THE CONTROL OF MEASLES.

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As was noted in regard to the epidemic of 1895, the town (Stockport) was apparently quite free from the disease during the first quarter of the year (1899). Since the middle of April, however, the existence of some 617 cases has come to the knowledge of the Health Department, or probably about one-third of the total number which occurred, and no less than 93 deaths have been registered, details in regard to which are set forth in the appended table. These 93 deaths mean an addition of at least 1·13 per 1,000 to the total death-rate of the borough for the present year, compared with 0·28 in the sixty-seven "Other Large Towns."

MEASURES ADOPTED IN REGARD TO THE OUTBREAK.

1. *To obtain Information as to Occurrences :*

- (a) As the result of letters repeatedly sent during the past six years to the headmasters and managers of every elementary school in the borough, requesting them to report to the Health Department the occurrence of any case amongst their scholars, 617 notifications were received.
- (b) The school attendance officers reported some sixteen cases.
- (c) The registrars of deaths were requested to notify promptly any death from measles.
- (d) A circular letter was sent to the clergy and ministers requesting them to report any case of which they might hear.
- (e) The district visitors, police, prevention of cruelty inspector, and police-court missionary were also written to to the same effect.

2. *Preventive Measures :*

- (a) *In regard to Schools.*—In accordance with the request of the medical officer of health, the children were questioned and examined, in some instances by the teachers, and, where circumstances permitted, by the medical officer of health—*e.g.*, at Hanover and Banks Lane School. Children from infected houses or presenting suspicious symptoms were excluded from school, and a supply of cautionary handbills was sent for distribution amongst

the scholars. The following schools were ordered to be closed for the period stated in each case:

Hanover, Infants	29th April—13th May, 1899.
St. Matthew's Mission, Brinksway	29th April—20th May, 1899.
All Saints'	30th May—18th June, 1899.
Lancashire Hill British	30th May—18th June, 1899.
St. Mary's Roman Catholic ...	30th May—18th June, 1899.

In addition, St. Matthew's and St. Peter's Schools closed for the summer holidays some time earlier than they otherwise would have done.

Each school which has been invaded by measles has been thoroughly disinfected by the sanitary department.

When the existence of a case of measles became known to this department, notice was sent to the school teacher likely to be affected.

(b) *In regard to Infected Houses.*—The measures adopted are best set forth in the following memorandum, which was issued for the guidance of the sanitary staff:

1. The case should be promptly visited, and a handbill supplied and explained verbally.

2. A notice under the Public Health Act, 1875, Sec. 120, is to be served, and the householder informed that the Sanitary Authority are prepared to carry out the necessary measures of disinfection.

3. If this offer be declined, the house should be re-visited to ascertain whether the householder has carried out disinfection as directed in the handbill.

4. Inquiries should in every case be made in the neighbouring houses as to the possible existence of measles therein.

5. Notification of any new case of measles should at once be sent to the master of any school liable to be affected thereby, and also to the school attendance officers.

MEASLES IN STOCKPORT, 1889. to 1899.—In the table on the next page are set forth particulars as to the mortality from measles during the eleven years 1889-1899, as well as the number of notifications received from school teachers since 1893.

GENERAL OBSERVATIONS.—The chief impression left by the experience of the outbreak under notice is the very great difficulty of controlling measles by the methods often more successfully

adopted in dealing with other infectious diseases. Its intense and early infectiousness, and the "explosive" nature of the outbreak which results when infection is introduced, as in a school, amongst a number of susceptible people, are doubtless responsible for this. The difficulty, however, of getting early information as to the incidence of the disease is also very great.

Year.	Number of Cases notified by School Teachers.	No. of Deaths.	Death-rate per 1,000 living.
1889	—	99	1.50
1890	—	30	0.44
1891	—	98	1.40
1892	—	—	—
1893	357	37	0.50
1894	—	1	—
1895	247	84	1.11
1896	—	17	0.22
1897	362	73	0.91
1898	56	55	0.68
1899	617	93	1.13

Measles is not compulsorily notifiable, and it is hardly to be expected that either householders or doctors will notify it voluntarily; on the other hand, the paid notification of every case at 2s. 6d. per case would be extremely expensive, and, to quote the words of Dr. Niven, "justifiable only by a considerable degree of control over the disease; such a degree of control it is evidently difficult to obtain." Passing to notification by schoolmasters, and recalling the fact that in Stockport they have been repeatedly circularized on the subject, a few teachers report promptly any case of measles coming to their knowledge; by others valuable time is allowed to elapse before doing so, and during the recent outbreak at least one teacher sent in a list only when his attendances were so diminished that it was desired to close the school. Section 82 of the Stockport Corporation Act, which has just become law, provides that whenever any scholar is known to be suffering from any infectious disease, the school principal shall forthwith send notice to the medical officer of health, and doubtless this section will in future have a beneficial influence. In regard to other auxiliary methods of obtaining information, notification by death registrars is obviously sadly belated, and I am aware that the idea of notification by clergy and district visitors is not entirely acceptable to

medical practitioners, who regard it as opening the door to interference with their cases by laymen.

If, however, measles is to be dealt with with any hope of material success, some better means must be devised for obtaining early and systematic information of the cases which occur. In considering this question in my annual report for 1893, I expressed the opinion "that in a town of the population of Stockport a very modified and comparatively inexpensive system of *notification of first occurrences* in infected houses, *if in force at the onset of an impending epidemic*, ought to yield good results, if energetic advantage were taken of the earlier opportunities thereby afforded for (1) controlling school attendances from infected households, (2) detecting infected schools which were acting as foci of the disease, and (3) for warning parents as to the serious nature of the malady, and the necessity for isolation, proper care, and medical attendance." I am still of this opinion, but I am aware that such notification of first cases cannot be enforced without special legislation. Having regard, however, to the enormous mortality for which measles is periodically responsible, the matter is one which is well worthy of consideration.

No attempt was made to isolate measles in hospital, and it would have been a most costly and impracticable undertaking, as some 1,800 cases probably occurred within three months.

THE PRESENCE OF DIPHTHERIA BACILLI IN THE MOUTHS OF HEALTHY INDIVIDUALS.—Kober (*Zeitschrift f. Hygiene*, 1899, Bd. xxxi., s. 433) has made an extended research in Flügge's laboratory as to the frequency with which the bacilli of diphtheria are found in healthy throats. The study embraces examinations of 128 persons who had been in contact with cases of diphtheria, and of 600 who had not been knowingly exposed to the disease. In the cases in which the bacilli of Loeffler were found the diagnosis was made (1) by culture upon serum and microscopic study after six hours; (2) by Neisser's double stain with cultures varying from nine to eighteen hours' growth; (3) by test of the acidity; (4) by inoculation of guinea-pigs.

The results of these examinations showed that the frequency of diphtheria in healthy throats has been greatly exaggerated. In the statistics generally quoted bacilli were found in 18·8 per cent. of individuals who had been exposed. In the author's series the organisms were found in only 10 out of the 123 cases (a percentage of only 8). The same divergence of results was noted among the unexposed, the author's 600 cases having but 15 (2·5 per cent.) who showed the presence of the bacillus, as compared with 7 per cent. in other statistics. Further inquiry among these 15 showed that 10 could be considered to have been exposed, directly or indirectly, to a focus of the disease. The proportion of unexposed individuals who carried the organism in their throats would thus be still further reduced to 0·83 per cent.

The organisms found in the mouth secretions of 10 persons who had been exposed to patients suffering from the disease were all virulent. Among the 15 positive cases of the second series the bacilli were non-virulent in 10.—*Amer. Journ. Med. Science*.