

**Mr. John Spear's report to the Local Government Board upon a re-inspection of the registration sub-district of Dartford, and upon the continued prevalence in the district of diphtheria / [John Spear].**

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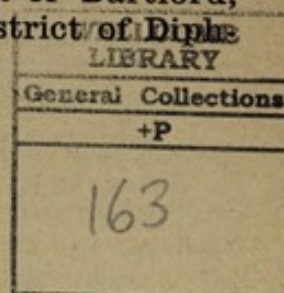
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Mr. John Spear's Report to the Local Government Board upon  
a Re-inspection of the Registration Sub-District of Dartford,  
and upon the continued Prevalence in the District of Diph-  
theria.

GEORGE BUCHANAN,  
Medical Department,  
July 15, 1884.



In this registration area are comprised the Urban Sanitary District, and the greater part of the Rural Sanitary District, of Dartford.

It was inspected on behalf of the Local Government Board in the latter part of 1882, on account of the then prevalence of diphtheria and enteric fever; and in the rural division, on account of diphtheria prevalence, an inspection on behalf of the Board was likewise carried out in 1879. The official abstracts of the reports presented on these occasions are as follow:—

**RURAL SANITARY DISTRICT.** *Inspection of 1879:*—"Fatal outbreak of diphtheria in Swanscombe parish, where the conditions of water supply, drainage, and excrement disposal were generally most defective. Sanitary circumstances of the entire rural district also found to be in many respects similar to those of Swanscombe, and sanitary administration very imperfect in many essential respects."

*Inspection of 1882:*—"Localised and recurring outbreaks of diphtheria. Initial cases appearing in houses where gross sanitary defects existed, and in spots where diphtheria had previously been observed; disease then apparently spreading through schools. Parts of this district rapidly extending, yet no byelaws. Houses being built without any regard to sanitary requirements. Very little inspection for sanitary purposes."

**DARTFORD URBAN SANITARY DISTRICT.** *Inspection of 1882:*—"Prevalence of enteric fever, localised to low-lying portion of town, during 1881 and part of 1882. In parts invaded, sub-soil water stands often three or four feet only from the surface; and into this water level wells and cesspools are sunk indifferently. At time of fever outbreak sewers were being constructed, pumping operations to lower sub-soil water being needed. Wells and cesspools were often pumped dry. Wells, on again receiving water soakage, of course much polluted. Forty per cent. of houses in this low-lying district supplied from local wells, remainder from Kent Company's mains (everywhere available); in former, over 80 per cent. of fever attacks occurred. In addition to defects of water supply, cesspool and other nuisances very common in the district."

In March 1884, owing to the continued prevalence of diphtheria, and in the absence of any precise information of proper sanitary action on the part of the two authorities, the Board again directed a medical inspection. The enteric fever prevalence in the urban district, the subject of previous report, was found to have ceased; but, on the other hand, diphtheria had become more general and fatal; and the urban district, which had previously escaped this disease, was now implicated. A table giving the vital statistics of the Registration Sub-district as a whole will be found appended, but it will be necessary in this descriptive portion of the report to deal with the two sanitary divisions separately.

#### THE URBAN DISTRICT.

The prevalence of diphtheria in the urban district is, so far as recent times are concerned, a new experience. During the 15 years, 1868-1882, I find only four deaths registered under this name; although from "croup," a name under which true diphtheria doubtless often passes, there were registered, it is to be noted in this connection, in the same period, 26 deaths. In February 1883 an isolated fatal case of diphtheria occurred in Great Queen Street, and in April there were two cases, with one death, in a family living in the High Street. In November and December several cases occurred, eight deaths (including one from "diphtheritic croup") being registered in these two months and the first three days of 1884.

It seems almost impossible now to estimate the number of cases. The Medical Officer of Health, who would probably have heard of recognised attacks, knew of only nine families invaded during the year; or seven during the last two months. In these, some 14 attacks occurred. The death register, however, records an unusual number of deaths from "croup" and "laryngitis" during the year in question, and, as to milder cases, several of a suspicious character were heard of. The appearance of scarlatina at the close of the year presented a further difficulty in this connexion. Two deaths were then registered as from "suppressed scarlatina, paralysis," a description which strongly suggests diphtheria; and in another instance the first death in a family was ascribed to scarlatina, the second, three weeks later, to diphtheria. The following table will further illustrate these coincidences:—

TABLE 1.—Number of Deaths from certain Registered Causes, 1883, and Four Months of 1884; Dartford Urban Sanitary District (pop. 10,159).

REGISTERED CAUSE.	1883.								1884.				
	Jan.- March.	April- June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	
Diphtheria	-	1	1	-	-	-	-	6	1	1	-	-	-
"Croup"*	-	-	2	2	1	-	1	-	2	3	-	-	-
Acute laryngitis, ulceration of larynx, or tonsillitis	-	1	-	-	1	-	1	2	-	-	-	-	-
Scarlatina	-	-	-	-	-	-	-	1	4	2	1	-	1

\* The average annual number of deaths registered as from "croup" during the previous 15 years was less than two.

Inquiry failed to show any common origin for the cases of diphtheria; or even, in several instances, owing possibly to missing links represented by unrecorded cases, to throw any light whatever upon their occurrence. The influence of personal infection was suggested by the fact that second attacks in families, where such occurred, were separated by a distinct interval from first attacks. And in two cases a next door neighbour and friend had previously suffered; in another, a visit had just before been received from a relative coming from a lately infected house in the rural district. As to the influence of sanitary condition, a disproportionate number of cases occurred in the low-lying quarter of the town (where, it may be remembered, enteric fever was in 1882 so markedly localised); and certain of the houses invaded presented serious drainage defects, a circumstance to which the Medical Officer of Health had on occasion ascribed the appearance of the disease.

*Sanitary Condition.*—At the time of my last inspection of this urban district, nuisances from cesspools and privy-pits were almost universal, but a system of sewerage had just been completed, and a few house connexions had already been made. Since then this work has so far proceeded that some 1,150 of the 1,900 houses of the district are now connected with the sewers, to the marked abatement of the offensive effluvia which formerly pervaded the neighbourhood of dwellings. Certain evils, however, anticipated in my last report from the method of private-drain construction generally adopted, have arisen. Owing to the absence of back streets, the public sewers are often a considerable distance from the "offices" of private property; and so, instead of each house having its separate communication with the public sewer system, it has often come about that the closets and slop-water drains of a whole row of houses are connected with the main sewer in the front street by a single private channel. The latter, in such case, is necessarily of some length, and resembles a branch sewer in all the requirements of ventilation and flushing. The former of these objects, however, is merely provided for by the combination of a single shaft and surface ventilator such as is prescribed by the byelaws for the drainage of each separate house; and, so far from there being any special provision for flushing, the closets more often than not in cottage property have no water laid on to them for this purpose. Excrement is consequently retained; and the air of the sewers, public and private, becomes unusually charged with offensive gases. The condition has led to the covering over of several surface ventilators. The remedy required is the more efficient flushing of these private sewers, as they must be termed, and, where of any length, their more free ventilation. The public sewers are already flushed at weekly intervals.

Notwithstanding defects above referred to, and others arising from the imperfect manner in which the conversion of old privies into the new closets has, in certain instances, been effected, a very great improvement is to be noted in the abatement of "filth nuisances" since my last inspection. Some 700 houses, however, are still unconnected with the sewers, and their condition, except so far as they may be influenced by the removal of nuisances from neighbouring property, has undergone no improvement. The



provisions of the Public Health Act of 1875, requiring the emptying of drains into the public sewers, need, in all such cases, to be enforced.\*

The paving of certain streets has been carried out by order of the authority since my last inspection. On the other hand, little has been done to secure the paving of back courts and yards of cottage property, although their condition is often productive of much nuisance.

The enforcement of the building byelaws appears to have received some greater attention. In June 1883, the Surveyor was instructed to report every breach of regulations to the Authority, and subsequently some action was taken to enforce the use of proper building material, and the covering of the sites of new houses with concrete. The latter is a requirement of special importance in this district, but has only of late been observed. In property recently erected in Hythe Street, and in Home Gardens, I noticed other instances of infringement of byelaws: in failing to provide closets with water for flushing purposes or with adequate amount of light and ventilation, and in defective construction of ashpits. The yard-space immediately about dwellings, in the case of some of these new houses, is left unpaved.

*Water Supply.*—The service of the Kent Water Company has been extended to some 34 houses through the action of the Authority since the last inspection; and in several other cases the extension has been made voluntarily. A large number of houses are still, however, dependent upon unsatisfactory, and often dangerous, supplies.

The Authority have as yet taken no steps to provide the district with a hospital for the isolation of infectious sickness, although the necessity for such provision has been illustrated on different occasions. As I write this report information reaches me of the appearance of small-pox in three different families in the district.

The constitution of the Sanitary Department, the defects of which were previously reported, remains the same. The Inspector of Nuisances, who is Superintendent of Scavenging also, is mainly engaged in work that properly devolves upon that latter office; while the Surveyor, although a vacancy in the office afforded lately an opportunity for a different arrangement, is still allowed to engage in private practice.

#### THE RURAL DISTRICT.

The parishes of the rural district comprised in the Dartford Registration Sub-district are Stone, Swanscombe, Darenth, Wilmington, and Sutton. The two first are situated to the east of the town of Dartford, and constitute the 4th, or Swanscombe division of the Rural Sanitary District; the others lie to the south of the town, up the valley of the Darenth, and form a part of the 3rd division, that of Farningham. In each section diphtheria has before been prevalent, but in 1883 the disease was more than usually wide-spread and fatal. As in the urban district, there was some coincident occurrence of the affection that passes under the name of "croup," and the occurrence of scarlatina also occasionally so hampered diagnosis as to leave the exact nature of an attack in doubt. During the first four months of the present year, only a few secondary attacks came under notice; but the disease now made its appearance in other parishes of the 3rd, or Farningham, division—Horton Kirby, Kingsdown, and Fawkham, situated in the Farningham Registration Sub-district. To these outbreaks I will refer later on. Dealing now with the parishes that come more immediately within the purview of this inquiry, the number of well authenticated cases of diphtheria, croup, and scarlatina that occurred here during 1883 are given in the following table. In addition to these, however, there were a number of cases of sore throat, associated often with slight febrile symptoms, some of which received no medical attention. In two or three of the more recent of these cases I found palatal paralysis remaining, indicating that the primary disease was true diphtheria.

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\* I have spoken above of the imperfect manner in which the work of conversion of privies into pan, or water closets, has occasionally been carried out. Certain property in Overy Street and in Gas Lane may be specially instanced. The floors, walls, and roofs of the closets are left in their old dilapidated condition, and the floors being below the level of the unpaved yards are occasionally flooded with surface water; the closets remain ill-ventilated and ill-lighted, and the large dilapidated ashpits are retained.

TABLE 2.—Cases of Diphtheria, Croup, and Scarlatina, in the Rural Division of the Dartford Registration Sub-District, 1883.\*

PARISH.	Population.†	Diphtheria.		Croup.		Scarlatina.		
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	
4th Division {	Swanscombe - - -	3,996	19	8	6	6	12	6
	Stone - - - -	2,036	9	3	1	1	2	—
3rd Division {	Wilmington - - -	1,388	—	—	—	—	—	—
	Darenth - - - -	735	3	3	—	—	—	—
	Sutton - - - -	2,069	26	5	1	—	12	—
Totals - - - -	10,224	56	19	8	7	26	6	

† Excluding public institutions.

These cases of diphtheria were the result of several small outbreaks; the latter widely separated, occurring at different periods of the year, occasionally involving only a single family, and frequently having no discoverable origin in earlier cases. It was noticed, however, that the disease invaded localities previously infected; and such localities always showed many and grave sanitary defects such as lie within the power of a Sanitary Authority to remove.

Botany Bay is one of these places. It comprises a collection of some 65 houses, standing on the border of the parish of Swanscombe, in a hollow that divides this rural district from the neighbouring urban one of Northfleet. The site consists of gravel upon chalk, and, lying very low, water stands not far from the surface. In close proximity to the houses the ground is being riddled with cesspools (the sole provision for excrement and slop-water removal), for as one fills up, another hole is dug to take the overflow. Several such supplementary cesspools, the original ones remaining, have been provided within the last twelve months; and they are constructed with the intention that their contents shall, as far as possible, soak away. In the midst of them, and surrounded by all sorts of surface filth (I heard of drains that had been choked for six months) are sunk the wells that supply the inhabitants with water for all purposes; analysis of this water is said to have given satisfactory results, but the inhabitants speak of it as often obviously polluted with slops and sewage. The water of the Kent Company could it appears be readily obtained.

This little place attracted attention at the time of my inspection in 1882 owing to the fatality suffered from diphtheria, fever, &c.; and during 1883 there occurred amongst its 300 inhabitants three deaths from diphtheria, two from croup, and three from scarlatina.

The old village of Swanscombe, and the new localities adjoining it known as New Town and Galley Hill, stand on the ridge overlooking Botany Bay, about half a mile

\* There is no doubt that the nomenclature of these throat affections is largely determined by the accident of medical attendance. Thus, the deaths in the Swanscombe Division were certified by the several medical practitioners as follows:—

	Dr. A.	Dr. B.	Dr. C.	Dr. D.	Dr. E.
Diphtheria - - - -	6	3†	2	—	—
Croup - - - -	—	1	—	5	1

† All certified "diphtheria and croup."

distant. Here, where diphtheria was specially prevalent in 1879 and again in 1881-82, sporadic cases have continued to occur. Enteric fever also has made its appearance from time to time; two houses contained cases of that disease at the time of my visit.

The sanitary condition of these localities, already fully reported upon, has undergone no improvement. Here and there a house previously dependent for water supply upon a polluted well has been provided from the Kent Company's service; but, on the other hand, many houses have been built since my last inspection without regard, in the matter of drainage especially, to sanitary requirements, so that sewage nuisances have increased.

A system of sewerage is urgently wanted for these localities, and improvement cannot be expected until this is provided. The work would probably offer no great difficulty. The sewage of Swanscombe village, New Town, and Galley Hill (localities which in their relative position form a sort of horse-shoe curve) might probably be conveyed by gravitation to the north of these places, and there utilised with much advantage on land already applied to the cultivation of market produce; or it might be conveyed down the slope of the hill to Botany Bay, and there, along with the sewage of that hamlet, be dealt with in precipitation tanks before discharge into the river. Whether either of these plans, or some third course, should be adopted, is a question upon which the authority should obtain skilled engineering advice. By the second of the two suggested above the sewage would be brought to the natural drainage outlet of Northfleet, an adjoining Urban Sanitary district, where sewerage is also urgently needed; and the districts might perhaps be advantageously combined, under the provisions of section 279 of the Public Health Act, 1875, for the purposes of providing for sewage disposal.

The experience at Stone, the remaining parish of the 4th division of the rural district, both in the matter of sanitary circumstances and disease prevalence, is very similar. About the "Brents" and Victor Road, a collection of modern dwellings, several cases of diphtheria, and some half dozen cases of "low fever," occurred during 1883. The drainage is entirely by privy pits and cesspools, which are rarely if ever emptied, and which are the cause of a very serious pollution of atmosphere about dwellings. Were drainage provided the sewage could no doubt readily be disposed of on neighbouring land; or the authority should consider whether arrangements might not be made to drain this locality into the Dartford town sewers, some three-quarters of a mile distant. A few houses in this parish of Stone have been provided since my last visit with water from the Company's mains, but the greater number are still supplied from local wells.

In March 1883 there was a little outbreak of diphtheria in this parish, and the Medical Officer of Health was able to trace it with great probability to infection through school attendance. Three children living at houses widely separated were attacked on the 25th of the month with well marked diphtheria, and on the same day four others sickened of ailments of which sore throat and feverishness were the prominent symptoms. These children all went to the same school, and on the 21st (four days before their seizure) a fellow pupil had discontinued attendance owing to severe sore throat. All the affected children, including the last named, were accustomed to take their mid-day meal at the school, usually in the school-lobby, their homes being at a distance.

Coming now to the 3rd, or Farningham, division of the rural district, the earliest discoverable case of diphtheria, of the recent series of cases, occurred in a family living at Green Street Green, Darenth. The mother, who had been visiting her friends in different parishes, suffered from sore throat, &c., in the latter part of June 1883, and then, on July the 4th, a child was attacked by distinct diphtheria. The origin of the child's infection, if not from the mother, could not be ascertained, although it was found that a person with whom the child had played at a local fête a few days before, had died after three days' illness from what was certified as "typhoid fever." Three children of the family on the Green were affected one after the other by diphtheria, and all died after a few days' illness. A baker who brought bread to the house, and who had entered the sick room is stated to have been poorly in the latter part of July, and on August the 6th his child, living with him at Sutton-at-Hone, died after four days' illness of "malignant throat disease," certified at the time as "laryngitis," but afterwards regarded as diphtheria. The next house invaded was at Progression Place, Sutton-at-Hone, about the 20th of August. The family was supplied with bread

by the baker above referred to, and had personal communication with him and his household. The disease afterwards spread to other houses in Progression Place, and amongst other families in the village who visited there. By the first week in September, when the outbreak subsided, eleven houses in the village, including six in Progression Place, had been invaded, and besides the sufferers who came under observation there appear to have been many others who were affected by comparatively slight sore throat, possibly of a diphtheritic character. In all nine deaths were recorded.\*

The last death in the village of Sutton occurred on October 22nd (a somewhat isolated case, the last preceding death took place on the 7th of September), and in December two more deaths at Swanley, an outlying part of the parish of Sutton, were registered. These last resulted from two isolated family outbreaks, the origin of which was not discovered. In 1884 the disease appeared, as stated in an earlier part of this report, in neighbouring parishes, outside this Registration Sub-district, but within the same sanitary division, viz., at Horton Kirby, Kingsdown, and Fawkham. In the two last-named the village schools had been closed, and investigation of the circumstances afforded evidence of the correctness of the view taken by the Medical Officer of Health in attributing the first extension of the disease to the circumstances of school attendance. At one farmhouse at Kingsdown, the sanitary circumstances of which were deplorable, the disease was extremely fatal, four of five sufferers dying. At Fawkham I found a child lying ill of diphtheria in a grossly overcrowded hovel; the child, I afterwards heard, died, and another was infected.

Darenth, Wilmington, and Sutton, the parishes of this sanitary division which are included in the Dartford Registration Sub-district, are situated, so far as their more populous parts are concerned, within the drainage area of the Darenth valley main sewer; but, in the absence of any local sewer-systems, very little use is made of this convenience. The privy and cesspool nuisances described as existing at Stone and Swanscombe are accordingly reproduced; and the numerous ditches and gutters found in the Darenth valley are all more or less polluted, and are often rendered extremely offensive, by cesspit and privy overflow. Moreover, there exists no provision for the removal of solid refuse, either in this or, except for some occasional arrangement by an owner of property, in other parts of the sanitary district; and accordingly heaps of filth often surround these rural cottages. As to the houses themselves, many of the older ones require to be protected from excessive dampness; and new cottages in several localities, Wilmington, South Darenth, Hextable, have been erected, or are still being erected, by speculative builders, in a manner to ensure constant trouble to the Sanitary Authority.

The water supply of these rural parishes in the Darenth valley is mainly from local sources, generally from wells, many of which must be subject to sewage contamination.

The Rural Sanitary Authority have made no further provision for the isolation of cases of infectious diseases, nor for the disinfection by heat of infected clothing, &c. The workhouse fever wards have been used on several occasions for the reception of infectious cases, and several times irregularly, the patients not being paupers. Lately, owing to the appearance of small-pox in different parishes, these wards have been fully occupied; and at Stone sufferers from this disease have, as the health officer reports, been retained in their own homes "waiting for a vacancy."

In my last report I found it necessary to state that the Authority had made no efficient provision for the carrying out of the requirements of the Public Health Act with regard to the abatement of ordinary nuisances, nor even for obtaining detailed information of the injurious conditions existing. For the whole of the Swanscombe and Farningham divisions of the district, comprising an area of some 35,000 acres, having a population of 20,000, almost entirely composed of the labouring class, a district

\* The Medical Officer of Health saw some reason to suspect that certain of these cases of supposed diphtheria were really cases of scarlatina, or scarlatina with the supervention of the diphtheritic process. His observations may be summarised as follows:—(a.) The first family attacked (Lee, in June) had removed from Horton Kirby, where scarlatina had been prevalent in May (they had lost a baby in convulsions just prior to removing). (b.) Five of some 37 cases presented a well marked red rash, and in four of these cases the skin afterwards desquamated. (c.) In two families the only persons who suffered from the prevalent disease were those who had previously escaped attacks of scarlatina. (d.) The sequelæ of diphtheria (muscular paralysis) were not distinctly observed. (I was not able myself to subject these observations to any sufficiently satisfactory examination; the histories, however, that I obtained seemed to me to show that most of the cases at least had been properly described as diphtheria.)

abounding in nuisances, there was only one Inspector of Nuisances appointed; and this officer, being also Collector of rates to the Guardians, was mainly engaged in other duties. There has been no change in the organization of the sanitary department since that time. The Inspector, so far as I can find, discovers very few nuisances. Such as are reported by the Medical Officers of Health are visited by him, but even then useful action rarely follows. Nuisances so reported are often left untouched, or for their abatement the most temporary and inefficient means are tolerated. The re-organization of the sanitary department, the provision of sewers for the more populous places, and the possession of byelaws regulating building operations, &c., are the prime necessities of the Swanscombe and Farningham divisions of the rural district.

JOHN SPEAR.

May 1884.

## APPENDIX.

### VITAL STATISTICS.

The deaths from all causes, and from the principal Zymotic diseases, in the Registration Sub-district of Dartford. (A continuation of the Table that appeared in the Report of the previous Inspection.)

[The public institutions in the district, comprising two lunatic asylums and certain charities, supply in the aggregate an undue proportion of deaths. In the subjoined table the deaths in such institutions are accordingly excluded, together with the number of their inhabitants from the estimates of population. The deaths in the workhouse are distributed, so far as information allows, according to the localities from which the deceased persons were removed.]

Year.	Births.		Deaths at all ages.		Deaths under 1 year.		Rate per 1,000 from seven Zymotic Diseases.	Deaths from Specified Causes.						
	Number.	Ratio per 1,000 of population.	Number.	Annual rate per 1,000 of population.	Number.	Rate per 1,000 Births registered.		1	2	3	4	5	6	7
1882 (Estimated population 20,700.)	768	37.1	334	16.2	80	104.2	2.2	2	11	3	7	5	9	8
1883	780	36.6	419	19.7	81	103.9	3.0	-	1	11*	28	10	2	11
1884 1st Quarter.	214	39.9	118	22.0	36	168.2	2.3	-	-	4	2	2	2	2
Mean annual rates of 12 years 1872-83		36.7		18.0		118.0	2.8							

\* Two of these deaths were certified as from "Acute Nephritis, Effusion." They occurred on successive days amongst the children of a family, another member of which died from Scarlatina thirteen days before.



