

To carry out this purpose in an effectual manner it would be necessary to provide hospitals in various parts of the county and keep them constantly in an efficient state; ambulances, disinfecting apparatus, and probably means of quarantine would be required, besides a staff able to act with promptitude on the occurrence of small-pox in any district within the jurisdiction of the supervising body. Already infectious hospitals have been suggested, and, as you are aware, a Bill for dealing with this want was last session introduced to the House of Lords. The proposition now made is a further development of the hospital scheme, and arises out of the fact which has been sufficiently demonstrated both at Warrington and Chadderton that small-pox, if treated within 250 yards, or even more, of a crowded district, is likely to spread disease, and it is also a danger to patients suffering from other diseases when treated in an ordinary infectious hospital. The experience of Chadderton supports the view above expressed, that small-pox may infect at long distances. This was pointed out by Dr. Patterson, medical officer of health of that district, in 1888, when an outbreak was attributed to infection from small-pox cases in the hospital under the charge of the Oldham Corporation; and a similar distribution of small-pox is taking place at the present time in that portion of Chadderton nearest to the hospital, the streets and houses being almost identical with those affected during the outbreak in 1888. The Corporation of Oldham have recently decided to establish a separate small-pox hospital, but, in the meantime, the aggregation of patients in their infectious hospital continues to distribute disease to the adjoining district.

On December 15th I conferred with the Chadderton Local Board, and suggested to them the desirability of urging the Oldham Corporation to provide some temporary hospital accommodation for the treatment of small-pox. The Board have, I believe, submitted their views, but so far have not been able to secure action in the particular direction mentioned.

I may further state that the spread of small-pox and other infectious diseases in the county is greatly assisted by the inadequacy of hospital accommodation, which in 1891 was reported to be less than one-fourth the amount required, and much may be attributed to the unsatisfactory condition in which many of the existing hospitals are usually kept. Notification of infectious disease is still not adopted by Boards representing 25 per cent. of the population, and therefore their officials are, as a rule, unaware of the progress of infection until an outbreak has become established. In 100 districts apparatus is wanting for efficient disinfection of clothing, bedding, etc., so that reliance has to be placed on the most inefficient methods. Only 31 districts have appliances, but less than half of them are really satisfactory. In view of the

possible serious extension of small-pox, sanitary authorities would do well to look to the efficiency of vaccination and revaccination in their districts, and be prepared with precautionary measures for dealing promptly with the disease, should necessity unfortunately arise.

THE NOTIFICATION OF MEASLES.*

By T. ORME DUDFIELD, M.D.

MEASLES, it may be mentioned, is notified in many places, including Edinburgh, and much interesting information bearing on this subject is contained in a pamphlet entitled, "Ten Years of Notification in Edinburgh," by Dr. Harvey Littlejohn, son to the medical officer of health to that city, and himself medical officer of health to Sheffield. The statistics contained in the said pamphlet, supplemented as they were by additional information courteously given to me by Dr. Harvey Littlejohn, and also by the Medical Officer of Health to Edinburgh himself, may enable us to estimate to some extent the probable effects to be anticipated from notification of measles in London, regarded as a means for lessening the spread and reducing the mortality of the disease. Nearly 30,000 cases of measles were notified (at a cost in fees of £3,500) in the ten years, 1880-89, dealt with by Dr. Harvey Littlejohn, without obvious benefit—the cases in the second half of the period having been 2,600 more than in the first five years—unless it be that the case mortality, which in the ten years was 3·1 per cent., was 1·0 per cent. less in 1885-89 than in 1880-84. This apparent advantage, however, disappeared when the figures for 1890-91 came to be added to those for the preceding ten years, for dividing the twelve years (1880-91) equally, it appears that in the first half-period, 1880-85, the notifications were 14,418, the deaths 520, and the case mortality 3·8 per cent.; whereas in the second six years, 1886-91, the notifications were 22,032, or 7,614 in excess; the deaths 730, or 210 in excess, and the case-mortality 3·7 per cent., or 0·1 per cent. only below that in 1880-85. Some allowance must, of course, be made in respect of number of notifications, and of deaths, for increase of population—at the rate of about 3,300 annually—in the inter-censal period 1881-91; but this does not affect the question of case-mortality. The fact remains that the apparent benefit of notification in the shape of a reduced percentage of mortality in the latter half of the ten years' period (1880-89) disappears when the figures are extended so as to include the twelve years period (1880-91).

Referring to the lower mortality in 1885-89, compared with 1880-84, Dr. Harvey Littlejohn, in a communication with which he favoured me, observed, that "Epidemics of measles appear to

* Extracted from Dr. Dudfield's Annual Report to the Kensington Vestry for 1891.

vary very much as regards severity; and in Edinburgh, although the number of cases has risen during recent years, the type of disease has been mild on the whole; the weather at the time of the epidemic must also influence the mortality very considerably, as nearly all the deaths are from chest complications." The percentage of deaths to notifications in the ten years was 3.1. The highest rate was 5.9, in 1880, when 3,216 cases were notified, and the lowest 1.5, in 1881, when only 634 cases were notified. Apart from the increase in the gross number of deaths, it is unsatisfactory to observe the large increase in the number of cases notified in the second half of the twelve years period, 1880-91. This increase shows that under the conditions prevailing at Edinburgh, notification has not had the effect in respect of measles which it appears to have had in respect of typhoid fever and scarlet fever, of largely reducing the number of cases. The manner in which poor people live in Edinburgh is not of the most favourable kind for securing the full benefits of notification, so many persons living in "flats," and using the common staircase which facilitates the spread of infection. Moreover, little use comparatively is made of the hospital for the isolation of the sick. In the four years 1886-89, out of 15,102 cases notified, only 824 were removed to hospital. In 1890 the notified cases were 4,761, of which 274 only were removed. In 1891 the notifications were 2,169, the removals 223. In 1890, the home-treated cases, it may be mentioned, show a case-mortality of 5.06 per cent., that of the hospital cases being 4.70 per cent. The proportionate mortality of home and hospital cases in 1891 was 3.22 and 1.34 per cent. Assuming that the more severe cases were removed, the mortality in hospital compares favourably with the mortality outside.

But, it may be asked, what use do the Edinburgh authorities make of notification? It appears that when a case of measles is notified, an inspector at once calls at the house and gets the names of the children, and the schools attended by them. At the same time he sees what means of isolation there are; warns the parents about keeping the children at home; and tells them what precautions to use, and to send to him when the house is ready for disinfection—if disinfection be desired. In the poorest parts of the town, where the cases are almost wholly treated by students from the dispensaries, removal to hospital is always advised, and as much pressure brought to bear as possible: not, it would seem, with overmuch success. In cases of a better class, attended by a regular practitioner, removal to hospital is suggested (by the inspector) where it is a first case in a crowded tenement, and there is danger of the disease spreading to the other families. In the Edinburgh houses, built in "flats," as many as 20 families may use one common stair, so that the members of the

various households are continually coming in contact; hence, under such circumstances, it becomes a most important matter to remove the first case of any infectious disease. In the same way endeavours are made to get the first case appearing in a street, in a crowded quarter of the town, into hospital, as experience teaches that it is only by dealing with the first cases that there is any chance of successfully checking the spread of the disease. The above procedure of removing first cases has never been systematically carried out, owing chiefly to want of sufficient hospital accommodation; no compulsion, moreover, is used. But it is felt strongly that it is only by dealing firmly with the first cases, removing them, keeping the other children from school, and disinfecting thoroughly, that there is any chance of preventing the biennial epidemics to which Edinburgh has been subject. It may be added that what disinfection is done, is done by the Corporation at the public expense. As a rule, however, it is only in those cases of measles where the bedding has been removed for disinfection that fumigation is done, and it is therefore not generally done, as in scarlet fever, etc.; but it is done in all cases where specially desired. The head teachers of schools attended by sick children are informed of the occurrence of the illness. Closure of schools has been found to be of benefit; and this, of course, could not have been done without the information supplied by notification.

The experience of Edinburgh may enable us to form an approximate estimate of the number of cases that would have to be dealt with in Kensington, should measles be added to the list of notifiable diseases. It would vary much in different years, and in epidemics at different periods of the year. The average annual number of deaths from this cause in Kensington, in the last five years, was 83; the numbers in the successive years were 108, 124, 14, 140, and 29. In 1889, when only 14 deaths were registered, the disease, doubtless, was of a mild character, and the death-rate may have been as low as 2.0 per cent., or even 1.5—the lowest rate recorded at Edinburgh—in which event the cases of illness would have been 700 to 900; as many, therefore, as the cases of all the 11 notifiable diseases hitherto recorded, viz., 850 in 1890, and 836 in 1891.* In 1891, when the deaths were 29, the cases were probably 1,400 to 1,600. In 1890 measles was epidemic, and the deaths were 140 in number. The disease was of a severe type, and, if we assume a 3 per cent. rate of mortality, the cases were not fewer than 4,600, or more than five times as many as the recorded cases of the eleven notifiable diseases. But this is not

* The notification of measles at Edinburgh in the 12 years 1880-91 were 36,450, and 10,085 more than the notifications (26,365) from all of the other notifiable diseases, viz., fever (typhus and typhoid), diphtheria, small-pox, and scarlet fever.

all. The deaths were not evenly distributed over the twelve months. On the contrary, 125 of them occurred within a period of sixteen weeks (April 20th—August 9th), 15 having taken place in the remaining 36 weeks, viz., 4 prior to April 20th, and 11 subsequent to August 9th. These 125 deaths in 16 weeks represent, at 3 per cent., 4,160 cases, of which, in round numbers, 630, 1,600, 1,260, and 670 occurred in the four successive four-weekly periods. The lowest of these numbers is equivalent to an average of 21 cases per working day, the highest to 53; numbers which would have entailed an amount of inspecting and disinfecting work had measles been a notifiable disease, which throws into the shade our worst experiences of small-pox and all other infectious diseases combined.

At Edinburgh the maximum number of cases was notified in 1886, viz., 5,833, of which 5,220 occurred in 21 weeks (February 21st—July 17th); the remaining 613 cases were spread over the 7 weeks prior to February 21st, and the 24 weeks subsequent to July 17th; the largest number of cases having been recorded in 17th to 22nd weeks (April 25th—June 5th), viz., in the successive weeks, 310, 433, 352, 438, 284, and 297. The deaths were 178: in the 21 weeks between February 21st and July 17th, the weeks of maximum prevalence, 159 were registered, the remaining 19 having been spread over the 7 weeks prior to February 21st, and the 24 weeks subsequent to July 17th.

The largest number of deaths in London from measles in the decennium 1882-91 was recorded in 1890, viz., 3,291; the lowest in 1891, viz., 1,807. In every other year the deaths considerably exceeded 2,000. In 1890 the deaths in the four quarters successively were 338, 982, 937, and 1,034. The cases in this year, assuming a mortality of 3 per cent., would have been 110,000, whereas the cases of the eleven notifiable diseases were only 29,795; in 1891 they were 26,522. It is manifest, therefore, that if measles should be dealt with like scarlet fever, viz., by visitation of the cases, by removal of the sick to hospital when necessary, by disinfection, and by reports to the head teachers of schools, an enormous amount of work would be thrown upon sanitary officials, whose numbers would have to be largely augmented. It is a question whether all this trouble and the increased outlay (including the notification fees) might not be wisely incurred, if only for the purpose of securing exclusion from school of children living in infected houses? The disease would spread, as now, in houses where it found an entrance, but if it were recognised in time, and exclusion from school insisted upon, many households might escape, which, under present circumstances, would almost certainly be invaded. Unhappily, however, there is little in the earliest stage of many cases of measles to differentiate it from a common cold, and it is but too probable

that at the commencement of an epidemic some of the sufferers would go to school, and so spread the disease. Once fairly set going it is practically impossible to stop an epidemic: the fire burns fiercely while the fuel lasts, but that is not for long—in other words, well-nigh all susceptible children in the crowded homes of the poor fall victims to the disease within a few weeks of its appearance in the locality, or in the large public elementary schools.

But whatever opinion may be formed as to the policy of making measles a notifiable disease, there can be no doubt that it would be wise to make provision to secure the removal of the sufferers to hospital, compulsorily if necessary, when the home surroundings are of such a nature as to militate against recovery. For there can be no doubt that with insanitary conditions—want of space, of pure air, of proper food and nursing—the disease does assume a virulent ("suppressed") type, and that pulmonary and other complications frequently ensue, and are the immediate cause of the fatal issue. This is proved by the fact that death from measles is rare in the families of the well-to-do, whilst it is common in the families of the poor, and just in proportion as the sanitary and general home surroundings are defective and unwholesome. But even in these classes the average case-mortality of measles is low as compared with scarlet fever. The deaths, indeed, are numerous, but the cases, when the disease is epidemic, are multitudinous. . . .

It would not be right to close these observations without stating that, notwithstanding the lack of benefit hitherto, Dr. Harvey Littlejohn is entirely in favour of keeping measles on the list of notifiable diseases. But then he is of opinion that if the early cases were removed to hospital, epidemics would be prevented—an optimistic view which it is difficult to share. He admits that at Edinburgh "no practical benefit has hitherto resulted from notification, so far as the mitigation of the disease is concerned," and makes an observation which appears to be amply justified by the facts adduced, viz., that "in a large town with a susceptible population and hospital accommodation necessarily limited, when compared with the requirements of an outbreak of measles, notification as a means of checking the disease is practically useless."

REGENT'S CANAL.—Dr. Young, one of the assistant medical officers to the London County Council, has been instructed to make a thorough inspection of the Regent's and Grand Junction Canals, the condition of which has been a source of frequent complaint on the part of local sanitary authorities.

ROTHERHITHE VESTRY IN DEFAULT.—The London County Council have passed a resolution, under section 101 of the London Public Health Act, asking the Local Government Board to hold an inquiry as to the Rotherhithe Vestry neglecting to carry out its duties under the Public Health Act.