ON AN OUTBREAK OF SCARLET FEVER CONNECTED WITH AN UDDER DISEASE OF COWS.*

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THE principal event of the year in this connection was, undoubtedly, the "Jaapston outbreak." The whole circumstances of this case have been very fully detailed by Dr. Chalmers, one of the medical officers of Glasgow, in a paper contributed to the *Glasgow Medical Journal* for January, 1892, and it is only necessary for me here to give a summary of the case, with the addition of two or three observations to meet the criticism of gentlemen who have alleged that the case was approached with preconceived notions, and that no sufficient attempt was made to search after a possible human origin for the outburst.

On the morning of Saturday, August 6th, I received a notification for a case of scarlet fever at the farm of Jaapston, near Neilston. I directed the sanitary inspector, by telephone, that either the child must be removed to the hospital, or the whole dairy business must be immediately transferred to another farm held by the same farmer. The latter course was adopted. On Monday morning I drove across to Jaapston to assure myself that every precaution had been taken. I learned that the Jaapston milk had been "stopped" in Glasgow the day before, on Sunday, it being alleged that a series of cases of scarlet fever had followed in the train of its distribution. I then set myself to inquire into all the circumstances of the case. My first inquiry was as to the health of the persons employed upon or in connection with the farm. I carefully examined all these persons (with an exception presently to be stated) with entirely negative results, except in the following cases: (1) J. D., dairymaid, whom I found to have a brightly infected scarlatinal-looking sore throat, which she said had come on on the Friday, the second or third day of the illness of the boy whose case was notified. I could find no indication of a rash, or of any feeling of illness except a slight sore throat. (2) R. C., farm hand, had a throat much resembling the last, but he insisted that he felt no soreness of the throat. (3) J. B., had a throat of the same type, but less marked. These cases were all certainly quite recent. I learnt simultaneously that a dairymaid had gone "home" on the Saturday, suffering from "a sore hand," and that the cows had been affected by "sore teats." I determined that the most pressing thing was to follow up the girl, leaving the examination of the cows to another day, and I went off by the next train to her place of sojourn in Kilmarnock. I found the girl perfectly frank. I learned that she had complained of a sore throat and of not feeling well on the Monday before (August 1st), had been confined

to bed, and visited by Dr. Mason, Barrhead, on the Tuesday. On Wednesday she felt better and quite able to resume work, which she did. On Thursday she found her hands sore and inflamed, and showed them to the doctor, who had come to see the farmer's child. On Friday what she termed "pocks" had formed on her hands. Her hands were very sore on the Saturday; she applied poultices and left for Kilmarnock. I examined her throat, and found it in an entirely non-committal state—the tonsils looked as if chronically enlarged, and there was a little chronic congestion. The girl said she felt nothing the matter with her throat. There were no signs of desquamation about the face or neck. Dr. Mason, subsequently interrogated, informed me he had formed no suspicion whatever of scarlet fever when he visited her; he was satisfied it was an ordinary sore throat from cold. As respects her hands, I found a clean ulcer of ordinary appearance between the third and fourth fingers on the dorsal aspect of the right hand, and what looked like a ruptured pustule at the palmar junction of the third and fourth fingers of the left hand.

Next day, with Dr. Chalmers and Principal McCall of the Veterinary College, I examined the teats of all the cows of the herd now quartered at Aboon-the-Brae Farm. Summarily, the cows were found to be suffering generally from a teat eruption or eruptions, for a description of which I must refer the reader to Dr. Chalmers' paper. For the most part the eruption had passed into the stage of scab. From one or two ruptured vesicles we secured some straw-coloured liquid matter (to safeguard myself I use no more specific phrase), in capillary tubes, which were immediately sealed, and which were sent off that evening to Dr. Klein. In the meantime, the history of affairs in Glasgow was, briefly, as follows: Persons supplied from the dairy from which this milk was distributed sickened in the following sequence: August 1st, 1; 2nd, 4; 3rd, 6; 4th, 16; 5th, 59; 6th, 66; 7th (Sunday), 44; 8th, 11; 9th, 6; 10th, 5; 11th, 8; 12th, 1. Eight persons sickened after that date in already infected houses. The aggregate of cases occurring in this milk-run between August 1st and 20th was 232; the total number of cases occurring in this district of the city during the same time was 305. It is perfectly clear that, however it came about, this milk carried scarlatinal poison.

The results of Dr. Klein's experiments with lymph and crusts taken from the teats of affected cows and with lymph taken from an unruptured vesicle on the wrist of a milker, are, very briefly, these: (1) The lymph taken on August 9th, as above described, when cultivated on gelatine and agar, yielded, in addition to moulds and what may be termed accidental impurities, a strepto-coccus which had the special character of markedly coagulating milk when grown in at blood-heat. This

* From Dr. Munro's Second Annual Report.

experiment, and further experiments by inoculation of white and wild mice, yielded results of the same character as in the case of what is known as "the Hendon outbreak." The results of inoculations of two calves which had passed through typical vaccinia a few weeks before were that one failed, and the other produced a narrow vesicle filled with lymph. (2) The lymph from the vesicle on the milker's wrist, inoculated on one of these calves, failed completely. (3) In the case of the crusts taken on August 13th, a series of inoculations were carried out, with the result that two kinds of eruptions were produced—one pretty certainly that of vaccinia, the other having all the characteristics of the eruption produced by inoculation of the matter taken in the course of what is known as "the Camberwell outbreak." That this latter disease was not vaccinia is shown clearly by the fact that when two calves upon which this eruption had run its course, and which had never been vaccinated, were inoculated with vaccinal lymph, each in twelve insertions, every one of these insertions developed into a typical vaccine vesicle; while two calves upon which inoculation with the Renfrewshire crusts had produced a two-fold eruption, were found to be immune when inoculated with vaccine lymph. From Dr. Klein's results it would appear that there were three teat eruptions running concurrently in the Jaapston herd, one being true vaccinia or cowpox, another the equivalent of the Hendon disease, a third the equivalent of the Camberwell disease. Such are the circumstances of this (scientifically) very interesting outbreak, given in a very abridged form, as they came, directly or indirectly to my knowledge. I have "nought extenuated, nought set down in malice." The farmer, whose premises were kept in an exceedingly sanitary condition, had my sincere sympathy from the beginning. One other melancholy circumstance, outside the scope of the inquiry, remains to be noted—11 deaths occurred in Glasgow in the course of the epidemic.

SORE THROATS AND DIPHTHERIA.—Dr. Thurstfield, in a report to the Ludlow Rural Sanitary Authority, emphasises the importance of the isolation of apparently non-specific sore throats as follows: "Although diphtheria is epidemic in localities on two sides of your district, I am glad to be again able to state that at present I am not aware of any cases of this disease in your district, but would recommend special injunctions to the school attendance officers not to press children from houses where children are ill with sore throats, however mild, and whether medically attended or not, as it is my almost invariable experience that it is through such cases that diphtheria epidemics spread out."

OVERCROWDING IN FISHING VILLAGES IN SUTHERLAND.*

By D. G. SUTHERLAND, M.B., B.Sc.

AT the special season of the year when a great industry—herring fishing—is being prosecuted by over 2,000 people in Helmsdale, 806 people were discovered to live, either by constraint or necessity, in the 165 rooms, specially examined for the purpose of this investigation, giving an average of 4·88 persons per room. This last figure is the veritable "high-water" mark of overcrowding in, what is known all over the world, as a sparsely populated county. This average result astonished even me; but it only corroborated in figures what I last year felt humiliated to have to record regarding these places and their high density of population. Need it be wondered that since their discovery my desires have been greatly accentuated to have Helmsdale especially under special lodging-house regulations, so as to have some check at least over this grave state of overcrowding?

So far I have treated of the connection between houses and individuals, and now I shall shortly deal with the relationship between families and houses of certain number of rooms (with windows).

There is all over the country a uniform succession of improvements in the periods between each census. Notably there is a diminution in the percentage of families living in one-roomed dwellings, as shown by 32·1 per cent. for 1871, 26·0 per cent. for 1881, and 22·12 per cent. for 1891, being the figures for all Scotland. In our county there has been not only a diminution of one-roomed families from 15·9 per cent. to 14 per cent., but also a distinct reduction in the number of families living in two rooms, as evidenced by 33·8 per cent. for 1881, and only 27·1 per cent. in 1891; while above this class of dwelling in the county there has been an increase in the number of three-roomed families, four-roomed families are nearly stationary, but five and six-roomed families have distinctly leaped up. Above six-roomed families I have not reckoned, as the numbers are not numerous.

Scotland, as a whole, has the largest proportion of its families in two-roomed dwellings, and its next largest in one room; whereas our county has next largest in three rooms, with a larger number in five rooms, than in Scotland generally by over 10 per cent.

Cubic Space per Family.—Taking 400 cubic feet as a passable, though in my opinion by no means sufficient, minimum for each individual, we found in Helmsdale only 16 per cent. of the families so housed as to give at the rate of 400 cubic feet per person, while below it, viz., between 200 and 300 cubic feet per head, we discovered 59 families or

* From the Second Annual Report to the County Council of Sutherland.