

Observations on the climate and sanitary condition of Taunton and its neighbourhood, and on the health of towns / by J.H. Peebles.

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OBSERVATIONS
ON THE
CLIMATE AND SANITARY CONDITION
OF
TAUNTON
AND ITS NEIGHBOURHOOD,
AND ON
THE HEALTH OF TOWNS.

By J. H. PEEBLES, M. D.

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OBSERVATIONS, &c.

IN drawing up the following observations, I have to regret, that, from the want of meteorological statistics, which I find have never been kept in that part of the country, I have not been able to give fuller information on the nature of the climate. My own observations are even less complete than they should have been, from the uncertainty of my residence, and other circumstances. These have only extended over a period of three years; but I still hope that some useful information is communicated on the subject.

I have given the mean temperature for three winter seasons, for Bristol, Taunton, and Torquay, with the highest and lowest degrees, and the respective ranges of the register thermometer for those places. These have been deduced from the register at the institution in Bristol, from that kept by myself in Taunton, and from tables published periodically at Torquay. I have also added some meteorological observations made by me at Taunton for the above period, and have availed myself of the work by Savage on the History of Taunton for information on the geography of that part of the country.

The statistics on the sanitary state of Taunton and its vicinity are taken chiefly from the records of mortality in the Registrar's office there, which I have examined with care. These include, besides the borough of Taunton, the adjoining union districts of Blagdon, Bishop's-Lydeard, and North-Curry. The nature of the diseases from which the mortality has arisen, must rest on the accuracy of the medical certificates in the respective registers; but these I have every reason to believe are correct.

CHELTENHAM, *10th August* 1848.

The borough of Taunton is situated on the River Tone, whence it derives its name. It is a principal town in Somersetshire. It stands in the vale of Taunton-Deane, an extensive fertile district of country, consisting of larger and smaller hills and meadows. The soil is principally a rich loam. In some parts it is clayey, especially the sub-soil, as parts of Bradford, Buckland, the north side of Wellington, part of Stamford-hill, Farrance, Ninehead, Oak, and Heathfield; and in other parts it is

sandy, gravelly, or of a lighter mould, as Kingston, Bishop's-Lydeard, Halze, Fitshead, Milverton, Longford, Thorn, Saint-Margaret, and Runnington. The dry uplands are appropriated to tillage, and the rich lowlands chiefly to grazing and the dairy, together with the cultivation of wheat, barley, and beans. The soil is very fertile, and may be made still more so by an improved mode of agriculture. The country abounds in villages, woods, orchards, and gardens. There is not much oak in the vale, but elm grows to a great size in the hedges throughout the country (*vide* Savage).

This picturesque country is surrounded by an amphitheatre of hills, being bounded on the north, west, and south by the Quantock, Brindon, and Blagdon hills. Towards the east and north-east it has no mountainous boundary until it reaches the Polden hills—a distance of twenty miles from Taunton. The River Tone, on which the town is situated, takes its rise at Biverton Bottom, under Brindon Hill. It is a shallow stream at Taunton, being only fit for barges. It is sluggish, except after heavy rains. It is not kept sufficiently clear of mud or soil, which often accumulates, especially near the bridge at Northtown, where the principal drains from the town terminate. The Tone unites itself with the River Parrett near Burrowbridge. The latter runs through Bridgewater, receives the Brent at Burnham, and soon thereafter falls into the Bristol Channel.

Thus situated on an extensive plain of rich fertile soil, generally of a light nature, and surrounded for the most part by the above-mentioned hills, and especially from its low geographical position in the island, Taunton may be said to enjoy a mild equable climate. In ordinary winters, the register-thermometer seldom indicates as low as the freezing point, and in severe seasons it shares a degree of cold not so great as Bristol, and not much different from what is experienced at Torquay. The following table (see next page) will show the comparative average difference betwixt those places for the winter seasons of 1844–45, 1845–46, and 1846–47.

It will be observed by examining this table, that the thermometer marked higher during the day at Taunton than at Torquay 12° in the above three seasons, or $\frac{2}{3}^{\circ}$ per month, and 66° higher during the night at Torquay than at Taunton, or $2\frac{2}{3}^{\circ}$ per month. It was higher during the day at Taunton than at Bristol 9° , or $\frac{1}{2}^{\circ}$ per month; and higher in the night at Taunton than at Bristol also 9° , or $\frac{1}{2}^{\circ}$ per month. It was higher during the day at Bristol than Torquay 2° , or $\frac{1}{9}^{\circ}$ per month; and higher at Torquay than at Bristol during the night 65° , or 4° per month. The range, therefore, is less at Torquay than either at Bristol or Taunton, as follows:—

TABLE of Register Thermometer at Bristol, Taunton, and Torquay, for the Six Winter Months of 1844-45, 1845-46, and 1846-47.

BRISTOL.			TAUNTON.			TORQUAY.			
	Mean of		Min.	Max.	Range.	Mean of		Min.	Max.
	Min.	Max.				Min.	Max.		
1844-45.									
November,	40.21	51.24	27	58	31	42.12	50.4	28	60
December,	31.14	41.3	23	52	29	33.4	38.27	22	52
January,	35.18	44.23	28	51	23	37.13	46.15	25	53
February,	29.9	43.20	18	52	34	33.14	43.19	24	51
March,	33.16	46.4	17	56	39	34.4	45.4	17	58
April,	41.13	61.2	32	72	40	42.9	59.5	2	67
1845-46.									
November,	40.15	51.19	30	62	32	43.25	53.24	31	62
December,	37.16	48.9	27	53	26	40.13	49.28	29	56
January,	42.26	51.13	22	57	35	44.5	51.10	32	60
February,	39	51.14	26	60	34	43.15	52.6	26	59
March,	37.5	51.21	27	60	33	39.19	53.3	28	60
April,	42.21	58.12	35	63	28	42.9	54.1	35	63
1846-47.									
November,	41	51.2	29	62	33	40.15	52.22	27	60
December,	32.5	42.18	27	51	24	33.15	42.15	23	53
January,	33.25	41.8	29	48	19	37.13	45.16	30	57
February,	wanting.		...	...	...	35.10	45.26	18	59
March,	40.20	51.3	29	61	32	37.16	49.22	21	56
April,	45.3	55.20	40	59	19	47.10	54.11	30	60

In the winter of 1844-45,	Bristol.	Taunton.	Torquay.
... 1845-46,	32.4	32.1	28
... 1846-47,	31.2	29.5	25.2
... 1846-47, { 5 months, February wanting }	25.1	32.4	29.1

The register thermometer indicated at Taunton as low as the freezing point 98 times during the above three winters. But two of these winters were severer than usual, particularly the winters of 1844-45, when the thermometer descended to 32, 53 times, while in 1845-46, it was as low only 11 times. In 1846-47, it marked 43 times. At Bristol it indicated the freezing point in 1844-45, 103 times. In 1845-46, 16 times, and in 1846-47 (February wanting), 29 times; in all, 148 times in 17 months. At Torquay it marked as low as 32 in 1844-45, 32 times. In 1845-46, 7 times, and in 1846-47, 43 times, being in all 82 times during the three seasons.

Rain.—No record has been kept, so far as I know, of the barometer, or of the quantity of rain that has fallen at Taunton or in the surrounding districts. But it is believed to be less than in many other parts of the country. This may in some degree be ascribed to the clouds being attracted by the hills, particularly when the wind blows from the S. W. or N. W., the quarter from which the greatest quantity of rain proceeds, as is shown from the following statement. During the above three years, rain occurred on 363 days, viz. 71 days all day, and 292 part of the day, or showery. On 186 of these days, the wind was from the S. W.; on 67 days from the N. W.; and on 23 from the W.—in all, 276 days. Rain fell on 67 days only when the wind blew from the north to south inclusive, and on 20 days when the wind was variable or calm,—being in all 363 days. In the above statement there should be included 15 nights in which rain fell, and 11 days early in the morning.

Snow fell on nineteen days, but it was generally in light showers, and it seldom remained on the ground above a few days. Hail occurred seven times only, and always with showery weather.

Humidity.—No hygrometrical observations have been made in that part of the country, but it is believed the atmosphere is less humid than in many other districts. Evaporation is observed to proceed rapidly after rain. This may be owing partly to the absorbent nature of many parts of the soil, and from less rain falling in the vale, and likewise from the great proportion of days with sunshine. I have stated above the limited number of days on which rain fell. The following statement will show the proportion of days of sunshine, of those with fair weather without sunshine, and on which rain fell, also the number of days with drizzle or snow during three years:—

With sunshine, uninterrupted,	353 days.
Do. alternating with clouds and mists,	188 ...
Do. with rain part of the day, or with	
showers,	190 ...
Without sunshine, but with rain or showers,	102 ...

Fair, but cloudy or hazy, and without sunshine,	159 days.
Rain all day,	71 ...
Drizzle,	7 ...
Snow showers fell on,	19 ...
	1089 ...
Wanting,	6 ...
	1095 ...

From which it will be observed that there were 731 days with more or less of sunshine, 353 or more than one-half, the whole day; and from the number of fair days without sunshine, and the small proportion in which there was falling weather the whole day—being only 71—it seldom happened that a day passed without sunshine or dry weather.

The drizzle, which is so frequent in Devonshire and Cornwall, it will be seen, is but little known in the Vale of Taunton, having only occurred seven times in three years, and on three of these on a part of the day. Fogs also appeared seldom, being on nine whole days, and sixteen in the morning or early part of the day. These happened in the months of October, November, December, January, and February each year,—occurring only four times in July and August. Light misty or hazy weather was observed only on fifty-three days the whole day, and on thirty part of the day. On these days the wind blew from the N.E. to the S.E. inclusive, fifty days, and from the south to the north inclusive, 25 days. On the remaining eight days, the wind was variable, or the weather calm.

Thunder is rare in the vale, having been heard only on six days distant and on six near.

Storms are also unfrequent. They occurred only on forty-nine days all day, and on eight a part of the day—in all, fifty-seven, or about nineteen annually. Forty-eight of these happened in the months of January, March, April, June, July, October, and November in the three united years; and of the remaining ten, three occurred in February, four in September, and one in each of the months of May, August, and December. These happened when the wind blew from the S.W. on forty-five days; from the N.W. on fourteen; from the west on six; from the N.E. on three; from the south and S.E. on two each; from the north and east on one each; and one when variable.

During three years, also, the wind was observed to blow—

From the South-west	on 292 days.
... North-west	... 280 ...
... North-east	... 164 ...
... South-east	... 83 ...

From the East	on 74 days.
... North	... 39 ...
... West	... 62 ...
... South	... 20 ...
Calm, 43, variable 32,	75 ...

1089 ...

Reckoning from the N.W. to the east inclusive, the wind blew	557 days.
From the S.E. to the west inclusive,	457 ...
When calm or variable,	75 ...

1089 ...

It will be thus observed that, in any one direction the southerly winds prevailed, but the northerly and easterly *generally* predominated. The latter, however, were of a subdued character, and seldom accompanied by rain or fog. We notice, also, that rain and showers fell when the wind blew from the S.E. on 251 days, and when from the N.W. to east inclusive, on ninety-two days; the remaining twenty days being variable or calm.

The spring is variable, like in other parts of England; but, as above remarked, the east winds are of moderate force, and but seldom charged with rain or fog.

The summer is occasionally hot, but seldom oppressive;—the heat being moderated by refreshing breezes, which perflate the vale. During three summers, the thermometer marked from 70 to 80 inclusive, only on sixty-two days; and from 81 to 84, also inclusive, the small number of twenty-one days; the average highest temperature for the three seasons being—

For the summer months of 1845.—	June,	73·25.
... ..	July,	72·3.
... ..	August,	67·5.
... ..	1846.—June,	77·13.
... ..	July,	71·1.
... ..	August,	71·9.
... ..	1847.—June,	68.
... ..	July,	73·16.
... ..	August,	70·26.

The autumn is very pleasant, and of an agreeable temperature.

The borough of Taunton has a favourable aspect. It covers a considerable space in proportion to the population. It is about a mile in length. The principal streets are open and wide. There is a spacious market-place in the centre of the town; and, for the most part, there is sufficient declivity for drainage; but many parts near the river are low and flat. The lanes and courts which run back from the streets are generally close and crowded. Ash-

pits, pigsties, and necessities abound, with cesspools, gulley-holes and imperfect drainage. In many places, also, in and near the town, there are open and extended ditches containing offensive impurities, which are often stagnant from deficiency of water and of sufficient declivity to carry them forward, and are thus constantly emitting their fetid and unwholesome effluvia all around. The houses of the poorer classes in these districts are also commonly badly constructed for health and comfort.

It is in such localities, and under such circumstances, that are commonly found the proximate and remote causes of many disorders and physical derangements which afflict the inhabitants, from the local malaria which is generated within and near their dwellings.

How far the sanitary condition of Taunton is influenced by these local causes I shall now proceed to consider.

The population of Taunton, including the extended borough, amounted, according to the last census in 1841, to 12,071 inhabitants; and allowing for some increase since that time, it may now be estimated to be about 12,800. In examining the register of deaths from the beginning of 1843 to 1846, we find the mortality, excluding deaths from accidents and those in the Union Workhouse,—the subjects of which had been admitted from the country districts,—amount to 882, or about 294 annually; being 1 in $43\frac{1}{2}$ of the whole population. Of these, there are 319 deaths of children under five years of age; being about 1 in $2\frac{3}{4}$, or nearly 37 per cent of all the deaths. In the mortality of adults, there are 149 deaths from pulmonary consumption; being 1 in $5\frac{3}{4}$ of the other deaths. There are 36 from fever, or 12 annually. 27 deaths from apoplexy and paralysis, or 1 in 33. From diseases of the heart 35, or 1 in 15. From inflammation of the pulmonary organs, 30; of the brain, 5; of the abdominal viscera and membranes, 17; being 52 from inflammation of various organs. There are 47 deaths from dropsical affections, proceeding generally from visceral disease. From disease of liver and jaundice, 15; from various other diseases, 92; and from old age, 95; being, in all, 563 deaths of adults.

The mortality of children under five years, arose from convulsions, 49 deaths; from measles, 30; inflammation of the lungs, 29; bronchitis, 18; whooping-cough, 30; atrophy, 29; phthisis, 15; inflammation of bowels, 15; fever, 10; diarrhoea, 7; hydrocephalus, 7; and from other diseases, 80,—being in all, 319.

In examining the register of deaths for the Blagdon Union district of ten parishes, containing 5000 inhabitants,—also from 1843 to 1846,—the mortality will be found to amount to 270, or 90 annually, being about 1 in $55\frac{1}{2}$ of the population, or 12 in favour of this district over Taunton. In the division of Bishop's-Lydeard, of nine parishes, with 4000 inhabitants, the deaths were

189, or 63 annually, being as low as 1 in $63\frac{1}{2}$, or 20 above Taunton. The difference is still more remarkable in the North-Curry district, which contains a population of 7000, from 1839 to 1842 being the last three years recorded in the Register Office in Taunton for that part of the union, there are 306 deaths, or 102 annually, being in the proportion of only 1 in 68, or $24\frac{1}{2}$ in favour of this district.

It is proper here to observe that the deaths which happened in the Workhouse during the above periods, the subjects of which came from those parts of the country, are included in the rate of mortality for the respective districts. These amount to 21 for the Blagdon division, 23 for that of Bishop's-Lydeard, and to 22 for North-Curry. All these country districts are therefore more salubrious than Taunton, particularly for the health of children. The deaths of these under five years amount in the Blagdon district to 1 in $3\frac{1}{4}$ of the whole mortality; in that of North-Curry to 1 in $3\frac{1}{3}$; and in Bishop's-Lydeard district as low as 1 in $5\frac{3}{4}$; while in Taunton they are, as already stated, as high as 1 in $2\frac{3}{4}$ of the other deaths.

The deaths from pulmonary consumption in the Blagdon district amount to 1 in $7\frac{1}{2}$; in that of Bishop's-Lydeard they are only 1 in $10\frac{1}{2}$. But in the North-Curry division the proportion is very high, being 1 in $4\frac{3}{4}$; and this is the more remarkable, considering the low rate of mortality in general in this part of the country, as stated above. This difference of mortality in these districts arises much from their respective aspects, and other local circumstances. Thus the greater part of the Blagdon division is more exposed to the north-east winds, particularly the parishes of Church-Staunton and Pitminster, which contain more than half of the population of the whole district. The former of these is also situated on the Blagdon hills, and is not only more exposed, but colder in winter, and more rainy, and in many parts boggy.

The latter parish is in general badly drained, and stagnant refuse is abundant near many of the houses of the lower classes. Hence diseases of the pulmonary organs are more frequent, and fever is also found to be endemic in some localities. The extensive district of North-Curry, although, as stated above, so remarkably favourable for the health of the inhabitants in general, is in some parts low, damp, and swampy, inducing inflammatory disorders and affections of the pulmonary organs; hence the greater fatality of these diseases, and their greater prevalence in this division than in any other of the districts—even including Taunton.

Longevity, to which that part of the country is so favourable, is also less in the latter district than in Taunton, or in the other divisions. Thus, in Taunton, the deaths above 70 years of age are 1 in $4\frac{3}{4}$, nearly 1 in $2\frac{3}{4}$ of these being above 80. In the Blagdon district they are in the proportion of 1 in $3\frac{1}{2}$, above 70

years to the other deaths, one-half being above 80. In that of Bishop's-Lydeard they are nearly 1 in $2\frac{3}{4}$, half of these being also above 80. But in the North-Curry division they amount only to 1 in $5\frac{1}{2}$, of these 1 in $2\frac{1}{8}$ being above 80 years.

In comparing the sanitary condition of Taunton with that of the adjoining districts, we observe a considerable difference in favour of the latter.

This more unhealthy state of the former may be attributed much to those local circumstances, mentioned above, as existing in many parts of the town, where the physical powers and general health of parents in these localities often become imperceptibly and gradually deteriorated, particularly after they have been for some time resident there. Hence, the constitutions of their offspring are often weakly, and they are more susceptible thereby of diseases of a certain character, which are commonly in such cases more fatal in their consequences.

Accordingly, in examining the statistics of the diseases which have caused the greatest number of deaths, we find they are such as we may expect to arise from this condition of constitution. Thus the deaths from convulsions and atrophy are as high as 78, and from pulmonary diseases 68,—being in all about $2\frac{1}{4}$ of the whole deaths of children in Taunton. And again, we find that those members of such families who live to the age of puberty are very liable after, or even before, that period, to be attacked with pulmonary consumption; the number of deaths from which, we have seen, amount to 149 of adults; and adding 38 deaths from other affections of the lungs, they constitute one-third of the whole mortality,—thus showing the great extent of the scrofulous habit. But we have also observed, that even in some parts of the country districts, particularly in that of North-Curry, there are local circumstances which occasion a greater proportion of deaths than usual from pulmonary diseases, even than those in Taunton. This unhealthy state of constitution may also arise from other causes, such as deficient or improper nourishment, the abuse of stimulating liquors, over-fatigue of body, defective clothing, and anxiety of mind, from which the lower classes are so apt to suffer; but it does not appear that these causes exist to a greater extent in Taunton than in the neighbouring districts, the statistics of which show a much lower rate of mortality. This consumptive tendency is also to be attributed to the peculiar character of the climate itself, which, although possessing the favourable qualities mentioned above, is to be considered as relaxing and debilitating to many constitutions, affecting particularly the digestive organs and the nervous system, especially of those individuals who are naturally less robust, or have acquired this unhealthy condition from a lengthened residence in those parts of the country. The climate may be less relaxing than that of Cornwall, or the south

coast of Devonshire, yet it is decidedly of that peculiar character. It may be considered as well adapted for individuals of a plethoric habit, and who are predisposed to inflammatory diseases; and, as already observed, it is very favourable to persons advanced in life. From the mildness, equability, and dryness of the atmosphere, which is of a less irritating nature, it is well suited for certain affections of the pulmonary organs, particularly of the dry catarrhal kind. Some of the localities in the neighbourhood, especially Bishop's-Lydeard, are very favourable, from their sheltered situation and dry gravelly soil.

In examining the mortality of other rural towns, we find in some of them it is much higher, depending much on local causes. Thus, Gloucester, with a population of 15,000 inhabitants (see Mr Slaney's Report to the Royal Commissioners), having a fine situation in the vale of the Severn, and well placed for drainage, is in a very unhealthy condition, the mortality being as high as 1 in 35. This is greatly owing to the neglected state of the city; the most crowded parts having receptacles of filth and refuse of all kinds, most injurious to health. Mr Slaney also states, that in Droitwich, Wellington in Shropshire, and other smaller towns, great neglect of sanitary regulations prevails, to the injury of the inhabitants.

Captain Denison, in his Report on Salisbury, states that a greater mortality is found there than in many other places, being as high as 1 in 38, owing to the low damp situation of the town in the midst of water, meadows, and from the miserable state of the dwellings of the lower classes, their poverty and wretched condition, and the filthy state of the courts and alleys where these classes generally reside, which are little more than the generators of atmospheric impurities. I refer particularly to the reports of these gentlemen, as bearing specially on the effects of external vitiated air proceeding from local causes in towns, and low, damp, marshy, badly-drained situations in the country, in increasing the mortality of the places mentioned, which, from other local advantages, should be among the most healthy in this country.

We have observed that the cases of fever in Taunton are not numerous compared with the population, and the local circumstances formerly stated. But we are not to judge of the nature of the atmosphere from the number of cases which may occasionally appear, as much will depend on the physical condition of those families who are resident in these localities. Many individuals, who are naturally robust, or whose constitutions have not been previously impaired by destitution, intemperance, or other causes, may resist for a long time the influence of the local miasm; while such as are either of a feeble constitution naturally, or who have suffered from the causes mentioned above, become more readily affected. This is common to all malaria districts,—

the peculiar fever depending greatly for its development on the condition of the individuals exposed to the influence of the local atmosphere, and the length of residence in the locality. But, as already stated, the general health, especially the nervous system and digestive organs, may become gradually impaired and deranged without fever being induced, affecting the health of their offspring, and even shortening the period of their own existence, and thereby increasing the rate of mortality.

In comparing the mortality of other towns with each other, and of these with Taunton, we find a considerable difference. Thus, in Liverpool and Manchester, the deaths are as numerous as 1 in 29 and 30 respectively; in Bristol, they are about 1 in 37; in the east and south divisions of London, they are 1 in 37 in the former, and 1 in 39 in the latter; and in Birmingham and Leeds they are 1 in 38. The greater rate of mortality in these crowded towns and districts is readily accounted for on the above principles, and chiefly from the great proportion of the lower classes, and from these being so densely crowded together in close, badly-ventilated rooms and cellars, and from other accessory causes. It is under such circumstances that the physical powers become impaired, and much disease is produced, and particularly contagious typhus fever, which is often so fatal, and is the cause of so much destitution and misery, by carrying off many male heads of families, thus leaving their families destitute and unprotected. I had opportunities of confirming this fact, when acting as physician to the fever department of the Royal Infirmary of Edinburgh. Mr Chadwick has calculated that about 27,000 cases of widowhood and 100,000 of orphanage occur in England from preventable causes, of which we may consider this disease as the principal.

In Observations which I published in the 44th volume of the Edinburgh Medical and Surgical Journal (1835), to which I refer, I pointed out the peculiar characters of this specific fever, and the source from which it arises: that it is produced by the congregating of many individuals in confined sleeping-rooms without a renewal of the fresh air, whereby the atmosphere becomes so vitiated from being so often respired; that a poison *sui generis* is generated in the human system, which produces this specific fever; and it is in such localities, and under such circumstances, that this disease is propagated as from a centre.

In Edinburgh, the lower orders, of Irish particularly, are often found so crowded together, that from fourteen to sixteen individuals occupy one small sleeping-room of twelve feet square; this apartment being used for ordinary purposes during the day, when the bedding is put aside in the same place, to be used again at night. It is not surprising that in such localities this fever should be found to develope itself; and this will always be the

case wherever these crowded places are situated; for it is not necessary that they be in densely-populous towns, although they are commonly found there; for the fever may occur under such circumstances in the country or on board of ship, and I have seen it in the highest places of the lofty houses in Edinburgh; and it may arise when the inmates are not suffering from want or destitution, and have been previously enjoying good health; although it is to be admitted that the disease will be propagated more rapidly in those localities where poverty and other accessory causes are present, for the destitute are obliged to resort to such dwellings, and frequently in great numbers, and are not only more susceptible of the disease, but the fever will be found to assume in their cases a more malignant character. Sporadic cases occur occasionally, taking an epidemic form at certain periods. One reason of this temporary suspension appears to be, that it commonly attacks the same individual only once, instances to the contrary being exceptions to the general rule. Certain atmospheric influences also favour the extension of the fever. In these and other respects it resembles eruptive contagious diseases, to which class I have considered it properly to belong. Another reason of its recurrence being periodical is, that young children are but seldom attacked with it, and when they are, the disease is always of a mild character; and as those advance in life, they become liable, along with such as had previously escaped the infection, to take the disease on its appearing again in an epidemic form. Another circumstance which favours the rise and propagation of this fever is *famine*. This will not of itself produce the disease, but by bringing the lower classes in crowds together in such distressing circumstances, it will thus contribute to the generation and extension of the disorder. It is also observed that this specific fever is most general and fatal in the winter season, while the fever arising from external miasm is most prevalent in summer and autumn. This will be accounted for on the above principles.

The rate of mortality in Bath, Coventry, Wolverhampton, and Worcester, is rather higher than that of Taunton, being 1 in 40 respectively, these towns containing a larger proportion of the lower orders. Again, in the north and west divisions of London,—in Plymouth and York,—the deaths are much the same as in Taunton, but in other rural towns they are not so great. Thus, in Cheltenham, they are 1 in 45; in Oxford, 1 in 48; Winchester, 1 in 49; Windsor, 1 in 52; Penzance, 1 in 53; and Dorchester, 1 in 54; owing to the more favourable circumstances in which these towns are placed.

In comparing the mortality of different towns, it is of importance, as has been observed, to take into consideration the situation

of the town, its aspect, declivity, drainage, nature of the soil, peculiarities of the climate, the proportion of the lower classes to the middle and upper ranks of society, the internal as well as external condition of the dwellings of the former class, their mode of living, and moral habits.

The public are now called upon to rectify the accumulated moral and physical evils which so deeply afflict a great proportion of the human race, by adopting an efficient system of drainage, attention to cleanliness, a speedy removal of all refuse, an ample supply of water, the erection of comfortable dwellings in well-aired, dry situations, avoiding as much as possible low, damp localities, which have been found to be injurious to health both in town and country. Such houses ought to be constructed of larger dimensions, with sleeping-apartments for both sexes, as it is well known that, in the present dwellings of the poor, the same bedroom is indiscriminately occupied by both sexes; and it has been stated on authority, that comfortable healthy houses may be erected for the working-classes at a cost even less than is paid for the squalid tenements they now occupy. Proper ventilation is also to be attended to; for, besides the risk of generating contagious fever in close-confined bed-rooms, as already stated, we have abundant proof of the baneful effects of the deficiency of fresh air in badly-ventilated, over-crowded factories and school-rooms even during the day, particularly on the health of children when long confined in such localities, producing listlessness, languor, depression of spirits, and incapacity of mental application, and ultimately the constitution becoming seriously affected.

While we endeavour thus to improve the condition of the lower classes, it is also necessary to provide for them the means of existence, by procuring such employment for the able-bodied and healthy as will afford an adequate support for themselves and their families; for it is manifest, when the physical powers are reduced by destitution to the lowest state of misery, there is not only an indifference to moral action, but the feelings become depraved, and immorality and crime from recklessness too readily follow. In such distressing circumstances, when man is sunk into the lowest state of degradation, the general principles of Christianity are found to be ineffectual in restraining the profane and vicious, and in effecting the great work of moral renovation; for to insure success to this Holy Agency, it must be applied through the moral constitution—the physical and mental faculties. But when these are depraved, and when want has produced misery and wretchedness, the best-directed efforts to reform the social condition will be found to be of little avail.

Man must first be raised from the painful degradation into which he has thus fallen, and be restored to that state of comfort

which he formerly enjoyed. This moral disease penetrates deeper into life than can be well conceived. It saddens the hearts of thousands who, once happy and useful members of society, are now lost in the depths of darkness and despair.

But this great evil should be considered as national, and the preservation of the public health and morals not only as an act of humanity and Christian charity, but one specially of public economy; for, without taking into account the loss of labour, which must be very great, we are to look to the heavy expenses incurred during sickness, the consequences of numerous deaths, involving the support of so many widows and orphans, who must fall on the public, either on the parish or on private charity; and, lastly, the immense cost to the country for the maintenance, the prosecution, and punishment of criminals.

Under these circumstances it will be evident that, by carrying out these improvements, not only will a great saving be effected to the public; but that, by affording sufficient employment, suitable education and religious instruction, and the suppression of many of the public houses and beer-shops,—those great sources of moral and physical corruption and ruin,—a vast change would speedily be apparent in the well-being and happiness of the great mass of the people; for we cannot admit that moral or physical degradation, with all its humiliating and distressing consequences, belongs to any class of society; as it is well known that the most exalted state of moral feeling and courage is to be found amongst the poorest of our race, unless the faculties have become, by long-continued hardship and misery, incapable of sustaining the moral energy.

By thus devising and carrying into effect this system of reformation and improvement among the lost orders of the lower classes, man would be seen to emerge from this depraved and neglected state, and to rise to that condition originally destined for him by his all-wise and merciful Creator.