Lung disease in deer and other animals.

4.

LUNG DISEASE IN DEER AND OTHER ANIMALS.

[*From* LAND AND WATER, *March* 24, 1883,]

I AM sorry to have to report that our deer are dying again of disease. It is the same that affected them two years ago, and described by Mr. Moore, V.S., Worksop, as being an insect called "Falaria," more commonly *Strongylus micrurus*. I have every reason to believe that it is the extreme and continued wet we have had during the autumn and winter that has caused this disease. Since the disease attacked them two years ago the park has been greatly enlarged and has various sorts of soil in it. I was very much surprised to find some deer had died from these parasites on the driest part of our park, but we have a great deal of old grass (called here "fog"), which may have a tendency to breed these parasites. We feed on beans and hay during winter. The last time we had disease we gave them various kinds of food, but my own opinion is that after the fine dry warm weather set in it did more good than any of the various foods we gave them. Hay and beans are our general food, and, as a rule, it seems to suit them better than any other food we have given them. Perhaps some of your numerous readers will know if any of the other parks in England have been affected with this disease this winter.

GEORGE BOALER (Park-keeper, Duke of Portland, Worksop, Notts).

[Dr. Cobbold sends us the following interesting notes on the above communication :—The statements of the Duke of Portland's park-keeper are very much to the point, and of the same character as naturalists have long been accustomed to. Parasitic lung disease from nematodes is a widespread affection, and its degree of virulence in particular years is dependent upon the conditions that are favourable or otherwise, as the case may be, to the reproduction of the parasites. Without doubt, excessive moisture and a mild winter are the most favouring conditions. Helminthologists do not call the Filariæ "insects." Mr. Boaler should know that all insects have six legs. Of the nematodes producing lung disease often attended with fatal results, we have *Strongylus micrurus* affecting cattle, horses, and deer ; *Strongylus filaria*, *S. rufescens*, and *Pseudalius pulmonalis* affecting sheep ; *Strongylus commutatus*, hares and rabbits ; *Olulanus tricuspis*, cats ; and so forth. But what is the use of repeating facts of this order? For twenty years or more I have been writing to this effect. What is wanted is systematic investigation such as Professor Thomas conducted with the aid of funds supplied by the Royal Agricultural Society in the case of the common fluke. Not that such brilliant researches are certain to lead to much practical result ; though in the case of the nematodes some more positive good might accrue. A few years ago, without subsidy, I experimented with *Strongylus micrurus*, and the results were published in the *Veterinarian* for December, 1875 ; but, as a model of the sort of research required, I would refer your readers to the recent admirable memoir by Alois Koch—whose name, by the way, must not be confounded with that of the discoverer of *bacilli* in tuberculosis. Herr A. Koch's paper commenced in the February number of the *Revue für Thierheilkunde und Thierzucht*, of which journal he is himself the editor. Although the memoir is entitled *Die Nematoden der Schaflunge*, it is principally occupied with the description of the new species which he calls *Pseudalius ovis pulmonalis*. He gives a coloured plate of the diseased lung, and a series of wood engravings illustrating the structure of the worm. Although the literature of the subject is pretty fully given, Koch is evidently unaware that the *Pseudalius* had long before been noticed in this country. Professor Axe and myself examined the parasite on one or more occasions, but in this fact we were anticipated by Dr. George Harley, F.R.S., and Professor Brown, who figured the nematode in their "Histological Demonstrations" (Longmans, 1866, first edition, p. 242). The mature worms deposit their eggs in the bronchial passages. The embryos are expelled by the trachea and nostrils. Reaching the soil they undergo growth and metamorphoses, and in all likelihood enter the body of an insect or other kind of intermediary host. As larvæ they gain access to the lungs during the feeding of the sheep. Sexual congress occurs, with the usual egg formation ; but after this their parents wander into the lung tissue. There their presence gives rise to the formation of miliary tubercles and small tumours which latter contain, besides the parent worms, multitudes of free embryos. If the numbers be not excessive, a natural cure may occur by calcareous degeneration.—T. SPENCER COBBOLD, M.D., F.R.S.]