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Contributors

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ANNUAL REPORT

OF THE

Public Health

OF THE

NEWTON ABBOT

(RURAL) AND

Newton Abbot and Dawlish

(URBAN)

SANITARY DISTRICTS

FOR 1894

BY

W. HARVEY, F.R.C.S.

Medical Officer of Health.

NEWTON ABBOT :

DANIEL VILE, "ADVERTISER" OFFICES,

MARKET STREET.



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PLACES. 1894.	Birth-rate	Annual Death-rates per 1,000 of population.									Deaths under one year to every 1000 births
		Total Death-rate	From seven Zymotics	Small-pox	Measles	Whooping Cough	Scarlatina	Diphtheria	Continued Fevers	Diarrhoea	
England and Wales	29.6	†16.6	†1.76	.026	.38	.39	.16	.28	.16	.35	137
Newton, rural	22.8	15.3	.81	..	..	.44	..	.04	.20	.12	114
Newton, urban	27.2	16.1	1.99	..	..	1.77	..	..	.22	..	157
Dawlish	18.5	15.7 14.1*	.46	..	..	.46	..	..	..	..	162

† Lowest records. * Excluding visitors.

ANNUAL REPORT,

1894.

NEWTON ABBOT (RURAL).

VITAL STATISTICS.—The number of deaths registered in the above district during the year 1894, was 378, of which 187 were in males and 191 in females, equal to an annual rate of 15·32 per 1000 people. This figure is satisfactory, and in view of there having been only 6 deaths in the workhouse assignable to the rural parishes against an average of about 20, may be considered more favorable than it appears.

Under the age of one year there were 64 deaths ; between 1 and 5 years, 27 ; between 5 and 15 years, 12 ; between 15 and 25 years, 21 ; between 25 and 35 years, 22 ; between 35 and 45 years, 22 ; between 45 and 55 years, 30 ; between 55 and 65 years, 44 ; and over the latter age, 136.

The infantile death-rate, the deaths under one year of age to 1,000 births, was 114.

The diminished population shewn in the table is due to the parish of Cockington being made into a Local Board district, and so detached from the rural parishes.

The number of deaths in each quarter was consecutively 147, 83, 71 and 77. A "cold snap" in January was very destructive, but the fourth or winter quarter never shewed a lower number of deaths.

The births of 284 boys and 279 girls give the very small rate of 22·8 per 1,000, against 24·4 in the previous years. As the latter was the lowest ever recorded, the startling nature of the decrease is evident. Every year the birth-rate is diminishing, and clearly the younger people are still freely migrating into the towns (note table on page 3). The natural increase of population was 179, allowing for the deaths in workhouse also.

Most of the figures for 1894 may be looked on as average ones, notwithstanding the loss of Cockington, which is a new town with a singularly low death-rate. The increased infantile rate is associated with and partly due to fewer births; the presence of whooping cough tended in the same direction. The deaths from consumption seem to be gradually declining, and it is gratifying to record that there were only 6 fatalities attributed to other forms of tubercle. The significance of this point may, from the standpoint of public health, be considered of great importance.

Death-rate, &c., in each parish.

PARISHES.	Ordinary Zymotics.						Influenza	Consumption	Other Tubercular Diseases	Apoplexy	Cancer	Inanition	Total Death-rate per 1000.
	Whooping Cough	Diarrhoea	Diphtheria	Continued Fever.	Scarlatina	Measles							
Ashburton	...	2	...	...	...	...	...	5	1	2	2	...	17.0
Abbotskerswell ...	...	...	...	...	...	...	...	...	...	...	...	...	2.3
Bickington	...	...	...	...	...	...	...	...	...	...	...	...	4.4
Bishopsteignton ...	...	...	...	...	...	...	1	3	...	2	1	...	16.6
Bovey Tracey	...	...	...	...	...	...	1	3	...	3	3	...	14.3
Buckland	...	...	...	...	...	...	...	...	...	...	...	...	14.1
Broadhempstone ...	...	...	...	...	...	...	1	1	...	...	2	...	11.4
Coffinswell	...	...	...	...	...	...	...	1	...	...	...	...	5.0
Coombe, Haecombe ...	...	...	...	...	...	...	...	1	...	...	...	...	7.3
Chudleigh	1	...	...	...	...	...	1	...	1	3	2	2	12.0
Denbury, Torbrian ...	1	...	...	...	...	...	4	...	...	2	...	...	29.0
Dawlish	1	...	...	...	...	...	...	1	...	1	1	...	14.0
The Ogwells	1	...	...	...	...	...	1	1	...	...	...	...	16.1
Highweek	5	...	...	...	...	...	1	2	2	1	2	2	13.5
Hennock	...	...	...	...	...	...	1	3	...	...	1	...	17.5
Ipplepen	...	...	...	...	...	...	1	2	...	2	...	...	20.6
Ilington	...	...	...	...	...	...	...	1	1	1	2	...	17.0
Ideford	...	...	...	...	...	...	1	...	...	1	...	1	31.5
Kingskerswell	...	...	...	...	...	...	1	...	...	1	...	...	15.5
Kingsteignton	...	...	...	4	...	...	...	4	1	...	1	2	17.1
Lustleigh	...	...	...	1	...	...	...	...	...	1	...	...	9.9
Moreton	2	...	...	...	...	...	...	...	...	1	1	3	9.1
Manaton	1	...	...	...	...	...	...	...	...	1	...	...	12.2
Stoke	...	...	1	...	...	...	...	1	...	...	1	...	17.6
Trusham	...	...	...	...	...	...	...	...	...	...	...	...	24.8
Teigngrace	...	...	...	...	...	...	...	...	...	...	...	...	5.9
Woodland	...	...	...	...	...	...	...	...	...	...	...	...	nil
North Bovey	...	...	...	...	...	...	...	...	...	...	2	1	9.6
Widdicombe	...	...	...	...	...	...	1	...	...	...	...	...	8.1
	12	2	1	5	—	—	15	29	6	22	21	11	...

Violent deaths are not included above, and the rural part of St. Marychurch is omitted.

Table of Deaths occurring during the Year 1894, in the several Districts of the Newton Abbot Rural Sanitary Authority, classified according to Diseases and Ages, and shewing the Death-rate, Birth-rate, and Population of each District.

DISTRICTS.	BIRTHS.		DEATHS.						MORTALITY FROM SUBJOINED CAUSES.													
	Registered.	Birth-rate per 1,000 annually.	At all Ages.	Death-rate per 1,000 annually.	Under 1 year.	1 and under 5.	60 and upwards.	Under 1 Year to every 1000 births	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Continued Fevers.			Diarrhoea.	Phthisis.	Bronchitis Pneumonia. Pleurisy.	Heart Diseases.	Injuries.	Other Diseases.
														Typhus.	Typhoid.	Other or Doubtful.						
Newton (Rural)	178	24.8	115	16.0	19	11	45	107	..	..	..	..	7	..	4	..	..	9	22	15	5	53
Chudleigh	124	18.5	106	15.8	19	5	48	153	..	..	..	..	1	..	..	..	..	10	24	7	4	60
Ashburton	122	22.1	82	14.9	13	6	38	107	..	..	..	..	..	..	..	..	..	2	17	14	3	39
Moretonhampstead	68	25.3	30	11.1	6	1	13	88	..	..	..	..	2	..	1	..	..	..	4	1	3	19
Sea-border	71	27.3	45	17.3	7	4	15	99	..	..	..	1	1	..	..	..	1	2	8	7	2	23
TOTAL, 1894.....	563	22.8	378	15.3	64	27	159	114	..	..	..	1	11	..	5	..	3	28	75	44	17	194
" 1893.....	652	24.4	391	14.7	70	32	177	107	..	..	2	3	7	..	2	..	4	37	61	40	13	222
" 1892.....	678	25.6	418	15.8	57	29	207	84	..	1	..	..	2	..	..	..	6	19	88	36	21	245
" 1891.....	665	25.2	403	15.3	71	37	193	107	..	12	3	..	11	..	..	..	3	36	57	18	14	247
" 1890.....	672	26.0	443	17.2	98	52	174	146	..	..	..	3	17	..	2	1	2	31	83	48	18	238
" 1889.....	686	26.6	597	15.4	66	60	157	98	..	19	1	..	7	..	2	1	2	35	65	36	6	223

The other chief causes of mortality besides those given in larger table were zymotic, septic and parasitic diseases, 19, of which 15 were due to influenza; constitutional diseases, excluding tubercle, 34, of which 21 were caused by cancer; the developmental group, 30, including 22 from old age and 5 from premature birth; diseases of the nervous system, 43, including 22 from apoplexy and 6 from infantile convulsions; of the digestive organs, 24; of the renal, 10. Four were caused by the accidents of pregnancy and childbirth, 17 by violence and 14 by ill-defined types of illness, chiefly the inanition of infants.

The chief meteorological characteristic of the year was the great flood of November, coming, apparently in harmony with the law of tendency to the average, as a counterpoise to the droughts of 1893. These floods may have an important effect in a sanitary sense, as will be remarked in speaking of typhoid fever at Kingsteignton..

ZYMOTIC DISEASES.—From the seven ordinary diseases of this type there were 20 deaths, viz., whooping cough, 11; typhoid fever, 5; diphtheria, 1; and diarrhœa, 3. Besides these there was one death each from erysipelas, septicæmia and puerperal fever; also as before said 15 from influenza. The last named was most fatal in the locality of Denbury and accounts largely for the high death rate in that parish.

MEASLES.—A stray case at Stoke is the only one noted.

WHOOPING COUGH.—Of the 11 deaths from this disease, five were in Highweek during the first quarter; as an epidemic of it prevailed at that time in the town of Newton, Highweek of course could not escape. Stray deaths from it were recorded in such widely separated parishes as Manaton, Chudleigh, Dawlish and Moreton.

DIPHTHERIA—Altho' a death appears from this, yet only one case and that merely a "suspicious throat" has come under my notice, in a locality which has previously exhibited some similar tendency, viz. at Littlejoyn, in the valley of the river Lemon. The fatal case was at Stoke and occurred in the previous year, but was registered early in January; a large family of brethren remained free from the disease.

SCARLATINA.—As in the previous year this has considerably prevailed. In Kingsteignton, Stoke, and Kingskerswell it became epidemic, the cases ranging downwards from moderate to almost nothing, at all events to nothing thus far, that many mothers declined to admit that their children had the disease, altho' it frequently happened that the occurrence of a more pronounced form in another child convinced them of their error later on. It is impossible to give any estimate of the actual number of cases, but I am disposed to think they were not so numerous as in 1893. Although no fatality is assigned to it during the year, and although the instances of ruptured tympanum and discharge from the ears have been very few, yet it does more damage than is accredited to it; thus, in December a child died at Stoke from acute Bright's disease, and another is now ill with the same. These are cases of neglected mild

scarlatina. It cannot be too strongly impressed on mothers' minds that it is of the utmost importance that children who have had scarlatina, especially the milder cases, should wear flannel next the skin during the whole of the winter following the attack. So mild has been the disease, and so much importance do I attach to this point of protecting the kidneys by warm underclothing, that I have looked on it as almost the chief function of my visit to warn mothers on the point. I am not in the habit of closing schools for scarlatina for more than a week, the incubation being short and this period being long enough to enable those who are infected to declare the disease, and thus to be excluded.

DIARRHOEA.—No special outbreaks of this have been observed. Two of the deaths were in Ashburton and one in Dawlish; two were in infants and one in an aged person.

TYPHOID FEVER.—This has been the really serious disease of the year and two decided outbreaks have occurred. One was at Lustleigh in June. A servant girl returned ill to her home in this village from a town a few miles off. The house was a detached one in a large garden, and the latter was traversed in its long axis by a little mountain stream that emerged at a spout or chute in the road below opposite a row of cottages, the occupants of which drank from it. This small rill in its course ran through the courtyard, through a wire-fenced poultry enclosure, and passed the house so closely that it was liable to pollution from domestic waste water. That the water was specifically impurified was clear from these facts, that clothes from the patient were washed on the premises, that the people in the row of cottages below complained of its having an odour of carbolic acid, and that they, the younger ones especially, suffered from the disease. No others suffered except a school-boy who drank frequently at the chute on his way to his home a mile off. Besides this one, there were 14 cases and the houses involved were the original one mentioned, that next door and the cottages below: although mostly of a severe type, only one ended fatally, an aged labourer who had little chance of recovery. An outbreak of diarrhoea, almost of choleraic intensity, had occurred in these cottages a few years before, and had its origin likewise in the same water. Nothing, however, was done then, and even the effectual remedy that has now been applied met with a good deal of captious opposition locally. "Why should the parish be saddled with the cost? Why should not the owners of the cottages provide a supply? Why should not the owner of the premises through which the stream ran be prosecuted when it was impurified?" All excuses for doing nothing. The simple fact was this: this stream was a public water supply to a part of the village and it devolved on the Authority to protect it; happily the latter took this view and insisted on the prompt adoption of the very obvious and easy remedy of laying a pipe from above the house. There will be no more epidemics from this cause.

The second outbreak was more serious and happened in that fever-haunted place, Kingsteignton. The last year or two our earliest cases have been in the month of August. This year the first to which my attention was drawn was at the beginning of April and the disease lingered on until the tremendous floods of November stopped it, presumably by flushing the sewers effectually. There were a few cases also in neighbouring parishes, some of which were clearly of Kingsteignton origin. Altogether there were about 30 cases and although only four fatalities were directly and primarily certified as due to it, this does not represent all in which it was assigned as the secondary cause of death. The sources to which I attribute the annual outbreaks of fever here are these: 1st, the village contains fully 500 people, has systems of sewers much too capacious, mostly of slight

fall, and receiving only carried water. Hence they are never flushed unless by an exceptional storm, and become clogged with sewage. Carried water is a mere trifle to the amount that would daily enter the drains if there was a public supply. Besides, it is a long scattered village, and there are lengths of sewer, 20 yards here and 50 or more yards there, without houses and receiving nothing. Here then are the conditions that produce the disease, very long, very flat and very capacious sewers receiving little water. About four years ago, during the downpour of a thunderstorm, the main sewer burst, obviously from the resistance of a dense plug of ancient sewage, and the following year in consequence was unusually healthy. 2nd—There is another serious cause at work, viz., that the drains are trapped off from the houses by the feeblest of interceptors. The D traps in use are rarely fitted accurately into the ends of the 6-inch pipes and leak sewer gas. 3rd—Another serious evil is that some of the houses are enlarged by the erection of a wooden shanty against the back wall, thus enclosing the out-door sink and hand-flushed closet, and bringing them more or less into the interior of the premises. One poor man, who lost his life, carried on his trade in such a place. 4th—The sewers are unventilated and the pressure of gas at their extremities is great. 5th—The vast spring, Fairwater, was allowed to become a large bog of rotting weeds, causing the organic ammonia to run up considerably, but to this I only assign a very insignificant part in the production of the disease, for the water was quite fit to drink even at its worst. 6th—A more potent accessory cause probably was the soil saturation with filth in the vicinity of the houses, caused by slops being thrown anywhere, and by numerous masses of poultry. But the chief cause I doubt not is the accumulated filth in the unflushed sewers. A few months ago we had at Treacle hill, the steepest place in the village, to open an old sewer partly of stone and partly of land drain pipes; it was completely blocked in its whole length with a solid mass of antique black filth. That this, the greatest outbreak there, followed the mildest of springs and a summer in which there were droughts of 70 and 30 days' duration, strongly points to sewer accumulations as the source of the disease. This year, however, there was a flood in November that has not been equalled for about 40 years, which may have had the effect of sweeping away deposits: if so there will be some degree of immunity from typhoid in 1895, and if this happen, I fear the unfortunate result will be another submergence of the question of a water supply.

Stray cases of typhoid have occurred in Mill Lane, Highweek, in Teigngrace, at Bishopsteignton, Middlewood and Kingskerswell. That at the last place is worthy of a brief reference. It was in the building known as the Manor house (where there was also a case in 1893) which drained into an adjoining field. Some cultivator of this field had in the past coolly covered the drain outlet so completely that there was difficulty in finding it and the pipe was entirely blocked right back to the dwelling. This affords a small but very complete illustration of what I believe exists at Kingsteignton on a larger scale, and of the effect likely to result. I assign the general excess of typhoid this year, especially in the low country, to the exceptionally dry season of 1893, and am disposed to think that the disease shewed more infectivity than formerly.

KINGSTEIGNTON WATER SUPPLY.—A few words on the present state of this still burning question, the most important perhaps that ever agitated the now defunct Rural Sanitary Authority, may not be superfluous, and it is satisfactory to be told that the late alarming outburst of disease has convinced all, even those hitherto opposed to action, that "Something must be done." There is abundant water in the village, as the vast and celebrated spring Fairwater, yielding 2 or 3 millions gallons

a day, arises from the limestone quite near it. This is called the natural supply of Kingsteignton, but not with full justice, for it is defective in one natural qualification, viz.—elevation. The spring called Honeywell is actually in the village and yields not less than 66,000 gallons of excellent water daily. This has the same defect as the other and the water requires lifting. There being no gas in the village, a gas engine is not available. To deal with the millers either for lifting power or for the water itself is impossible; their behaviour to the Authority in its exacting character seems little else than contemptuous; that they are quite impracticable and that it is waste of time dealing with them, years of experience have fully shewn. The outside supplies from the Holywell of Ugbrooke Park and from the Lindridge valley have all the disadvantages of dealing with settled property. To get water from Newton (the Torquay water), only a mile off, is impracticable owing to circumstances too long to enter into here. Hence all schemes present difficulties, each has its own supporters, all have many opponents, and the amount of opposition adduced to any one of them being too much for the Authority to withstand. A committee of local gentlemen recently appointed to help and elucidate matters did rather less than nothing, resulting only in a little talk and more delay. Some say Fairwater is not good enough; some that the Honeywell spring (near the churchyard) emerges from the graves; the Ugbrooke Park scheme is too costly and too distant, &c. When I suggested the putting of a penstock into Fairwater for cleaning purposes, it was locally opposed by many and called an ill-advised step on the brilliant plea that they were going to have water from somewhere at once and it was therefore throwing money away. In fact, it was the old story almost on all sides, don't act. Explorations for water are now being made in the Whiteaway valley, but this too is settled property and I have no hope that the attempt will be more successful than its predecessors.

Here I will make a practical and cheap, but by no means perfect suggestion—on the assumption that the Holywell be not obtained. Take water from the small waste stream which runs alongside the upper mill leat of Fairwater, or failing this, from the same place as the Pottery is now supplied. This belongs to Lord Clifford who is desirous of helping us and will obviate the necessity of dealing with the millers. That there are ducks in the stream is the childish objection to this: nothing can be easier than their exclusion, as there are only 200 yards or so of water to be guarded and on one bank only. The effect of this scheme would be that the low levels could be supplied at once and the lower sewers at all events flushed. If any other scheme supersede it in the future the pipes will be there, all in the village and all available; so it would not be money lost. Whatever be the demerits of this proposition, it is action, not criticism, suggestive of deeds rather than words, and the money could not as just shewn be otherwise than safely expended. The higher levels might be supplied from the Tor Hill Spring which runs never less than 5,000 or 6,000 gallons a day and is only a mile off. Seeking and waiting for a perfect scheme, which does not exist, instead of selecting the best available, is another way of letting the evil alone and inviting the recurrence of the annual pest that now never fails to visit this small town.

Record of Water Analyses.

No	Source.	Date.	Grains per Gall.		Parts per 1,000,000			Oxygen taken.	REMARKS.
			Total Solids	Chlorine.	Free Ammonia.	Original Ammonia.	Nitrogen from Acids.		
1	Holywell Spring, Ugbrooke Park.	Jan. 2	30	1.12	.00	.00	.04	almost none	From limestone rock: very good.
2	Hennock water.	Jan 26	9	1.2	.00	.02	...	moderate	Very good; faint yellow colour.
3	Coombe-fish-acre.	Feb 25	43	4.6	.015	.02	...	decided	Inferior; slight milky and yellow.
4	Clampitt's well, Ipplepen.	Mar 7	...	1.24	.02	.03	...	moderate	Good.
5	Same as No. 3.	Mar 8	...	4.5	.02	.02	...	moderate	A little better.
6	Mr. A. Ellis's well, Bovey.	Mar 22	38	7.8	.03	.05	...	large	Suspicious.
7	Hillside well, Kingskers-well.	April 5	46	2.36	.02	.03	...	very large	Physically unfit for use.
8	Same as No. 4.	April 14	25	...	.02	.02	...	decreased	Good.
9	Wesley Villa well, Ipplepen.	April 14	45	6.5	.03	.03	...	small	Potable.
10	Hill's well, Broad-hempstone.	April 30	large	2.3	.02	.03	...	small	Good.
11	Home Park cottages, Gestridge.	June 22	29	2.01	.00	.16	...	small	very Suspicious.
12	Honeywell, Kingsteignton	July 12	26	1.7	.00	.03	1.9	very little	Good.
13	Venton Shute, Widdicombe.	July 18	4	.7	.00	.16	...	much & quickly	Contained large brown flocculent peaty masses; otherwise good.

Continued on next page.

RECORDS OF WATER ANALYSES (CONTINUED).

14	School well Lustleigh.	July 30	12	2.5	.0	.1	...	moderate	Fair ; yellowish tinge.
15	Hazlewood well, Hennock.	Aug. 4	8	1.4	.0	.02	...	do.	Good.
16	Well at Burnt Cottage, Gappah.	Aug. 7	16	2.1	.03	.11	...	decided	Potable.
17	Well at Singmore.	Sept. 10	11	1.6	.0	.13	...	do.	Yellowish color water, shallow well, associated with typhoid ; surroundings bad ; suspicious.
18	Partridge's well, Highweek.	Sept. 21	...	4.1	.01	.08	...	large	Indifferent.
19	Ellicott's well Penninn.	Oct. 12	30	2.7	.00	.08	...	small	Fair ; dairy.
20	Abrook well, Kingsteignton	Oct. 25	35	3.45	.00	.04	...	moderate	Fair.
21	Bailey's Teigngrace.	Oct. 26	30	2.1	.0	.10	...	very large	Somewhat sus- picious, a typhoid case in the house.
22	Manor House well, King- skerswell.	Oct. 27	28	1.75	.00	.00	...	small	Good.
23	School spring, Teigngrace.	Dec. 10	17	1.1	.01	.10	...	rather large	Somewhat suspicious.

SANITARY WORK.—Nothing very important has been done during the year under observation. The proposal to re sewer Moretonhampstead has fallen through in consequence of a disagreement with the landowner on the subject of the outlet: the sewers will therefore be renewed by degrees. A large number of houses in the town have already been supplied with the new water. Torbrian water supply works have been completed. At Lustleigh, the polluted stream has been conducted into and led off by a large pipe so that no one on the road can drink it, and in order to maintain the public supply at this spot, an inch pipe has been laid from Mr. Easton's upper garden to the site of the old wayside chute. We are indebted to Mr. Easton for his permission to do this useful work. In Denbury 416 feet of new sewer, with four vent shafts ;

in Bradley lane, Highweek, 1,450 feet, with a flushing valve and 3 inspection holes ; in Bovey, 600 feet ; in Chudleigh, 200 feet ; in Ashburton, 100 feet have been laid.

Mr. S. Segar and Mr. J. W. Riggs, inspectors, report the following details of work in their department. House to house inspections have been made in Kingsteignton twice, also in Kingskerswell, Ashburton, Bovey, Bishopsteignton, Stoke and Chudleigh, and of 120 formal notices served, 100 have been complied with. Pigs removed, 25 cases ; Manure removed and yards cleaned, 15 ; ventilating traps fixed 4 ; cesspools abolished 2 ; 1 house made habitable and 1 closed as unfit ; 40 privies replaced by 6 earth closets and 34 w.cs. ; yards repaved 9 ; gullies replaced defective traps, 12 ; 3 stone drains replaced with socket pipes. Twenty slaughter houses have been often inspected, of which one was repaved and 2 had the walls cemented. Dairies inspected 173, of which 143 were not yet registered, and action was required in 27 cases ; in 3 cases registration was refused, the premises not being fit for the purpose.



Newton Abbot (Urban).

During 1894, there were registered in this urban district 147 deaths, 75 in males and 72 in females, giving an annual death-rate of 16.15 per 1000 of population. During the four quarters of the year the deaths were consecutively 71, 31, 26 and 19 in number ; thus nearly one half were in the first 3 months. Other causes of fatality besides those given in the table were constitutional diseases (excluding tubercle) 6 deaths; diseases of the nervous system, 13, of which 9 were assigned to apoplexy and 2 to infantile convulsions ; diseases of the digestive organs, 11 ; of the urinary, 2 ; of the generative, including childbirth, 3. Eight, all but one in infants, were attributed to indefinite causes, 4 to premature birth and 11 to old age.

In calculating the ratios, the population has been estimated at 9,100. Inasmuch as the census of 1891 gave the town over 8,500, and that during the last two or three years 170 houses have been built, and practically all occupied, in the locality known as Bowden Hill, it seems this is rather a low figure. Moreover, a considerable number of dwellings have been erected in other quarters of the district. It is probable therefore that the rates given are rather higher than they should be.

Under the age of one year, there were 39 deaths ; between 1 and 5 years, 12 ; between 5 and 15 years, 5 ; between 15 and 25 years, 9 ; between 25 and 65 years, 43 ; and over the latter age, 39.

The births of 126 male and 122 female children give an increased annual rate of 27.25. The birth-rate of the town has steadily grown of late years and almost precisely in the same proportion as that of the Rural district has declined. This is an interesting subject, and a reference to the tables for each locality will shew the successive increases in the one case and decreases in the other. The inference to be drawn is clearly that the rural parishes are still losing their young adults, who flock into the towns for the sake of getting an easier living. It would also seem to imply that in Newton Abbot labour is in active demand, for new houses are occupied almost before they are completed, and so far indicates a

flourishing town. The opening of the new pottery on the Kingsteignton road, and the enlargement of the railway works would in a great degree account for this ; but nevertheless it is of serious national import, and the physical deterioration of the British people may be involved in the rural depopulation that seems to be so continuous. Will modern sanitation form an effective counterpoise ? The natural increase of population, the excess of births over deaths, allowing for those in the Workhouse, was 90.

In the Workhouse, situate in Newton Abbot, there were 31 deaths, 22 males and 9 females, against 60 in the previous year. These had the following distribution amongst the sanitary district comprised in the union ; Torquay, 11 ; Newton Abbot, 11 ; Teignmouth, 2 ; St. Marychurch, 1 ; Dawlish, 0 ; and the rural parishes, 6 only.

ZYMOTIC DISEASES.—Eighteen deaths were caused by the ordinary diseases of this class, giving the high annual rate from these alone of 1.98. Analysis of the returns, however, shews that this is not quite so bad as it appears, for 16 fatalities, all in the first quarter, were due to an epidemic of whooping cough, a disease that can scarcely be considered in any direct sense under sanitary influence, although the situation of the bulk of the town on the clay soil and amidst the mists of the delta probably adds to its destructiveness ; the remaining 2 deaths were from typhoid fever, and one of these, being brought to his home in the town on account of it, is not properly to be accredited thereto.

Influenza has considerably increased during the year, as eight deaths all in the first quarter are assigned to it against one only in the preceding year, which, however, had a remarkably mild spring, and the difference may so be partially explained.

Typhoid fever of a mild type has been more rife in the town during 1894 than in any year within my own experience, and I can only attribute it to the same cause in a minor degree as mentioned in the rural part of this report in reference to the adjacent village of Kingsteignton, viz., to the exceeding flatness of the chief sewers in association with a warm spring and prolonged summer droughts. It began earlier in the year than usual and chiefly in the upper part of the town, a locality which in the past has shewn the fewest cases ; this at the time I was disposed to think arose from the taking up of the old sewer in Wolborough Street, an extensive work extending over several weeks : at all events the first group of cases in May and June were in that quarter, or the sufferers had been there a good deal. Certainly we have never had so many cases in Wolborough Street before, and this seems an adequate cause. There were altogether, omitting those treated in the Cottage Hospital, which were not referable to the town, 24 cases. One if not two of these occurred on Wolborough hill, a suburb which has hitherto been free from the disease. In the block of buildings between the Commercial Hotel and the Courtenay Arms we are accustomed to get a case or two almost every year, and I

cannot help thinking there is some defect in the sewerage there that permits lodgment fresh sewage rapidly passing through well-jointed pipes would not produce the disease. Besides, the opposite side of the street and Victoria Place at the back of it, are free; and, moreover, it is to be noted that the pest has almost ceased in the locality of Quay Road since the abolition of some old choked drains at Mr. Frampton's. There was a case also at Albion Hill, next door to the house that was so badly infected in 1893 by the young man from Brixham, suggesting local infection of drains; and a similar line of thought also with reference to the first row

	1894	1893	1892	1891	1890	1889	1888	1887
Smallpox	...	...	...	...	...	...	...	...
Measles	...	...	1	13	1	...	...	5
Scarlatina	...	...	1	1	...	1	...	1
Whooping Cough ..	16	2	1	...	13	...	4	2
Diphtheria	...	3	...	4	1	...	...	...
Continued Fevers ...	2	1	1	...	1	3	...	...
Diarrhoea	...	5	2	...	...	2	1	1
Deaths from 7 chief Zymotics	18	12	6	17	16	6	5	9
Phthisis	12	13	7	4	8	12	18	12
Others Tubercular ...	4	3	1	3	5	9	3	...
Bronchitis, Pneumonia, &c. ...	27	26	23	25	24	18	19	23
Heart Disease... ..	9	10	14	26	16	14	7	7
Violence	1	4	3	4	2	1	2	3
Other Diseases	76	71	79	65	72	75	60	85
TOTAL FOR EACH YEAR. ...	147	139	133	144	143	135	114	139
General Death-rate per 1,000 ..	16.1	15.9	15.3	16.7	16.2	15.5	13.4	16.7
Zymotic Death-rate	2.0	1.4	.7	2.0	1.8	.7	.6	1.1
Birth-rate	27.2	26.9	26.0	25.2	24.3	23.3	23.6	20.6
Deaths under 1 yr to 1000 births	157	147	116	121	136	90	90	191

of houses at the railway station crosses my mind. Experience more and more tends to the conviction that recurring cases of typhoid, even at considerable intervals, in one block of houses will ultimately be found associated with some underlying defect of drainage. It is difficult, however, to induce people to undertake explorations that may be expensive and perhaps futile, on data they deem weak.

In January there was a mild case of diphtheria in a house in Queen Street succeeding one of the previous year, and in July there was another in an ancient villa in Wolborough Street which evidently had beneath its floor an old rat-infested stone sewer.

Scarlatina has been present in a small degree during the whole year, but scarcely at any time amounted to an epidemic, although one school had so much more of the disease than its fellows, that I desired it to be closed for the holidays a week earlier and opened a week later than usual, so that there might be full time to throw off the infection. No cases that came under my notice could be called severe or dangerous ones; and no special remarks are called for on this subject.

Several cases of erysipelas have been notified during the year, and a death appears from this cause: in the union house too there were a few notified, and one of these ended fatally; in the isolation ward of this institution it shewed some tendency to spread.

The question of the erection of an isolation hospital has thus far ripened, that the Newton Rural District Council has consented to join its nearest parishes to the urban district for united action in the matter, and both have applied to the County Council to hold an inquiry locally, and to arrange the partnership on an equitable basis.

The pigs in the town, after years of warfare, have been almost abolished, but the poultry nuisance is as bad, indeed I think worse; for small courtyards, scarcely exceeding the minimum area of 150 square feet, are often literally crammed with wire enclosures containing these dirty birds, converting the whole of the open space into a small lake of black mud, which poisons the subsoil and pollutes the air that the children have to breathe for some hours daily. Pigs after all were relatively few and could only be kept at a certain distance from dwellings, but poultry are near, and in some streets swarm in almost every curtilage.

The following is an abstract from the report of Mr. L. Stevens, Surveyor and Inspector of Nuisances.

Several important improvements in sewerage have been effected. The whole length of the old shallow stone sewer in Wolborough Street has been taken up, and a pipe one laid from the head of Courtenay Street to Mackrell's Alms-houses. Its diameter varied from 18 to 10 inches, with an inclusive length of 1,435 feet and its gradient is uniform: it has one 7-inch shaft and several inspection chambers. The lower level at which this sewer has been constructed will enable the houses on each side to drain better, thus obviating a recurrent nuisance which the old one gave rise to: at the entrance to No. 5 Court it is no less than $3\frac{1}{2}$ feet deeper. Whilst this work was being done, improvements were introduced into No. 10 Court,

the drainage of which was entirely renewed and modern closets put in. The ancient brick culvert of this court was found to be badly silted up. The same applies to Oak Place, and here in addition the courtyards have been paved with brick : 220 feet of pipes from 10 to 6 inches calibre were used in this work. Somewhat similar work has been done in Bearne's Lane and in Devon Square ; in the latter 400 feet of pipe were used. The main sewers have been dredged and vast quantities of deposit removed. The smoke test was used for 20 different premises ; in half the cases defects so serious were manifested that the drains were relaid, and in several others minor defects were remedied. The closets and drains of the courts and chief parts of the town have been disinfected on three different occasions. Twenty-five notices of abatement of nuisance have been served, all associated with the keeping of animals or with foul privies.



occupied was an ordinary room, the window was open, and the room was well ventilated. The water, but connected with the drainage system, was not tested, however, very satisfactory. No diphtheria was notified, although it is very prevalent in the district, although it is very prevalent in the district, although it is very prevalent in the district.

DAWLISH.

The number of deaths registered in this urban district during 1894 was 68, of which 31 were in males and 37 in females, equal to a yearly rate of 15.75 per 1,000; excluding 7 visitors this sinks to 14.1. These are the lowest figures since the year 1879: if, however, the violent deaths be omitted, which alone give a rate of nearly 1.0 per 1,000, the year under review has a lower mortality. The return is even better than it seems, as there was no death in the Workhouse referable to Dawlish. In the four quarters of the year, the deaths were successively 22, 22, 13, and 11 in number.

Under the age of one year, there were 13 deaths; between 1 and 5 years, 1; between 5 and 15 years, 3; between 15 and 25 years, 7; between 25 and 65 years, 13; and over the latter age, 31: the first and the last figures are both high.

The other chief causes of fatality, besides those given in the table, were constitutional diseases, other than tubercle, 5 deaths, all but one being from cancer; diseases of the nervous system, 9 deaths, of which 6 were due to apoplexy; diseases of the heart and blood vessels, 11; of the respiratory organs, 13; of the digestive, 3; of the urinary organs and those of special sense, 1 each. Four were assigned to ill-defined causes, a like number to accident, and three to old age. The births of 41 male and 39 female children give the low annual rate of 18.5 per 1,000. This is the lowest yet recorded, but this may be partially explained by its being a fluctuation from 1893, the highest for many years. The natural increase of population was only 12, indeed but for the small number of deaths it might have been a minus quantity.

ZYMOTIC DISEASE.—On the subject of Zymotic diseases there is little to be said, two deaths from whooping cough in infants during the month of January being the sole fatality from this group; these, however, give a death-rate of nearly .5 per 1,000. A death from influenza was certified in June. A few cases of scarlatina have been notified, one in a young adult in Hatcher street in January, four in a visitor's family in July, and three in a resident's family in December. One case of typhoid fever came under notice; this young man slept in a sort of outbuilding, and in the wall of the room he

occupied was an ordinary socket pipe visible. This took only roof water, but connected with the drains ; it withstood the smoke test, however, very satisfactorily. No diphtheria was notified, although two cases were mentioned to me by medical men as suspicious ; in neither, however, did it spread, although

	1894	1893	1892	1891	1890	1889	1888	1887
Smallpox	...	...	...	...	...	...	...	...
Measles	...	...	1	...	3	...	...	...
Scarlatina	...	...	...	...	...	...	1	1
Whooping Cough ...	2	...	...	...	3	6	2	..
Diphtheria	...	1	1	...	2	...	...	...
Continued Fevers ...	...	...	...	...	1	2	...	...
Diarrhoea	...	1	1	...	...	...	...	...
<i>Deaths from 7 chief Zymotics</i> }	2	1	3	0	9	8	3	1
Phthisis	5	7	6	8	4	9	8	8
Others Tubercular ...	6	2	...	2	5	6	2	...
Bronchitis, Pneumonia, &c....	10	19	12	8	5	4	12	11
Heart Disease	4	12	7	12	14	8	8	4
Violence	4	5	5	2	4	2	...	2
Other Diseases	37	35	40	39	41	38	41	57
TOTAL FOR EACH YEAR	68	81	73	71	82	75	74	83
General Death-rate per 1,000	15.7	18.9	17.2	16.8	18.7	17.3	17.2	19.5
Ditto (excluding visitors) ...	14.1	17.0	13.2	14.1	14.2	14.5	15.8	17.4
Zymotic death-rate	.5	.2	.7	.0	2.0	1.8	.7	.2
Birth Rate	18.5	26.6	24.7	23.1	23.7	21.3	25.9	22.8
Deaths under 1 yr to 1000 births	162	96	94	51	106	163	81	144

there was full opportunity, indeed in one instance a childrens' party was held to amuse the convalescent.

There has been one prosecution during the year, a butcher who already had a slaughter-house in the vicinity of the town, having without permission established one in a thickly populated locality: he was fined £1 and ordered not to use the place again. The poultry nuisance in some parts of the town is very rife and will have in the future to be dealt with effectually. They should not be allowed in courtyards that are common to several houses. People who keep them on premises wholly their own, although no doubt they injure the constitutions of their children in so doing, can hardly be effectually dealt with in the present state of public opinion, but where an open space belongs to more than one house, they should, I think, be put down; for it is no uncommon thing to find in these cases that a minority of residents quarter their fowls and ducks on kindly neighbours, who do not like to complain.

Mr. J. S. Delbridge, surveyor, and inspector of nuisances, reports the following details in his department :—

430 yards of 9 inch socket pipe sewer have been laid in Beach Street, Brookdale Terrace, and in the grounds of the Manor House. The town refuse is still supplied to farmers as it is taken from the streets and the system works well. The submarine outfall sewer through the action of a storm partly silted up: it is now working successfully, although a good deal of trouble was encountered in clearing it.

The use of the smoke test has led to improvement in the drainage system of four houses.



