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**Dr. Thorne Thorne's Report to the Local Government Board on the Sanitary Condition of Wickford, in the Rural Sanitary District of Billericay, with special reference to a recent Prevalence of Diphtheria in the Village.**

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EDWARD C. SEATON, M.D.,  
Medical Department,  
August 12, 1879.

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WICKFORD is a parish situated in the Billericay Rural Sanitary District in Essex; it consists of the village of Wickford, and of groups of scattered houses. The whole parish had a population of 491 in 1871, it having increased from 462 at the date of the previous census.

The village, to which this Report mainly relates, has a population of about 320. It is situated on the western bank of the river Crouch, a small and tortuous stream which rises near the Laindon Hills, and receives in its course to Wickford by means of tributaries, ditches, and otherwise, a large volume of land drainage. Leaving Wickford to the north-east it travels through the Chelmsford Rural Sanitary District to Battle Bridge, about two and a half miles below Wickford. At this place there is a mill fitted with flood-gates, which admit the tidal water to within about one mile of Wickford, and permit of its being dammed up so as to secure a head of water to work the mill wheel. The village is about half a mile in length, and the houses, which are between 70 and 80 in number, lie in somewhat scattered groups along two sides of a highway. The soil consists almost exclusively of clay and loam, but at each end of the village a few houses are situated on the pervious alluvial bed of the Crouch.

*Floods.*—Wickford village is periodically flooded. Until two years ago these floods were far more serious than they have been since, but even now no winter passes without some flooding of the village, and very heavy rainfall at other seasons leads to a similar result. These floods are variously attributed to the damming up of the tidal water at the Battle Bridge mill, to the tortuous course of the Crouch, and to the numerous obstructions in the bed of the stream.

In view of information given to me at Battle Bridge, it did not appear conclusive that the flood-gates have materially affected the flooding of the village, but an inspection of the stream from Wickford to the mill can leave no doubt but that there are numerous removable obstructions—including notably the remains of dams constructed by the cattle graziers each summer—in the river bed, and that these, occurring as they do in the course of a tortuous stream, must seriously hinder the downward flow of flood waters. This view of the case is borne out by the fact that since the Billericay Rural Sanitary Authority took steps two years ago to have the bed of the stream cleaned out in its course through Wickford parish, the floods to which the village is subjected have decidedly diminished.

*Water-supply.*—Wickford village is fortunate in having a wholesome water-supply derived from one public and two private artesian wells, sunk through the London Clay into the Woolwich Sand beds. Owing to the demand which is made on the public well by persons living at some distance from Wickford, the supply is at times, during dry weather, deficient in quantity. Should occasion, however, render it necessary to increase the supply, it is anticipated that this could be done without difficulty.

*Sewerage and Drainage.*—The means of sewerage and drainage for the village are of the worst description. Scattered here and there throughout the village are ditches which not only receive liquid sewage, but in some instances the contents of privies which have been built over them. These



ditches have a natural fall in the direction of the river Crouch, but their contents are evidently as a rule all but, if not quite, stagnant. They are in close—at times in very close—proximity to the cottages, and the nuisance they create is obviously very great. Besides the sewer ditches, there are a few brick drains; but some of these are of such faulty construction that their contents cannot get away. Hence solid deposits accumulate in them, and their contents leak out. One of these culverts, which was stated to be 12 inches in diameter, opened in its course to the Crouch into a 6-inch drain pipe, the result being that it was blocked up and that its contents escaped under the floor of a cottage which is in consequence quite unfit for human habitation. In a few instances the slops and liquid refuse are thrown on to the ground, or into holes, near the cottages.

*Closest Accommodation.*—The common privy-with-pit is general throughout the village, and it is the cause of more than usual nuisance. Some of the privies empty into ditches, others are so close to houses that their contents must almost of necessity foul the soil upon which the dwellings stand, and the pits being sunk in the ground, their contents are sloppy, and hence very offensive. In one instance a large brick vault has been constructed underneath a group of privies close to the Crouch, and as the river water rises, the contents of the vault are evidently washed under the foundations of the adjoining cottages.

*Recent Prevalence of Diphtheria.*—In September last a child, who had previously been staying for “about a month” with its grandmother in Wickford, was attacked with “sore-throat.” He was removed to his home in the village of Great Waltham, where he communicated diphtheria to four members of his family; the attacks, both in his own case and in that of three of his brothers and sisters, terminating fatally. Other non-fatal attacks occurred in Great Waltham. At the date of the child’s attack he had for “three days” been attending a dame’s school in Wickford, and within “two or three days” of his first symptoms the disease began to spread amongst his schoolfellows, and subsequently to a family residing next door to the school. Two deaths occurred in Wickford, one being registered as due to “tonsillitis” with “œdema glottidis;” and the total result of the outbreak in both places affected, was about 12 attacks and 5 deaths.

The cottage where the child first attacked resided in Wickford has within a few feet of it, an offensive privy-with-pit, to the foul emanations from which are attributed two previous attacks of “sore-throat”; one in the same child during a former stay in the village about 18 months ago, and one in the relative with whom on both occasions he was residing.

The school which the child was attending in September last is a small cottage built on some arches in the porous soil close to the river Crouch. From the cottage door a drain passes into an offensive sewer-ditch within a few feet of the dwelling, and this ditch in turn empties into the river. Close to the river side a privy has been built over the ditch, and when the river rises it is obvious that the accumulated privy droppings are forced back up the ditch and along the drain so as to foul the soil around and beneath the school, and probably also the adjoining cottage. The school is also stated to have been overcrowded at the date of the outbreak.

Whether the first attack in this outbreak had its origin in the defective sanitary arrangements at the cottage where the child in question was temporarily residing, or in the still more defective conditions existing at the school, is open to doubt. Neither can it be alleged with any degree of certainty how far the spread of the disease in Wickford was due to personal infection or to exposure to the same conditions at the school to which the first child was exposed when he fell ill. Both questions are, however, comparatively unimportant so far as the sanitary administration of the village is concerned, for whichever view is entertained, the fact remains that the circumstances under which the disease arose and spread are precisely those which are so well known to be associated with the fatal spread of infectious and preventable diseases.

*Previous Sanitary History of Wickford.*—Owing to local complaints as to the offensive conditions in Wickford, a report on the sanitary circumstances of the



village was, in 1874, presented to the Sanitary Authority by Dr. Cornelius Fox, their Medical Officer of Health. The report deals in detail with the serious defects in the drainage and the privy accommodation in the village; it refers to the floods to which the village was subjected; and it points out, amongst other things, that although in Wickford parish the general mortality from all causes had, during the decennial period 1861-70, been "below the average," that from "fever" and from diarrhoea, had been greatly in excess of that obtaining for the whole of England and Wales, for London, and other specified districts.

A further report, issued in April 1876, went to show that when the death returns were examined for a more extended period, namely for the 20 years, 1851-70, the general mortality for Wickford parish was in excess of that obtaining in the standard group of districts \* quoted by the Registrar-General, and that the infantile mortality and that due to diarrhoeal diseases was in excess of that obtaining both in the standard districts and in a number of the neighbouring registration districts; the excess from diarrhoeal diseases being especially great. The recommendations made by Dr. Fox were appended to the earlier of these reports, and they dealt mainly with the provision of a means of drainage for slop-water, the provision of a dry or pail closet in place of the foul privies, and the removal of obstructions in the bed of the Crouch.

According to the minutes of the Rural Sanitary Authority these reports were, in November 1874 and in April 1876, communicated by the Sanitary Authority to one of their members with a view to their being laid before a vestry meeting at Wickford, and at both those dates there is a reference to such a meeting having been called. The suggested method of draining the village appears, however, not to have met with local approval, and beyond the removal of certain special nuisances, I cannot gather that anything was done in the village itself. The Crouch was, however, in the autumn of 1877, cleaned out in its passage throughout Wickford parish, with the beneficial results already adverted to. Numerous efforts, I am also informed by the Clerk, have since then been made to get the lower portion of the stream in its course through the Chelmsford Rural Sanitary District also cleaned out, but hitherto these have failed.

In October 1878 a further report was presented by Dr. Fox to the Billericay Rural Sanitary Authority, explaining the circumstances under which the outbreak of diphtheria had arisen, and again urging the adoption in full of the recommendations made in the report of 1874. As the result of this report certain specified nuisances were ordered by the Sanitary Authority to be remedied. Some of them could hardly be efficiently dealt with piecemeal, being related as they were to conditions of drainage and excrement disposal common to nearly all the village, and they now remain as they were. A parochial committee was also appointed to "examine into and report on the system of drainage adopted in the village." The resulting report was presented to the Authority on December 17th, 1878. It does not refer to the general drainage of the village, but recommends the adoption of certain measures, which were embodied in a further report of the same date, prepared by the Nuisance Inspector. These measures related to the cleaning out some half-dozen filthy ditches, to the removal of privies over ditches, to the trapping of certain drain inlets, and to the construction of two short lengths of drain work. The latter, as also some of the former, have however not been dealt with as yet, the delay being doubtless again due to the fact that the real remedy for the conditions noted does not consist in the temporary abatement of nuisances which must soon recur, but in the adoption of measures of a permanent character by the Sanitary Authority itself.

The facts ascertained during this inquiry show that, quite apart from any prevalence of infectious disease, the conditions of drainage and of excrement disposal in the village of Wickford have long been such as to call for remedy, and that the remedial measures, to be efficient, must be undertaken by the Authority itself. The recent prevalence of diphtheria, associated as it was with

\* In addition to a large rural area, these districts contain several urban districts, having populations varying, as far back as 1871, from 3,313 to 12,971, and their mean mortality from all causes is 16.5 per 1,000.



the grave conditions noted, suffice to prove that no further delay should be sanctioned in carrying out the steps necessary for the permanent abatement of those conditions.

R. THORNE THORNE.

July, 1879.

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### Recommendations.

1. The Sanitary Authority should at once seek skilled advice as to the best method of providing Wickford village with efficient means of drainage, and this being determined, no unnecessary delay should occur in carrying out those means.
  2. All privies causing nuisance should forthwith be dealt with as such, and replaced by some form of closet which will not cause nuisance. In arriving at a conclusion as to which form of closet will best meet the requirements of the village, the Authority should consult the Report of the Local Government Board on the Means of Preventing Excrement Nuisances in Towns and Villages.
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