

to note, *inter alia*, the conditions of commencement of the disease, its relation with schools, and any possible transmission of it over long distances; any behaviour of diphtheria that seemed to be after the fashion of miasmatic disease; any observed differences between the manner of spread of diphtheria and of other infections operating under comparable conditions; any experience of apparent relation to milk and to ailments, however trivial, in cows; the customs of the district as to animals bred, kept, and used as pets, especially noting any obscure diseases in lower animals related in any way to prevalent diphtheria in the human subject.

THE ETIOLOGY OF SCARLET FEVER.

—The most lengthy and important of the reports presented by the scientific investigators who have the privilege of working for the Local Government Board is that by Dr. Klein, F. R. S., in which he follows up the research which was originated by the observation of the peculiar circumstances of the Hendon epidemic of 1886. Dr. Klein details the mode of growth and the microscopic appearances of the micrococcus obtained from the blood of patients, and states that it is identical with that found in the Hendon cow, that it is morphologically distinguishable from any other known form of micrococcus, and that has a definite mode of existence of its own. He proposes to name it the *micrococcus scarlatinae*. The tissues were examined; the sections were stained with Weigert's gentian violet and Löffler's methylen blue; the latter gave the best results, the sections being placed in a strong aqueous solution to which a few drops of an alcoholic solution of resin was then added, and the sections in a few seconds more

removed. Micrococci were found in the cervical glands simply as diplococci in the lymph spaces and small blood vessels, in the glomeruli of the kidney, and in the small vessels of the engorged lung; bacilli also were found in the lymph spaces and small vessels of the neck; their presence there was attributed to the ulceration of the tonsils. In some old sections of the skin made in 1876, unmounted and stained with methylen blue, the micrococci were seen singly, doubly, and in chains in the tissue of the papillæ, and between the deepest cells of the stratum Malpighii. Two series of experiments were performed on animals. In the first series the material used for infecting these animals was cultivations of the micrococcus obtained from [the ulcers on the teats of] the Hendon cow. Thirteen such experiments were performed; in ten experiments the animals were inoculated, and in three they were fed, with the cultivations; the animals used were guinea-pigs and tame and house mice. In the animals which died, the *post mortem* appearances were always identical, and in certain instances the micrococcus scarlatinae was recovered by cultivation from the blood. House mice were found to be much more susceptible to the disease than guinea-pigs or tame mice.

In another series of experiments the material used for infecting was cultivations of the micrococcus obtained from human beings suffering from scarlet fever. Two experiments were performed on tame mice by inoculating subcultures; six animals were used; four died with the same pathological appearances as those seen in the former series; in two instances in which cultivations were made from the blood, the micrococcus was