangles serum.

NOTE ON THE EXPERIMENTAL TRANSMISSION OF WARTS IN THE DOG.

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At a later part of this number (p. 363), our colleague, Professor Penberthy, records certain clinical facts which pointed very distinctly to contagion as the cause of the development of warts in the mouths of a number of dogs. We had ourselves for some considerable time suspected that these structures had a contagious origin, and we seized the opportunity presented by the cases in the College Infirmary to put our suspicions to the test of experiment.

Experiment I.—Our first experiment was made with a wart excised with sterile instruments from the buccal mucous membrane of one of the young fox-hounds referred to in Professor Penberthy's article. In this animal the lining membrane of the mouth was closely studded with warts, and a thick fringe of these structures was growing on the margins of the lips, as shown in the annexed figure (Fig. 1, p. 342).

13th April 1898. The cut surface of the recently excised wart was used to rub a small area of lightly scarified mucous membrane on the right upper lip of each of three dogs, viz., a pug and two fox terriers (A and B).

No effect was observable until about a month afterwards, when a slight ridge of growth began to show itself at the seat of inoculation in the fox terrier A. A few days later a similar growth could be detected on the right upper lip of fox terrier B; and about six weeks after inoculation the pug also developed minute elevations at the scarified spot.

In the two fox terriers the papillomata continued to increase in size until about the 10th of June, at which time they had attained a size and appearance almost identical with those of the natural warts in the mouth of the fox-hound. For about a week afterwards the warts

remained of apparently the same size. They then began to shrink, and by the 28th of June they had almost entirely disappeared.

The warts on the lip of the pug grew rather more slowly; on the

FIG. 1.

Head of fox-hound, showing profuse growth of warts on the lips. Natural case.

30th of June, when the animal was destroyed by chloroform, they had the size and appearance shown in the annexed figure (Fig. 2).

FIG. 2.

Head of pug, showing warty growths at seat of inoculation on right upper lip.

Experiment II.—On the 30th of June 1898 one of the experimental warts shown in Fig. 2 was snipped off with sterile scissors, and gently rubbed against a small area of scarified mucous membrane on the

left side of the upper lip of each of the fox terriers, A and B, of the preceding experiment, and on both sides of the upper lip of a bull terrier. Another small piece of wart from the above pug was pounded in a sterile mortar with a little sterile water, and $\frac{1}{2}$ cc. of the turbid liquid thus obtained was injected under the skin of the thigh in fox terrier B and in the above bull terrier.

The subcutaneous inoculations and the attempts to re-infect the mouths of the two fox terriers had entirely negative results, but on each side of the lip of the bull terrier papillomata formed at the scarified spot. The first growth was noticed on the 2nd of August; they continued to grow till about the 26th of the same month, and by the 6th of September they had almost entirely disappeared.

Experiment III.—6th September 1898.—A typical wart (occurring naturally and the only one present) was excised with sterile instruments from the tongue of a fox terrier, and rubbed gently against a small area of scarified mucous membrane on the right side of the upper lip of a retriever pup, and on the lower lip (mesially) of the bull terrier of Experiment II. A similar attempt was made to infect the surface of the retriever pup's penis near its tip.

On the 7th of October a commencing warty growth was visible on the right side of the upper lip of the retriever pup, and it grew rapidly during the next fortnight.

On the 21st October the major part of the warty growth was snipped off with scissors, and with a portion of it a small scarified area on the opposite lip was rubbed. Since then the growth on the right side (originally inoculated) has increased very considerably in size, and at the present time (22nd December) it is several times larger than the combined warts shown in Fig. 2. Some small warts have also now formed at the place scarified and rubbed on the left side. No growth has formed on the penis, or on the lower lip of the previously infected bull terrier.

Experiment IV.—21st October 1898. A piece of the warty growth was excised from the upper lip of the retriever pup of the preceding experiment, and rubbed against a small scarified area on the mucous membrane of the left side of the upper lip of an adult retriever dog and of a sheep-dog. A small area on the penis of the retriever was treated in the same way, and another attempt was made to re-infect the bull terrier of Experiment II. on the lip. On the 7th of December it was obvious that the experiment had succeeded in the case of both the retriever and the sheep-dog, and at the present time (22nd December) there is a considerable warty growth at the scarified part of the lip in each of these animals. No growth has formed on the lip of the bull terrier, or on the penis of the retriever.

Both the natural and the experimentally induced growths had a typically papillomatous structure. This was already evident from their naked-eye appearance, and a microscopic examination has confirmed it. Each wart has a rather delicate vascular connective tissue in its centre, while the superficial part of the growth is everywhere made up of a stratified squamous epithelium.

The experiments therefore conclusively prove that the common papilloma of the dog's mouth is transmissible, and they support the clinical evidence in favour of contagion being the common cause of

such growths. They also show that without any treatment whatever such papillomata may disappear by a process of gradual shrinking and absorption, and they suggest the thought that the credit claimed for some methods of treatment may be undeserved.

Lastly, the experiments indicate, though, owing to their small number, they cannot be said to prove, that after disappearance of a first crop of papillomata the animal is left in a measure protected against a second infection of the same kind.

EDITORIAL ARTICLE.

THE RELATIONSHIP BETWEEN HUMAN AND BOVINE TUBERCULOSIS.

SINCE the identity of human and bovine tuberculosis was first demonstrated very diverse opinions have been expressed by medical authorities as to the frequency with which the disease is communicated from the one species to the other. For a number of years after Koch's discovery of the tubercle bacillus the view that "human phthisis frequently comes from the butcher's stall" was rather widely adopted, and this opinion was in very large measure responsible for the crusade originated against tuberculosis of cattle. Within the last few years, however, the view which has been steadily gaining ground among authorities on questions of human sanitation is, that the immense majority of cases of human tuberculosis originate in human sources of infection, and that if any great reduction in the present prevalence of the disease is to be brought about prophylactic measures must be directed against the spread of the infection from man to man. An important contribution to this question has recently been made by Sir Rirchard Thorne in his Harben Lectures on the Administrative Control of Tuberculosis, and it is of interest to note the estimate which he has formed of the dangers incurred by the public from the consumption of tuberculous meat and milk.

At the outset Sir Richard Thorne reviewed the measures which had been adopted during the last forty-five years in the control and prevention of the different forms of tuberculosis, and the results achieved as shown by certain vital statistics prepared for the Royal Commission on Tuberculosis by Dr Tatham. From these statistics it appears that during the last forty years there has been a very notable decline in the death-rate from tuberculosis among human beings in this country. This decline has been constant, and it applies to all forms of tuberculosis collectively, but it has been most