others they are rapidly lowering the standard of comfort among their English neighbours, communicating their own vicious and apathetic habits, and fast extinguishing all sense of moral dignity, independence, and self-respect. No one interested in the welfare of his poorer brethren can contemplate the prospect without a feeling of melancholy foreboding; and I am persuaded that so long as the native inhabitants are exposed to the inroads of numerous hordes of uneducated Irish, spreading physical and moral contamination around them, it will be in vain to expect that any sanitary code can cause fever to disappear from Liverpool.

No. 20.

ON THE PREVALENCE OF DISEASES ARISING FROM CONTAGION, MALARIA, AND CERTAIN OTHER PHYSICAL CAUSES AMONGST THE LABOURING CLASSES IN MANCHESTER.

By Richard Baron Howard, M.D.,

Physician to the Ardwick and Ancoats Dispensary.

Manchester, April, 1840.

Gentlemen,—It was not without considerable hesitation and diffidence on my part, that I acceded to your request, to furnish a report of the extent to which the causes of contagious diseases prevail amongst the labouring classes in Manchester.

Fully sensible of the importance which may be attached to such a report, from this populous and, in many respects, extraordinary district, and of the attention it might attract, I felt conscious that in undertaking the task, I was engaging in an onerous duty, and incurring no small degree of responsibility. I was quite aware, also, that I should have to encounter great difficulties in my inquiries, from the imperfect state of the records in many of the public medical institutions:—imperfect at least insofar as affording no facilities for obtaining the statistical information which was desirable for preparing such a report as you required. As I had anticipated, I soon found that to collect useful statistical data from these documents, required more labour than I have been able to bestow on the subject, and also more time than has been allowed me for the preparation of my report. It would certainly have been much more satisfactory to you, as well as to myself, if I had always been able to verify the statements I have made, from facts derived from the registers of the public institutions; and it is to me a matter of much regret that, from the causes just alluded to, I have frequently been prevented from doing so. I may however state, that the opinions and views I have advanced are the result of above 10 years' constant medical attendance on the poor in Manchester, and that a connexion with the Royal Infirmary and Poor House, during the greater part of

that period has afforded me extensive opportunities of becoming acquainted with the diseases and the general condition of the labouring classes.

According to the census of 1831, the population of Manchester (including Salford and the immediate suburbs) was 232,578, and may at present probably amount to 260,000. That of the whole parish was then 270,961, and cannot now be estimated at less than 300,000. In the following report, the term Manchester will be used generally, and must be understood to comprehend Salford and the adjoining suburbs.

The patients admitted during the last year at the various medical charities in Manchester amount to 40,858; and if to this number be added the sick under the care of the surgeon to the Manchester Poor House, and those attended in Salford and Chorlton-upon-Medlock, by the medical officers of these unions, we find that the enormous number of 42,964 persons (nearly one-sixth of the whole population) are dependent on public charity for medical advice:—a melancholy proof of the indigence and unhealthy condition of the working-classes in this district.

Owing to the defective registration of the diseases, it is impossible to ascertain with precision the amount of fever occurring amongst these persons; but from the most correct calculations I have been able to make, it is probable the number of cases of idiopathic contagious fever would not exceed 2432; including, of course, those treated at the House of Recovery. This, however, is a larger proportion than has been usual in former years; for fever has certainly prevailed much more extensively during the last two years and a half than for many years preceding. As a proof of this, it may be mentioned that the average number of patients admitted into the House of Recovery during the last three years is 1071, whilst that for the 10 years previous is only 511. In order to account for the apparently small ratio which I have allotted to fever, out of the 42,964 persons treated at the various medical institutions, it is necessary to state that in this number are comprehended the patients admitted at the Lying-in, Lock, and Eye Hospitals, where, of course, cases of fever occur only casually:—that no less than 6495 were cases of accident, and that all the fever patients occurring to the surgeon to the Manchester Poor House, and a large proportion of those occurring at the Royal Infirmary, are sent to the House of Recovery.

This amount of fever among our pauper population, though very considerable, cannot be deemed large for a town which might certainly be supposed in many respects peculiarly fitted to promote the diffusion of contagious diseases; and which, in many localities, seems to possess all the requisites for the generation and extension of infection. Indeed, when we consider the greatness and density of the population—constantly suffering from numerous causes of physical depression, with the indigence, improvidence, irregular

and dissipated habits, and the entire absence of cleanliness in no small portion of it, this considerable share of exemption from fever which we enjoy, compared with some other large towns similarly circumstanced, is somewhat remarkable; and certainly not what might *à priori* have been anticipated. In this respect Manchester would bear a favourable comparison with London, Edinburgh, Glasgow, and Liverpool.

The cause of this moderate proportion of fever, where so many fruitful sources of it exist, is, I believe, mainly ascribable to the munificence with which the medical charities are supported by the opulent classes, and to the great facilities thereby afforded to the indigent poor for speedily obtaining medical aid. The careful attention with which the parochial authorities have always watched over the poor during epidemics of fever, and the prompt steps they have usually taken for the removal of infected persons, have also contributed most materially to check the spread of contagious diseases, and to preserve the health of the town.

According to the Registrar-general's First Annual Report, there were 274 deaths from fever in Manchester, Salford, and some of the adjoining townships (comprising, in 1831, a population of 236,935), during the half-year ending 31st December, 1837, which at the same ratio would give 548 for the whole year. If we suppose that one death takes place in every 12 persons attacked with fever (probably about the average), the *total* number of cases which occurred in this district, during that period, would be 6576. No inference, however, can be drawn as to the general prevalence of diseases in any locality, from a report for so short a period; particularly those of the epidemic class, which are subject to such sudden and remarkable variations.

The House of Recovery, which is the only public institution in Manchester where cases of fever are admitted, has generally been found sufficient hitherto to receive all the applicants; for, until the severe epidemic of 1837, it has very rarely occurred that persons have been refused admission from want of room. This establishment may be made to accommodate 100 patients upon an emergency; but it has been the usual practice not to receive more than about 84, in order to avoid the risk of injurious consequences from over-crowding. It is, therefore, very evident that, from our now greatly increased and still increasing population, this accommodation is insufficient, and that the time has now arrived when further accommodation ought to be provided. Even an inconsiderable increase in the prevalence of fever would immediately fill the present House of Recovery: and from the increasing size of the town already mentioned; from the constant immigration of Irish labourers, many of whom arrive here already affected; from the dreadful extent to which distress and destitution do now exist, and have for a long time existed, amongst a large proportion of our working-classes; and the low ebb to which the resources of

others are reduced, it is much to be feared, unless some improvement speedily takes place in the condition of the poor, that a permanent augmentation of fever may be anticipated.

Though it would certainly be out of place to enter into any lengthened discussion here respecting the nature and laws of contagion and malaria, yet there are some points which it is so extremely important to bear constantly in mind in reasoning on the generation and diffusion of fevers by these causes, that it will facilitate our inquiries, and prevent repetition in future parts of this report, if I premise a few brief remarks on these subjects before proceeding further.

I. With regard to *contagion*, the following principles seem to be established:—

1. There are certain morbid states of the system in which noxious emanations arise from the body of the individual affected, which are capable of exciting a similar disease in other persons. To the poison so generated, the term contagion or infection is applied: and diseases possessing the property of propagating themselves in this way, are called contagious or infectious; terms usually considered synonymous in popular language, and which I shall employ as such in the following pages.

2. Several of these diseases are supposed never to originate spontaneously, the presence of their specific contagion being considered necessary for their production; of this class are small-pox, scarlatina, measles, &c. On the contrary, some continued fevers, as typhus and synochus, are known occasionally to arise independently of contagion, in individuals exposed to certain other exciting causes; and the disease thus generated may become contagious, and capable of communicating itself to other persons.

3. The contagious matter of fever diffuses itself through the air, and appears to enter the body through the medium of the lungs during respiration.

4. Contagion has also the property of attaching itself to certain substances, chiefly those of a porous texture, as woollen articles, furs, feathers, &c., which may afterwards give out the contagious matter in an active state, and capable of communicating the disease. Substances thus embued with contagion are termed fomites.

5. When the contagious matter arising from a person ill of fever is largely diluted by the free admission of pure air, it becomes innoxious, and the risk of infection is very slight indeed; whereas if the patient be placed in a small confined room, where no attention is paid to ventilation, the atmosphere becomes so strongly impregnated with the poisonous emanations, that the probability of the disease being communicated to the attendants and other inmates amounts almost to a certainty. Dr. Haygarth remarks that the poison of typhus "in a small, close, and dirty room, infects a very great proportion of mankind; not less than 22

out of 23, or a still higher proportion; but in a large, airy, clean apartment, even putrid fevers are seldom or never infectious."*

6. A fever of the mildest character often assumes a malignant type if the patient is lodged in a confined apartment, where ventilation and cleanliness are neglected, and where he is constantly respiring air strongly impregnated with the noxious emanations from his own body.

II. It has been long known that, in certain localities, fever having a peculiar type prevails so universally that few who remain any length of time within the district escape the disease. The exciting cause of the endemic fever of these districts has been satisfactorily traced to exhalations from the earth's surface, which occur particularly in low, marshy, and swampy situations, and in consequence they have recieved the name of *marsh miasmata*, or *malaria*. The latter, being the more comprehensive term, is preferable, as the existence of a marsh is not necessary for its production. The fevers thus generated are distinguished by their occurrence in periodical paroxysms; and, according to the completeness or incompleteness of the abatement of the symptoms in the interval, are termed intermittent and remittent, in contradistinction to continued fevers. Intermittent and remittent fevers also differ from the latter in not being contagious.

III. Besides the malaria here described, it is believed by many that the exhalations arising from animal and vegetable substances in a state of decomposition,—from excrementitious matters, and from the various accumulations of the filth and refuse of towns,—are also capable of generating fever though of a different type, viz., continued fevers, or those contagious diseases known by the names of typhus and synochus. It is proper, however, to state, that on this point the profession is divided in opinion. That this species of malaria, from its effect in deteriorating the health of those exposed to it, is often a most powerful agent in aiding the increase and diffusion of fever, all medical men readily admit; and of this fact abundant evidence will be adduced in this report, both from my own observations and the testimony of others; but that it is adequate singly to generate typhus is denied by many. It would be quite out of place to enter into any discussion of this question here, but I may state that it appears to me, the evidence on which the latter opinion is founded is very strong. Since, however, as has just been stated, it is agreed on all hands that the malaria under consideration is, in some way or other, one of the chief causes of the rapid and extensive *spread* of fever amongst the poor in large towns, the determination of the point does not affect the validity of the conclusion as to the great advantages likely to accrue from the removal of the sources from which civic malaria arises, and is in reality a matter of no practical importance, provided an admission of the affirmative does not lead

* On the Prevention of Infectious Fevers, 1801, page 73.

us to underrate the other universally acknowledged causes of fever. In reference to this subject, Dr. Alison, to whose opinions on all medical questions great weight is deservedly attached, has remarked: "In the Appendix to the Fourth Report of the Poor Law Commissioners, it is stated by Drs. Arnott, Kay, and Southwood Smith, that the malaria arising from putrefying animal and vegetable matters produces typhoid fevers. Although I highly respect all these gentlemen, and approve of the practical inference which they draw from that opinion, so far as it goes, because I have no doubt that vitiated air, like all other causes which weaken the human constitution, favours the diffusion of fever—yet I cannot subscribe to their opinion that this cause is of itself adequate to the production of contagious fever. And if, trusting to that opinion, the public authorities should think it sufficient, in any situation where contagious fever is prevalent, to remove all *dead* animal and vegetable matter, without attempting to improve the condition of the *living* inhabitants, I am confident that their labour will be in vain. The true specific cause of the contagious fever, at least of Edinburgh, certainly does not spring from anything external to the living human body. I have stated much evidence on this point in a paper in the Edinburgh Medical Journal for 1828, and could easily adduce much more. A case in point is given in a letter contained in the Appendix in question, from Mr. Evans, surgeon in the borough. 'I have attended, in nine months, above 500 pauper cases of fever, but cannot trace it to any local cause, for we have, in the parish of St. George, very good drainage, and very little accumulated filth, with the exception of certain courts and lanes, *and there the disease does not exist more severely than over the parish in general.*' Another occurs to me in the letters of Dr. Barry of Cork, published by Drs. Barker and Cheyne. 'More than once, on visiting the neighbourhood of deposits of manure, I have witnessed much misery in the inhabitants, shown by general emaciation, &c., and yet they have been exposed to the continued agency of these exhalations, without showing any symptoms of fever. Sooner or later the disease found entrance, and *then* swept away the inhabitants in great numbers.' He gives instances where fever spread in the upper rooms of houses in such situations, while the lower, 'in the most abominable state of filth,' were free from it; all showing, as our experience in Edinburgh does, that this is a cause of the *extension*, not of the *generation* of fever."*

Dr. Ferrier also, whose experience was very great, hesitates to admit this cause adequate to produce fever, though he insists strongly on its influence in aiding the progress of the disease. "I am persuaded," he says, "that mischief frequently arises from a practice, common in many narrow back streets, of leaving the vaults of the privies open. I have often observed that fevers

* The Management of the Poor in Scotland, Edinburgh, 1840, page 19.

prevail most in houses exposed to the effluvia of dunghills in such situations. During the late epidemic it was observed that fever prevailed most in streets which were not drained, or in which dunghills were suffered to accumulate, or where the blood and garbage from slaughter-houses were allowed to stagnate. I do not mean to assert that such nuisances produce the disease, but they appear to assist its progress, and to operate as remote causes of fever, in whatever manner pathologists may choose to explain their action."*

Much evidence might nevertheless be adduced to show that the exhalations evolved by putrefying animal matter (which constitutes a great portion of the filth of towns) are less injurious to the human constitution than those arising from decaying vegetable substances.

IV. The vitiation of the atmosphere by the emanations arising from the bodies of even perfectly healthy individuals, when great numbers are crowded together in a small confined space, and ventilation is neglected, constitutes another, and I believe a very frequent, source from whence fever originates. The noxious effluvia thus produced have been termed "human miasms" in contradistinction to those arising from causes external to the human body, and to contagious vapours. The efficiency of this cause to generate fever is a fact well established, and many familiar instances of its effects will readily occur to the mind. It may be sufficient to state the well-known circumstance, that when workhouses, barracks, prisons, or transport ships are unusually crowded, fever almost invariably, sooner or later, breaks out, unless more than ordinary care be paid to ventilation.

Abundant evidence of the effects of great density of population in diminishing the duration of life is derived from the Registrar-general's First Annual Report of Deaths. "In the whole of England and Wales, out of 1000 deaths, 145 have been at the age of 70 and upwards; while, in the North Riding and northern part of the West Riding of Yorkshire, and in Durham, except the mining districts, the proportion has been as high as 210. In Northumberland (excluding the mining district), Cumberland, Westmoreland, and the North of Lancashire, the proportion has been 198; in Norfolk and Suffolk, 196; in Devonshire, 192; in Cornwall, 188. In contrast with this evidence of the large proportion of persons who attain to old age in these more thinly peopled portions of the kingdom, we find results extremely different where the population is densely congregated. In the metropolis and its suburbs, the proportion who have died at 70 and upwards has been only 104; and even this proportion is favourable when compared with that of other large towns—the proportion in Birmingham being 81; in Leeds, 79; and in Liverpool and Manchester only about 63."

* Medical Histories and Reflections. On the Prevention of Fever in Great Towns, 1795, vol. ii page 180.

In the Appendix to the same Report, Mr. Farr has clearly pointed out the increased rate of mortality in large and crowded towns, compared with rural districts. From his calculations it appears that the deaths in the metropolitan division, with a population of 1,790,451, lodged upon an area of 70 square miles, from 1st July, 1837, to 30th June, 1838, amounted to 53,597; whilst the deaths in Devonshire, Dorsetshire, Wiltshire, Cornwall, and Somersetshire, where nearly the same number of inhabitants (1,723,770) was distributed over an area of 7933 square miles, were only 34,074. It must besides be remembered that these counties include Exeter, Plymouth, Bath, and a great number of other large towns, which renders the result of this calculation less striking. Mr. Farr justly observes that, "*cæteris paribus*, the mortality increases as the density of the population increases, and where the density and the affluence are the same, that the rate of mortality depends upon the efficiency of the ventilation, and of the means which are employed for the removal of impurities."

But though the fatality from every class of diseases is augmented in the concentrated population of large towns, Mr. Farr has shown in his abstract of the causes of death, that the increase is most remarkable in the mortality from epidemic, endemic, and contagious diseases,—the ratio of deaths from these diseases in towns being more than double what it is in rural districts. This augmented ratio of mortality from typhus is very striking; for it appears that, out of 5020 deaths from this disease, 3456 occurred in cities, and only 1564 in counties.

The increased mortality of crowded cities is owing to a variety of causes, the chief of which are the insalubrity of the atmosphere, from its vitiation by respiration, by the exhalations from animal and vegetable putrefaction, and collections of refuse, and by numerous operations constantly going on in large towns; the want of ventilation, draining, and scavenging; the dissipated and irregular habits of the people; their uncertain and precarious employment, and consequently frequent destitution; their confining and sedentary occupations, with their neglect of cleanliness and of exercise in the open air.

Having made these observations respecting the three principal, or, as they have sometimes been termed, the essential or efficient, causes of fever—*contagion, malaria,* and *human miasms*—I shall now proceed to inquire to what extent these, and some other causes of fever prevail in Manchester.

1. It appears to be established beyond all question of doubt that the propagation of the idiopathic continued fevers of this country (designated typhus and synochus) is chiefly effected through the agency of the emanations arising from the bodies of those already sick; in other words, they are propagated by *contagion*. There are some, I am aware, who deny this conclusion; but it is certainly in accordance with the united testimony of a

great majority of the most eminent physicians in the kingdom. My own personal observation has fully satisfied me that this is the case with regard to the common fever of this district; and I believe, I may safely add, that it is the general opinion of the medical gentlemen here who have had opportunities of marking the extension of the disease among the poor. Sporadic cases of fever, which cannot clearly be traced to contagion, do, without doubt, frequently occur to every medical practitioner; but it is certainly consonant with general experience, that individuals are usually affected in proportion to the closeness and frequency of their intercourse with the sick. I conceive it quite unnecessary to adduce any evidence in support of this opinion here. The extent to which the circumstances favouring the spread of fever by contagion exist in Manchester will be clearly manifested from numerous statements made in various parts of this Report, and need not now be enlarged upon.

It is obvious that the most certain means of preventing the extension of contagious diseases is the separation of the sick from the healthy; and as this cannot possibly be effected in the small and crowded habitations of the poor, it becomes requisite to provide establishments for this purpose.

The paramount importance of having ample accommodation for the reception of persons ill of infectious fevers cannot be too forcibly impressed upon the minds of those who are intrusted with the management of the poor, for this must assuredly constitute one of the most essential measures in any successful plan for diminishing the prevalence of fever. When once the disease breaks out in the confined and dirty houses of the labouring classes, nothing but the removal of the patient can prevent its rapid extension. Such persons having frequently only a single apartment, and often but one bed for 3 or 4 persons, the healthy are obliged even to sleep with the sick; and the spreading of the disease under such circumstances amounts almost to a certainty. Whether the subject be viewed with reference to the interest and welfare of the poor themselves, or merely as a matter of economy and prudence, the advantages of separation are equally apparent. By timely removal the chances of recovery are increased, the risk of the disease extending to others is obviated, and the ruinous consequences to the family, which often ensue from the loss of time occasioned by the necessary attendance upon the sick, are avoided. If we take into account also the protracted convalescence which, from various causes, often follows before they are able to resume their work, when patients have remained at home, it is evident the pecuniary saving and consequent reduction of the poor-rates, from all these circumstances, cannot be small. It is important to bear constantly in mind that in a great majority of instances, where the head of a family, amongst the labouring classes, is attacked with fever, he is, *pro tempore* at least, a pauper, and he and his family have to be supported out of the poor-rates.

The utility of fever-wards in checking the spread of fever is very strikingly illustrated by the beneficial results which followed their establishment in Manchester, and their cannot be a doubt that much of our freedom from the disease is attributable to their successful operation. In consequence of the great and constant prevalence of fever, more especially during the years 1789, 1790, 1791, 1794, and 1795, it was determined at a public meeting of the inhabitants to form a "Board of Health," and establish wards for the reception of persons affected with fever. The institution was opened in May, 1796, under the denomination of the House of Recovery; and the diminution of fever which immediately ensued was very remarkable, as appears from a report of the board of the infirmary, which states that "the number of home-patients weekly admitted is not, upon an average, more than half the number admitted previous to the opening of the House of Recovery; but it appears from an inspection of the physician's books, that the proportion of fever-patients out of the whole number of patients is much smaller than formerly; thus, on comparing the home-patients admitted in January, 1796, with those of the last month, it appears that in January, 1796, the whole number of patients was 296, out of which 226 were cases of fever; but in January, 1797, notwithstanding the severity of the season, the number of home-patients was only 161, out of which 57 were ill of fevers."* Dr. Ferriar also observes, "The most striking proof of the benefit which the public derive from this institution results from observing the diminution in the number of home-patients of the infirmary; the number of home-patients, from June, 1795, to June, 1796, was 2880; from June 1796 (immediately after the opening of the House of Recovery), to June, 1797, the number of home-patients was 1759; that is, the illness of 1121 persons has probably been prevented by this institution in one year; for the home-patients' list has generally increased every year."†

The success which attended the establishment of the House of Recovery (previous to which the ravages committed by fever in Manchester were dreadful) will be further evinced by an examination of the table inserted at page 313, from which it appears that, with the exception of the years of scarcity, 1801, 1802, and 1803, the number of patients admitted in one year never exceeded 375 (notwithstanding the rapid increase of the population), until the commercial depression of 1818. In one year the number of admissions was only 125, a very decisive proof of the usefulness of the institution, for, as has been aptly remarked, "one curious

* Account of the Establishment of Fever Wards in Manchester by Dr. Ferriar, in Medical Histories, 1798, vol. iii. page 72

† Ib., page 84.

and perhaps peculiar feature of the House of Recovery is, that its benefits are never more triumphantly exhibited than when its own successful operation has caused it to contain few or no patients, and therefore to become apparently of little or no use.

It would be easy to adduce instances in which, where fever-patients have remained at home, many individuals have been attacked in succession. I recollect attending, in 1837, an Irish family, consisting of 7 persons, every one of whom became affected with fever. They all lived together in a small room at 12 Garden-street, and in consequence of the crowded state of the House of Recovery, could not gain admission. I lately attended 5 individuals ill of fever in one house in Beatson-street, and also a family in Oldham-road, where a man, his wife, and child severally passed through the disease, in consequence of the first objecting to go to the fever-wards.

The following analysis of the cases under my care in the temporary fever-hospital in Balloon-street, during the severe epidemic of 1837-38, shows how generally the disease spreads to several inmates, when it once breaks out in the confined, crowded, and dirty houses of the poor. The hospital was open a little more than 4 months, and altogether 182 patients were admitted. Out of this number no less than 73 were furnished by 20 houses. From one house 7, and from another 6, were admitted; there were 5 houses which furnished 5 patients each; in two instances 4, in five instances 3, and in six instances 2 persons were brought from the same dwelling. In this calculation, I have, in two instances, included 2 persons, who, though not marked in the register as residing in the house in which I have classed them, had nevertheless been passing most of their time there, in attendance upon relatives ill of fever, previous to their removal, and in which duty they evidently caught the disease.

But even this statement does not in every case give the whole number of persons who were attacked in the same house, because, in several instances, some were sent to the House of Recovery. Many of the single cases also were brought from adjoining houses, and clearly owed their origin to contagion in consequence of communication with infected houses.

The risk which those run whose duties lead them to visit the close and filthy rooms of the poor affected with fever is evinced by the melancholy fact that, during the epidemic of 1837-8, a physician and physician's clerk to the Royal Infirmary, and one sidesman, caught fever and died; one of the overseers and an assistant were also attacked, but recovered,—all within the space of three months.

There is not usually in Manchester much reluctance on the part of the poor to be removed to the House of Recovery; instances of refusal are exceptions to the general rule, and seldom

occur, save in the case of children who will not consent to be separated from their mothers.

2. The *malaria* which produces intermittent and remittent fevers requires little notice, as it can scarcely be said to have any existence in Manchester. Dr. Carbutt remarks, "that in the memory of the oldest medical practitioner living, and as far back as tradition can reach, there never was an ague caught in Manchester, nor within a considerable number of miles of it."* Dr. Gaulter also states, "that ague is utterly unknown here, and remittent fevers are exceedingly rare, in comparison with those of a continued or typhoid character."† It is probable, however, that these statements are somewhat too unqualified; for though I have never met with a case myself, Dr. Davenport Hulme, physician to the Royal Infirmary, mentions to me that, within a few years, he has seen one or two cases of ague, which appeared, from all the evidence he could collect, to have originated in Manchester.

3. The effects of *civic malaria*, arising from accumulations of decaying animal and vegetable matters, and various kinds of refuse, so far as they have been observed in Manchester, come next to be considered.

That the filthy and disgraceful state of many of the streets in those densely populated and neglected parts of the town where the indigent poor chiefly reside, cannot fail to exercise a most baneful influence on their health, is an inference which experience has fully proved to be well founded; and no fact is better established than that a large proportion of the cases of fever which occur in Manchester originate in these situations. Of the 182 patients admitted into the temporay Fever Hospital in Balloon-street, 135 at least came from unpaved or otherwise filthy streets, or from confined and dirty courts or alleys. Many of the streets in which cases of fever are common are so deep in mire, or so full of hollows and heaps of refuse, that the vehicle used for conveying the patients to the House of Recovery often cannot be driven along them, and the patients are obliged to be carried to it from considerable distances. Whole streets in these quarters are unpaved, and without drains or main sewers, are worn into deep ruts and holes, in which water constantly stagnates, and are so covered with refuse and excrementitious matter as to be almost impassable from depth of mud, and intolerable from stench. In the narrow lanes, confined courts, and alleys leading from these, similar nuisances exist, if possible to a still greater extent; and, as ventilation is here more obstructed, their effects are still more pernicious. In many of these places are to be seen privies in the most disgusting state of filth, open cesspools, obstructed drains, ditches full of stagnant water, dunghills, pigsties, &c.,

* Clinical Lectures in the Manchester Royal Infirmary, 1834, page 193.
† Origin and Progress of Malignant Cholera in Manchester, 1833, page 106.

from which the most abominable odours are emitted. But dwellings perhaps even still more insalubrious are those cottages situated at the backs of the houses fronting the street, the only entrance to which is through some nameless narrow passage, converted generally, as if by common consent, into a receptacle for ordure and the most offensive kinds of filth and rubbish. The doors of these hovels very commonly open close upon the uncovered cesspool which receives the contents of the privy belonging to the front house, and all the refuse cast out from it, as if it had been designedly contrived to render them as loathsome and unhealthy as possible. Surrounded on all sides by high walls, no current of air can gain access to disperse and dilute the noxious effluvia, or disturb the reeking atmosphere of these areas. Where they happen to be less crowded, and any ground remains unbuilt upon, it is generally undrained, contains pools of stagnant water, and is made a depôt for dung, offal, and all kinds of filth.

If the interior of the dwellings in these localities be examined, they will be found accurately to correspond with the filthy condition of the exterior, and to present all the indications of negligence, slovenliness, and discomfort—of abject poverty and destitution, which the appearance from without would lead us to predict. They are dirty in an extreme degree, damp, shamefully out of repair, and barely furnished. Many, indeed, can scarcely be said to be furnished at all—a table, a chair, or a stool, a few, and very few, articles of culinary apparatus, some shavings, or a little straw in a corner, with a scanty piece or two of filthy bed-covering, constitute the whole furniture of numerous habitations in this town; and numbers may be found where even this meagre catalogue is far from being complete. The wretched condition of many of the cellars will scarcely be credited by those who have not visited them—dark, damp, and filthy, incapable of ventilation, and constantly liable to be flooded—they present a most dismal appearance, and are quite unfit to be inhabited by civilized beings. The walls are scarcely ever white-washed, the windows neither keep out the wind nor rain, and the floors are sometimes not half covered with bricks or flags. I have occasionally visited patients where the bedding or straw on which they lay was placed, without any protection, on a floor not only damp, but literally wet. The wretched occupants of these miserable abodes, as might be expected, are grossly negligent of personal cleanliness; they suffer from scantiness of clothing and bedding, too often from deficiency of food, from want of fuel and other necessaries of life, and have altogether a squalid and unhealthy appearance—the natural consequence of living amidst such fertile sources of disease.

It is in these loathsome and pestiferous localities that disease rages in all its malignancy and power; that contagion, seizing

victim after victim, commits, unchecked, its dreadful havoc; it is here that those extensive ravages are wrought by which the bills of mortality in large towns are so appallingly increased, and the average duration of life allotted to man is so lamentably curtailed; it is here that the services of the medical officer of the infirmary and various dispensaries are principally required, and it is amidst such melancholy scenes that he, more than any other class of men, becomes acquainted with the hidden sufferings, miseries, and almost incredible destitution of his fellow-creatures. In his daily visits to these neglected haunts of disease and wretchedness, he seldom encounters an individual but the indigent inhabitants themselves, except perhaps the parish overseer, and haply some minister of religion in the exercise of his sacred office, endeavouring to afford religious comfort to some suffering mortal, whose last moments in this world, hastened by the pestilential atmosphere in which he has lived, and the privations he has endured, are probably drawing to a close.

The state of the houses of the poor, as well as that of the streets and localities in which they are situated, constituted one of the chief objects of inquiry of the "Special Board of Health," formed in Manchester on the visitation of malignant cholera to this country. From the united reports of the various inspectors appointed to the different sections into which the town was divided for the purpose of being inspected, a mass of evidence of the most extraordinary and painful description was elicited. The most important parts of the information thus collected were published by Dr. Kay,* and created a very strong sensation at the time amongst the more wealthy portion of the inhabitants, who were astounded at the facts brought to light.

A few of the results of this inquiry may be stated, to show the deplorable condition at that time (1832) of the streets and tenements inhabited by our pauper population.

Of 687 streets inspected, 248 were reported unpaved, 53 partially paved, 112 ill ventilated, and 352 containing heaps of refuse, stagnant pools, ordure, &c.

The number of houses inspected was 6951, and of these 2565 were reported as requiring whitewashing, 960 requiring repair, 939 in which the soughs wanted repair, 1435 damp, 452 ill ventilated, and 2221 were reported as wanting privies.

The state of some of the streets and courts examined was found by the inspectors abominable beyond description, and exhibited a melancholy picture of the filthy condition and unwholesome atmosphere in which a large portion of our poor are doomed to live. As an example, I will extract the description given of the state of Little Ireland, from the proceedings of the Special Board of Health, which I have been permitted to examine, through the kindness of the boroughreeve, John Brooks, Esq.

* Moral and Physical Condition of the Working Classes in Manchester.

"The undersigned, having been deputed by the Special Board of Health to inquire into the state of Little Ireland, beg to report, that in the main street and courts abutting, the sewers are all in a most wretched state, and quite inadequate to carry off the surface water, not to mention the slops thrown down by the inhabitants in about 200 houses. The privies are in a most disgraceful state, inaccessible from filth, and too few for the accommodation of the number of people, the average number being 2 to 250 people. The upper rooms are, with few exceptions, very dirty, and the cellars much worse, all damp, and some occasionally overflowed. The cellars consist of two rooms on a floor, each 9 to 10 feet square, some inhabited by 10 persons, others by more; in many, the people have no beds, and keep each other warm by close stowage on shavings, straw, &c.: a change of linen or clothes is an exception to the common practice. Many of the back rooms, where they sleep, have no other means of ventilation than from the front rooms.

"Some of the cellars on the lower ground were once filled up as uninhabitable, but one is now occupied by a weaver, and he has stopped up the drain with clay to prevent the water flowing from it into his cellar, and mops up the water every morning."* In addition to the circumstances here mentioned, the unhealthiness of this spot is further increased by its low and damp situation in a deep hollow, bounded on one side by a filthy and stinking brook, which readily overflows after rain; on another, by a very steep embankment; and on another, by a high wall, which separates it from the gas-works; and surrounded, moreover, by numerous high factories.

The above description represents as faithfully the present state of this place as it did its condition eight years ago. On the open space in the centre, which was formerly uncovered, numerous pigsties are now erected, which add, if possible, to its insalubrity. All the streets on the west side of the square are blocked up at one end by a high wall, so that each forms a *cul-de-sac*, a mode of construction which precludes the possibility of effectual ventilation. Close to this wall, at the upper end of these streets, are placed filthy and dilapidated privies, with large open cesspools, which are frequently full to overflowing. The present condition of those in Bent and James Leigh-streets are disgusting and offensive beyond conception.

Little Ireland, as its name implies, is inhabited almost exclusively by Irish, and these of the most improvident and dissolute habits; regardless alike of order, cleanliness, and comfort, a circumstance which in some degree accounts for its disgraceful and dirty condition, for it is always observable that those quarters where the Irish congregate are the worst in this respect,—little Ireland has long been remarkable as affording numerous cases of

* MS. Proceedings of the Special Board of Health, vol. i. page 52.

fever; and scarlatina and small-pox have frequently committed extensive ravages amongst the children there. When I had charge of the district in which this insalubrious spot is situated, during my connexion with the Royal Infirmary, the great prevalence of fever in it forcibly struck me; and from recent inquiries I find it still maintains this unenviable character. At a lodging-house, No. 15, Foedge-street, 4 cases of fever occurred from the 24th December, 1839, to 1st February, 1840; and several persons were also affected in the same house in April and May, 1838. At No. 1, Anvil-street, 4 cases occurred between 30th November and 9th December, 1839. Both these streets are situated very low, are unpaved, and covered thickly with mud and refuse. Directly opposite to the house in Anvil-street is a piggery, the drainage from which renders the locality extremely filthy. Foedge-street is nearer the brook, and is frequently flooded several feet deep.

Great efforts were made by the Special Board of Health, with the co-operation of the parochial and municipal authorities, to remedy or mitigate the evils and nuisances represented to them; but owing to deficiency of funds, to defects in the various enactments for the management of the town, and the absence of any clauses for rendering the paving, draining, and cleansing of streets compulsory, no very great permanent advantages resulted from their exertions. Since the time these reports were made, however (now more than 8 years), much has been done towards improving the state of the streets. Great numbers have been thoroughly paved and soughed, and the charge of keeping them clean and in repair having devolved upon the town, they are now regularly scavenged.

This improvement has been effected through the agency of the recent Police Act, which came into operation 9 years ago, and which gives to the Commissioners of Police additional powers for enforcing the proper completion of streets. In the old Act there was no power vested in the Commissioners to compel owners to pave and sewer streets, though when they agreed to do so, and executed the work to the satisfaction of the authorities, the Commissioners had power to declare such streets public highways, and they were thenceforth repaired and scavenged at the expense of the public. The Act of 1830 authorizes the Commissioners to give notice to the owners and occupiers of property to pave and sewer streets, and if this notice be not complied with within six months, the Commissioners are then empowered to execute the work themselves, and charge the cost to the owners, in proportion to the lengths of their respective frontages into the street.

For this information I am indebted to Mr. Wroe, comptroller, and through his kindness I am enabled to furnish the following statement of what has been effected in the improvement of the streets under the present Act:—

Number of streets paved and sewered . . . 146

	Miles.	Yards.
Length of streets paved and sewered .	13	1,402
Length of main sewers formed . . .	13	160
Length of cross sewers formed . . .	5	103

Surface of streets paved . 251,791 square yards.

The benefits which this Act has conferred upon the town will at once be evident from this statement; and though, from inability to obtain the requisite information, I have not been able to compare the number of fever cases occurring latterly in these streets with the former numbers, it is most probable they have considerably diminished, and there can be no doubt that the general health of the inhabitants has been greatly improved by the change.

It were much to be wished that the remarks made relative to the improvements of the streets could be extended to the houses of the poor, but in this respect no amendment has taken place; and owing to the apathy or avarice of owners of cottage property, great obstacles stand in the way of effecting any. They are now as filthy and deficient in necessary conveniences,—as dilapidated, damp, and ill ventilated as they were in 1831, when the Special Board of Health made its inquiries.

And notwithstanding all that has been done in the improvement of the streets, the number requiring paving and soughing, and into which the scavenger never enters, is still very great; for as those more central have been completed, others have been laid out in the outskirts equally without pavements and drains, and into which all the refuse, slops, and filth from the houses are unceremoniously thrown, and left there to decay and exhale their noxious vapours; so that these streets bid fair in a short time to rival their former prototypes in the interior of the town.

It is greatly to be lamented that the same crowding and ill planning of houses, which is seen in the older parts of the town, and which has been productive of such bad effects on the health of the inhabitants, should still continue to be frequently imitated in the cottages erected for the poor. The practice of building houses at the backs of those fronting the street, with only an extremely narrow passage intervening, and the doors of the former opening directly opposite the privies and uncovered cesspools of the latter, is still shamefully common. In one respect there is certainly an amendment; the houses are not now generally more than two stories high, and cellars are not so general as formerly. The proportion of fever cases occurring in cellars has always been very large, and the practice of letting them as habitations for the poor ought to be discountenanced as much as possible. Their construction renders it quite impossible to make them salubrious; few of them can be made dry, or be properly ventilated.

In some of the new streets the backs of the cottages are built

in close contact with each other, each having but two rooms, one on the ground-floor and one above; so that, in fact, the front and back of these houses constitute a separate tenement. The great disadvantage of this plan is the paucity of privies and the absence of any receptacle for refuse or provision for carrying off the slops. There is not usually more than one privy to 20 or 30 houses, and this being generally placed in one of the narrow covered passages (intersecting the line of buildings at intervals), from its open and filthy state, renders these passages extremely offensive and insalubrious.

A very observant and experienced physician, in a sketch of the Medical Topography of Manchester, published in 1830, in allusion to this subject, has remarked, "The number of private, unpaved, and consequently filthy streets, is lamentably great in Manchester; the picture drawn by Sir W. Scott of the village of Tully-Veolan may, in part, be taken as a faithful representation of their condition; the only scavengers that enter them are dogs and swine, allowed to roam at large, and they are useful in their way, by consuming some of the offal which is indiscriminately cast in heaps before the doors. It is much to be regretted that the surveyors of the highways, or some other body of gentlemen specially appointed, were not, 40 years ago, invested with authority to regulate the laying out of building-land within the precincts of the town, and power to enforce the observance of certain conditions on the part of the owners and lessees of such property. If the growth of Manchester had proceeded under such auspices, and if every street and court, as soon as completed, had been taken charge of by the puplic functionaries, there would be no occasion now to reprobate the offensive and disgraceful exhibitions of accumulated filth which present themselves in every quarter. . . . There cannot be a rational doubt that much disease has arisen from the state of things here complained of, and it is hoped that the Bill brought into Parliament during the present Session will be found an effectual remedy for the evil."* The hope here expressed has been but partially realized, and it is unfortunate that a clause for regulating the laying out of building-land and enforcing the construction of adequate drains was not inserted in the Act, in accordance with the foregoing suggestion.

Besides the increase of fever attributable to the malaria arising from the want of drainage and collections of refuse in the neighbourhood of the dwellings of the poor, it is the indirect cause of many other diseases, probably to a much greater amount. By impairing the physical condition and lowering the standard of health of the inhabitants, it promotes the development of scrofula, consumption, stomach affections, &c., and renders those exposed to it peculiarly liable to suffer from all prevailing epidemics.

In addition to these *physical* evils, the unpaved and filthy state

* Dr. Lyon, in North of England Med. and Surg. Journal, No. 1, page 17.

of the streets has also a most baneful *moral* effect upon the residents, who, from long familiarity with all kinds of loathsome sights and stench without, acquire an indifference to cleanliness and neatness in the interior of their houses,—an indifference which soon extends to their personal habits. Such feelings are much to be regretted; they have a very injurious and demoralizing tendency by engendering a want of self-respect and a disregard for decency of appearance, and form a serious impediment to domestic comfort and to improvement in the social condition of the poor.

If some of the more dense and crowded parts of the town were intersected by a few wide streets, and an open space or two made so as to give more air and afford the means of better ventilation, there cannot be a doubt that the health of the inhabitants would be greatly benefited; and as the adjoining property would be much increased in value, it is probable these improvements might be effected at a very moderate expense. The greatest advantages, for instance, would result from some such improvement in that densely crowded part of the Collegiate Church district, bounded by Shude-hill, Hanover-street, Long Millgate, Todd-street and Withy-grove. The space enclosed within these boundaries contains some of the most insalubrious streets in the town, and notorious as furnishing numerous cases of fever; of which Garden-street, Back Garden-street, Back Hanover-street, and Wells-street, with Huntsman's-court, are the worst; the last, chiefly inhabited by the lowest prostitutes, is one of the most filthy and disgusting places which can be imagined.

It appears to me unnecessary to lengthen this report by specifying the particular localities in which nuisances, productive of malaria, tending injuriously to affect the health of the inhabitants, and to promote the prevalence of contagious diseases, exist; but it may be well to mention a few of the streets which, either from being unpaved, or without drains, or containing collections of refuse, &c., or being over-crowded and ill ventilated, have been remarked to be particularly unhealthy.

In *Ancoats district,* the lower end of Pott-street, Back Pott-street, Pott-street court, Fairbottom's-court, some parts of Carruthers-street, Back Portugal-street, the top of Primrose-street, Leigh-street east, and Lloyd-street, are the worst which occur to me. In all these places disgraceful accumulations of filth and other nuisances exist; and in all of them I have lately attended patients ill of fever, in the capacity of physician to the Ardwick and Ancoats Dispensary. I have recently had three cases of fever in one house, in a small confined court in Back Factory-street. The house is inhabited by seven persons, and consists of but two small rooms, about 9 feet square, in one of which all these individuals sleep upon the floor, for they have no bedstead, and very little bed-covering. The passage to this court is almost impassable from filth, and directly opposite to the house in question is placed

an uncovered cesspool, which is the only receptacle for all the refuse and excrementitious matter from the whole court, and many of the neighbouring houses. Three cases also occurred in Chapel-court between the 2nd and 12th October last; and several in Stopford's-court, a very filthy place. Five cases originated at 13, Lomax-street, between the 7th November and 7th December, 1839,—a street abominably offensive from collections of refuse. Mather-street, Cross Mather-street, and Forty-Row are also similarly circumstanced, and furnish many fever patients. I ought, however, to state that the dispensary patients affected with fever which have come under my care, have been by no means confined to these filthy localities,—many cases having occurred in streets which were well paved, drained, and tolerably clean, and where the disease could not be attributed to any evident external cause.

The streets in *Angel Meadow district* have been greatly improved of late, but there are many still in an extremely wet, filthy, and disgraceful state. As examples, Crown-lane, Nelson-street, and some of the adjoining courts, Back Ashley-lane, Charlotte-street, Parker-street, Irish-row, and Water-street may be mentioned; in all of which fever is frequently occurring. Hargreave's-street, situated opposite some dye-works on the river Irk, has long been in a most abominable condition from accumulated filth; it is at present nearly knee-deep in mire and refuse. During the epidemic of 1837-38, fever prevailed here and in the street behind to an alarming extent. In some of the houses all the inmates were attacked in succession; the disease was of a severe type, and several cases proved fatal. In one instance I found a woman ill of fever, whose husband, just dead of the disease, was lying in the same bed by her side. A dirty and crowded pile of dilapidated old buildings, called Gibraltar, is peculiarly notorious as a fertile source of fever; and several cases have lately occurred at No. 9. In many of the streets leading out of Angel and Blakeley-streets, and in some of the cellars in St. George's-road, fever almost constantly exists.

In a filthy place called Connaught-court, New Mount-street, at one end of which is a privy in a most disgusting and dilapidated condition, with a large uncovered cesspool, fever has often been very prevalent; and there are several other dirty courts in the vicinity where it frequently abounds. Back Simpson-street, paved and drained, but narrow, confined, and filthy from ordure and mud; Nicholas-street, at one end of which is a large collection of dirt, manure, &c., being the accumulation from a pigsty, and the drainage from a neighbouring filthy street; and Old Mount-street, containing some very damp cellars much below the surface, are all sites from which fever is seldom absent. At a crowded lodging-house in Clockface-entry, a most foul spot, three fever cases occurred between the 7th June and 17th July, 1839.

These two districts are very densely populated, principally by hand-loom weavers and the workpeople employed in the factories,

a large proportion of whom are Irish, living for the most part in a state of extreme indigence, and without the least attention to cleanliness. Altogether they comprehend by far the worst quarters of the town both as regards the wet and filthy state of the streets, the dirty, damp, and dilapidated condition of the houses, and the improvidence, poverty, and destitution of the inhabitants; and, as might be anticipated, they furnish the great bulk of our fever patients.

Some of the worst localities in the *Collegiate Church district* have already been mentioned; to which may be added several of the courts leading out of Long Millgate. There are also some filthy and crowded lodging-houses in Garden-street, particularly Nos. 16 and 18, likewise a close ill-ventilated cellar at No. 30 in the same street, and a similar one in Red-fern-court, where fever often prevails. The unhealthiness of this district arises more from overcrowding and want of ventilation than from moisture or accumulated filth in the streets, most of which are paved and drained.

The state of the streets in *Bank Top district* is not generally so bad as in many other parts of the town where the poor reside, though some spots might be pointed out as particularly unhealthy; of which Little Ireland, already mentioned, is the chief. Back Hunt-street, also in this district, is a long narrow court, the only entrance to which is at one end down a flight of steps. The other end being closed by a high wall, and the houses being lofty, ventilation is impossible. Half way down the steps are placed some open and filthy privies, at present intolerably offensive. The cellars on one side of the street are the most dismal and wretched habitations which can be conceived. They consist of two apartments, the interior of which, having no aperture to admit either light or air except the door leading into the front room, is nearly quite dark. Many of them are at present empty, being, it would seem, so extremely comfortless and forbidding in appearance that tenants, little fastidious as they generally are to matters of this kind, cannot be procured. It will not excite surprise that fever has at various times been very prevalent in this place, though it does not appear to have been particularly so lately.

Deansgate district usually furnishes a considerable number of fever patients. It is probable, however, the disease is here attributable more to overcrowding and want of ventilation, aided by the destitution, and the dissolute and filthy habits of the people, than to accumulations of refuse in the streets, most of which are paved, drained, and regularly scavenged.

There are several unhealthy situations in *Salford*, where fever is generally more or less prevalent. These are chiefly those parts which are low and damp, or bordering upon the river, where it is liable to overflow its banks. As examples, some places may be mentioned in the vicinity of Oldfield-road, Hope-street, and the streets branching from it, Canal-street, Barrow-street, Wickham-

street, and Regent-street, most of them unpaved, unsoughed, and filthy, and the inhabitants generally very poor. In that portion of the town included between New Bailey-street and Blackfriars-bridge, which is confined, densely populated, and in many parts very dirty, fever is also frequent. Several streets situated on some low ground behind the Adelphi, and others leading from Broughton-road and Greengate towards the river, furnish many fever patients. "But the spot of all others the least friendly to health and comfort is the Old Cloth Hall, situated nearly opposite the confluence of the Irk and the Irwell, but inaccessible to the purifying breeze which might be expected in such a situation. The approach to this place is by an archway from Greengate, and the visitor finds himself involved in a labyrinth of low dwellings, consisting partly of the old building formerly used as a cloth-hall, divided into two stories by an open gallery in front, from which the upper rooms are entered, and every room being a separate tenement;—partly of a range of cottages recently built across the area, with other cottages outside of these, so as to leave a very narrow space between the several rows. A few years ago, one-third of the patients, removed by a physician of the infirmary from Salford to the fever hospital, were taken from this nursery of disease."* Yet it is very remarkable that not one home-patient affected with fever was admitted at the Salford Dispensary from this insalubrious place from June, 1838, to June, 1839:—strong presumptive evidence that something in addition to an unhealthy site is necessary for the *generation* of typhoid fevers.

For much information relative to some of the localities in which fever has recently prevailed, I am indebted to Messrs. Harrison and Furnival, physician's clerks at the Manchester Royal Infirmary, and Mr. Southam, late house apothecary at the Salford Dispensary.

Of the 1042 patients admitted into the House of Recovery from the 31st May, 1838, to the 31st May, 1839, 276 came from Ancoats district, 320 from Angel Meadow district, 104 from the Collegiate Church district, 141 from Bank Top district, 134 from Deansgate district, and 67 from Salford. It is evident, however, that no inference can be drawn as to the comparative prevalence of fever in these districts, from these numbers, unless the indigent population of each was known.

With a view of ascertaining, as far as is practicable, the relative prevalence of fever to other diseases in different parts of the town, I made a calculation of the proportion of the former occuring amongst the home-patients attended by the physicians of the Royal Infirmary and the dispensaries during the past year, in each of their respective districts; and the following statement exhibits the result. The six first comprise the several infirmary districts into which the town is divided, for the purpose of being more con-

* North of England Medical and Surgical Journal, No. 1, page 19.

veniently visited, and the state of the streets, each of which has been briefly noticed:—

In Ancoats district there was	14·38	per cent. of fever.
In Angel Meadow ,,	21·58	,,
In the Collegiate Church	25·58	,,
In Bank Top ,,	15·84	,,
In Deansgate ,,	13·81	,,
In Salford ,,	12·56	,,
At the Chorlton-on-Medlock Dispensary there was . .	22·43	,,
At the Ardwick and Ancoats do..	16·15	,,
At the Salford do. . . .	17·95	,,

Owing to the imperfect registration of the diseases at most of these institutions, the accuracy of the above calculations cannot be implicitly relied upon, but they will nevertheless serve to give some idea of the relative prevalence of fever in particular localities. In many instances it is certain that cases of slight febrile excitement, which has passed off in a day or two, have been denominated fever, though they cannot properly be placed in the class of diseases which are the subject of this report. This has probably been the case at the Chorlton-upon-Medlock Dispensary, where, according to the register, the ratio of fever appears to be higher than in most parts of Manchester;—a circumstance which is extremely doubtful, and probably the reverse of truth, for the streets in this district are generally better paved and soughed, and more free from accumulations of filth than those in other parts of the suburbs, and the labouring classes are not commonly so extremely indigent or destitute. Frequently no entry at all is made of the disease, so that some cases of fever may not be included; but as this omission in the register is generally owing to some obscurity in the complaint, it seldom occurs amongst the fever cases, as there is not likely to be any difficulty in detecting them;—besides, as the patients affected with contagious fever occurring at the infirmary are usually sent to the House of Recovery, and marked as so disposed of in the book, this circumstance serves as an additional check to the error in question.

In order to account for the discrepancy in the proportion of fever occurring amongst the home-patients in Salford, attended from the infirmary and those attended from the Salford Dispensary, it is necessary to state that the number of patients from this district, which is now admitted under the infirmary, is too small to form any calculations upon, and that the acute cases, such as fevers, are chiefly attended by the Dispensary physicians.

Without placing too much reliance on the accuracy of the above calculations, as to the proportion of fever to other diseases in particular localities, I think it fully establishes the opinion subsequently stated, that human miasms constitute a fertile source of fever, and that the disease is usually most prevalent in the more confined, close, and ill-ventilated parts of the town, and in overcrowded lodging-houses. The Collegiate Church district is certain y the worst in this respect, and there the ratio of fever appears much higher than anywhere else.

Notwithstanding the generally admitted fact that fever is most prevalent in localities where refuse is allowed to accumulate and decay, and notwithstanding all the evidence which has been adduced here in support of that opinion, the existence of some other cause seems necessary for the generation of the disease. It would not be difficult to point out places in a most abominably filthy state, which have remained free from fever for a long period; yet no sooner has one case occurred, than the disease has spread with the greatest rapidity. In the course of my necessary inquiries for the preparation of this report, I have met with many more filthy situations, in which the occurence of fever is extremely rare:—a fact, of which I have satisfied myself, both from the records of the medical institutions and from the evidence of the residents.

My own impression is that the overcrowding and neglect of ventilation, the dissipated habits, and above all, the poverty and destitution which prevail amongst the inhabitants of the low and filthy quarters of large towns, are more powerful causes of fever than the malaria to which those people are exposed, for we find that persons who are well fed and abundantly supplied with the necessaries of life, bear with impunity exposure to the most offensive effluvia arising from putrefying animal matters; or at least that in them it does not produce fever. Mr. Herbert Mayo, after noticing the detrimental effects of exhalations from living persons, observes, "the decomposition of animal substance (*not of a morbid origin*) does not appear equally prejudicial to health. The medical student who is diligent in his attendance in hospitals is often compelled to desist by ill health, which had not happened to him when prosecuting anatomy. M. de Noe mentions in his 'Mémoires relatifs à l'Expédition Anglaise de l'Inde en Egypte,' how little injurious to health the mass of putrefaction attending the oyster-fishery in a hot climate is found to be:—'Although millions of oysters are putrefying under a burning sun, in the very midst of a dense and promiscuous mass of human beings, filling the atmosphere with a most intolerable stench, sickness is hardly known.' In like manner, in the process of grinding bones in this country for manure, a smell the most dreadfully offensive attends the operation, yet the men who are constantly inhaling this odour, are exceedingly healthy. Butchers, tripe-men, tanners, candle-makers, are all exposed more or less to the effluvium from animal matter in various degrees of decomposition, and yet are far from being unhealthy; or rather, the degree of unwholesomeness in

these cases bears no proportion to the offensiveness of the effluvia; and although all accumulations of animal matter should be viewed with suspicion, and removed or obviated, it is singular in how small a degree, unless combined with the produce of living exhalation, or of vegetable matter, they ordinarily prove deleterious."*

4. The pernicious effects resulting from human miasms, or the vitiation of the atmosphere by the congregation of many persons in a confined space, are lamentably illustrated in the common *lodging-houses* of the poor; the crowded, dirty, and ill-ventilated state of which is, I conceive, without doubt, one of the most prolific sources of fever in Manchester. To those who have not visited them, no description can convey anything like an accurate idea of the abominable state of these dens of filth, disease, and wretchedness.

This is not an evil of recent date. So long ago as the year 1792 these establishments received the especial notice of Dr. Ferriar, who pointed them out as one of the chief sources of fever in Manchester at that time. "The mean lodging-houses in the outskirts of the town are the principal nurseries of febrile contagion. Some of these are old houses, composed of very small rooms, into each of which three, four, or more people are crowded, to eat and sleep, and frequently to work. They commonly bear marks of a long accumulation of filth, and some of them have scarcely been free from infection for many years past. As soon as one poor creature dies, or is driven out of his cell, he is replaced by another, generally from the country, who soon feels in his turn the consequences of breathing infected air."† So convinced was this philanthropic physician of the extensive evils produced by these houses, that he proposed having them licensed, as the only remedy. "If lodging-houses were licensed, and brought under the notice of the civil magistrate, many of the causes of fever might be prevented. They might be visited by proper officers, frequently, and regular reports of the names, occupations, conduct, &c. of the lodgers, as well as of the state of the houses with regard to infection, might be laid before the magistrates of the district. It would not be difficult to discover at what point the want of cleanliness becomes dangerous, and as far as scouring and white-washing can remedy that defect, the hazard might be prevented."‡

In the preface to the Annual Report of the Board of Health for the year 1802, written by Dr. Holme, the necessity of legislative interference is also alluded to:—"The want of proper regulations in common lodging-houses is an evil on which we have often had occasion to animadvert, and for which we are persuaded no adequate remedy can be obtained without Parliamentary interposition."

* The Philosophy of Living. London, 1838, 2nd edition, page 213.
† Medical Histories. London, 1792, vol. i., page 136.
‡ Medical Histories. London, 1792, vol. i., page 141.

The state of the common lodging-houses to which the poor resort is still the same as it was when the above remarks of Drs. Ferriar and Holme were made; and if they are not now worse, it is only because they were then as bad as it was possible for them to be. Though the magnitude of the evils arising from them has on various occasions attracted attention, no effective measures have yet been taken permanently to remedy them.

From the inquiry entered into by the "Special Board of Health" already alluded to, it appears that, in 1832, the number of these houses amounted to 267.* As had been anticipated from the reports then made of their state, the havoc caused by cholera in these places was terrible. A most violent and extraordinary outbreak of the disease took place in a lodging-house, No. 12, Blakeley-street, well known to the medical officers of the Royal Infirmary as a prolific source of fever. Out of 18 persons at that time staying in the house, 10 were attacked and 8 died.†

The great prevalence of fever in these houses during the severe epidemic of 1837-38 attracted the especial notice of the Board of the House of Recovery, who passed and transmitted the following resolution on the subject to the churchwardens on the 3rd of January, 1838:—"It appearing that a great number of cases of fever originates in the common lodging-houses of the poor of the town, this Board begs to suggest to the churchwardens and sidesmen the desirableness of appointing proper persons to inspect the same, in order to prevent, as far as possible, by cleanliness and ventilation, the increase and spread of this malady." In consequence of this suggestion the parochial authorities did immediately cause some of the most filthy of these establishments to be cleansed and white-washed; but it is evident that temporary exertions of this kind, however praiseworthy, are quite inadequate to effect much permanent improvement.

In some of these houses as many as 6 or 8 beds are contained in a single room; in others, where the rooms are smaller, the number is necessarily less; but it seems to be the invariable practice of these "keepers of fever beds," as the proprietors were styled by Dr. Ferriar, to cram as many beds into each room as it can possibly be made to hold; and they are often placed so close to each other that there is scarcely room to pass between them. The scene which these places present at night is one of the most lamentable description; the crowded state of the beds, filled promiscuously with men, women, and children; the floor covered over with the filthy and ragged clothing they have just put off, and with their various bundles and packages, containing all the property they possess, mark the depraved and blunted state of their feelings, and the moral and social disorder which exists. The suffocating stench and heat of the atmosphere are almost

* MS. Proceedings of the Special Board of Health, vol. i. page 114.
† Dr. Gaulter on Cholera in Manchester, page 39.

intolerable to a person coming from the open air, and plainly indicate its insalubrity. Even if the place be inspected during the day, the state of things is not much better. Several persons will very commonly be found in bed; one is probably sick, a second is perhaps sleeping away the effects of the previous night's debauch, whilst another is possibly dozing away his time because he has no employment, or is taking his rest now because he obtains his living by some night-work. In consequence of this occupation of the room during the day, the windows are kept constantly closed, ventilation is entirely neglected, and the vitiated atmosphere is ever ready to communicate its poisonous influence to the first fresh comer, whom habit has not yet rendered insensible to its effects, an exemption which seems to be in some degree acquired by habitual exposure, and which accounts for the immunity frequently enjoyed by the keepers themselves of these houses, whilst their lodgers are attacked in succession. This circumstance, which was particularly noticed by Dr. Ferriar, I have often observed. Where cellars are occupied as lodging-houses, the back room is generally used as the sleeping apartment; and as this has often no window, and can, therefore, only receive air and light through the door opening into the front room, the utter impossibility of ventilation renders the ravages of infectious fevers particularly destructive, when they once find entrance.

The beds and bedding, being seldom washed or changed, are generally in the most filthy condition, and consisting usually of those porous materials to which contagious vapours are especially liable to attach themselves, the danger of sleeping in them may be well conceived. Even if a bed has been occupied by a fever patient who has died, or been removed, it is often immediately used by fresh lodgers, without having undergone any purification.

From this description, which applies to a large proportion of the common lodging-houses, and in which there is no exaggeration, it is evident that it would scarcely be possible to contrive places more likely to be effectual in promoting the spread of infectious diseases. They are, in fact, complete hot-beds of contagion, ever generating and nurturing the seeds of fever, and disseminating it amongst the unfortunate beings who chance to take up their abode therein;—receptacles in which contagion almost constantly exists, and where its pestilential properties are never weakened by its natural antidotes, cleanliness and ventilation. When infection has once been introduced into these abodes, it will be readily conceived that they retain the power of communicating the disease for a great length of time.

It would be easy to point out particular lodging-houses in which cases of fever have been more or less frequently occurring for many years. There are several in Angel-street, Blakeley-street, Hanover-street, and Garden-street, particularly notorious on this account. A crowded one in Mason-street, No. 31, has latterly furnished

many fever patients. Several cases have recently occurred at 24, Mitchell-street, a house consisting of but four small rooms (besides a scullery and a little room above, corresponding), and in which 21 persons were residing previous to the breaking out of the fever. Of these 21 persons, 7 have had the disease within two months, and 2, both adults, have died. At a crowded lodging-house, No. 2, Larkin's-court, Lees-street, 5 cases occurred between the 26th March, and 12th June, 1839. There is a very dirty one in Ludgate-street, No. 11; 1 at 36, Miller-street; and another at 52, Angel-street, in the cellar, where many persons have recently become affected with fever: 2 or 3 in Garden-street have already been mentioned.

The inmates of these establishments are constantly changing; and, carrying the contagion either in their persons or their clothes, they readily infect individuals with whom they come in contact, in their migrations through the town; and in this way fever is often widely and rapidly disseminated.

The disgraceful state of these lodging-houses has been dwelt upon at some length, because I consider their evils of a most serious and extensive nature, and I feel quite satisfied they are the most malignant and active foci of infectious fevers in Manchester. Indeed it is my decided opinion that the vitiation of the atmosphere by the living is much more injurious to the constitution than its impregnation with the effluvia from dead organic matter; and certainly all I have observed in Manchester induces me to consider the "human miasms" generated in overcrowded and ill-ventilated rooms as a far more frequent and efficient cause of fever than the malaria arising from collections of refuse and want of drainage. I have been led to this conclusion from having remarked that fever has generally prevailed more extensively in those houses where the greatest numbers were crowded together, and where ventilation was most deficient, although the streets in which they are situated may be well-paved, drained, and tolerably free from filth, than in those where there was less crowding, notwithstanding their locations in the midst of nuisances giving rise to malaria. This inference is also supported by the fact of the higher relative proportion of fever to other diseases which has been shown to exist in the Collegiate Church district, where the number of crowded lodging-houses and confined courts, the closely compacted state of the buildings, the narrowness of the streets, and consequent density of the population and absence of ventilation, are most remarkable.

Again, fever is usually most prevalent in winter, when putrefaction goes on more slowly than during the hotter months of summer, and when malarious exhalations are least copious. Many circumstances conspire to develope and augment the virulence of human miasms, and in other ways increase the prevalence of the disease at this season; the more crowded state of the houses during

the day, owing to the inclemency of the weather, the more imperfect ventilation, every crevice by which a little air could enter, being stopped to keep out the cold; the greater scarcity of employment; the higher price of provisions, the more severe suffering from want of clothing and fuel; and, in short, the greater poverty and destitution, which generally exist during the winter.

It scarcely comes within the scope of this report to dwell on the other evils, besides that of diffusing contagious diseases, which arise from the present deplorable condition of the establishments under consideration, but they will readily suggest themselves to every one on a moment's reflection. They serve as open receptacles for crime, vice, and profligacy, and as nurseries in which the young and yet uninitiated become familiar with every species of immorality. They are the haunts of the most depraved and abandoned characters as well as the most miserable and suffering objects of the town, and constitute one of the most influential causes of the physical and moral degradation of our labouring population. Dr. Kay has described the state of these pauper lodging-houses so graphically, that I cannot refrain from quoting his words, corroborative as they are of my own views: "The establishments thus designated are," he says, "fertile sources of disease and demoralization. They are frequently able to accomodate from 20 to 30, or more lodgers, among whom are the most abandoned characters, who, reckless of the morrow, resort thither for the shelter of the night—men who find safety in a constant change of abode, or are too uncertain in their pursuits to remain beneath the same roof for a longer period. Here, without distinction of age or sex, careless of all decency, they are crowded in small and wretched apartments; the same bed receiving a succession of tenants, until too offensive even for their unfastidious senses. . . . . The temporary tenants of these disgusting abodes, too frequently debased by vice, haunted by want, and every other consequence of crime, are peculiarly disposed to the reception of contagion. Their asylums are frequently recesses where it lurks, and they are active agents in its diffusion. They ought to be as much the objects of a careful vigilance from those who are the guardians of the health, as from those who protect the property of the public."*

The necessity of some means being adopted for the inspection and better regulation of these houses is so evident and so pressing that it seems quite superfluous to insist longer upon it; and it is hoped the subject will receive the early and serious attention of the Legislature.

In speaking of the injurious consequences arising from the congregation of large numbers, I have made no allusion to the factories of the town; because, from the strict attention which is *now* generally paid to cleanliness and ventilation on the part of

* Moral and Physical Condition of the Working Classes in Manchester, 1832, 2nd edition, page 33.

the owners, I believe they are perfectly free from all causes likely to produce fever. And herein is an instructive and forcible illustration of the good effects of cleanliness and ventilation in causing the diminution of fever, for formerly, when these were little regarded, fevers often originated in the factories, and extended rapidly among the people employed in them, as appears from the writings of Drs. Percival and Ferriar, as well as from the early proceedings of the Board of Health in Manchester. The superiority of the atmosphere in the generality of the present factories over that of the wretchedly damp and foul dwellings in which many of the work people live, in point of salubrity, cannot be doubted. On this subject Dr. Gaulter has made some striking remarks, in noticing the large share of exemption from cholera enjoyed by persons employed in manufactures, when that disease visited this town. He states that out of the 200 first cases which occurred, only 23 worked in factories, and of these 12 were out of work, or accidentally remaining at home at the time.*

In looking over the proceedings of the Board of Health, I find constant notices of the prevalence of fever being attributed to the dirty and undrained state of the streets, and the filthy and crowded condition of the common lodging-houses. One or two of these observations have already been mentioned, and, in order to give confirmation to the preceding statements, I will extract a few more, from the prefaces to the Annual Reports, drawn up by the physicians to the House of Recovery. In that for the year 1818, written by Dr. Lyon, it is remarked, "But it must not be concealed that pecuniary contributions alone are insufficient for the attainment of the great object in view—the prevention of infectious fever in this town and neighbourhood. So long as the narrow streets, lanes, and courts continue to exhibit a noxious accumulation of filth and rubbish,—so long as any large number of the poor continue to be so regardless of cleanliness and comfort as they at present appear to be,—and particularly whilst the *lodging-houses*, resorted to by the vagrant poor, are suffered to remain in the ill-regulated, crowded, and dirty state which has been observed to characterize too many of them during the past year, there will never fail to be an alarming number of applicants for admission within the walls of this House. It may be worthy of serious consideration, what benefits might result from a system which should place lodging-houses of the above description under the superintendence of the police. As an instance of the tendency of these disorders to propagate themselves, we may state that 18 people, dwelling in a house situated in Little John-street, Turner-street, were, within a period of 30 days, attacked in succession with fever; and 3 of them fell victims to it." In the preface for the year 1828, composed by Dr. Charles Henry, it is stated, "The judicious observations of the resident clerk, Mr. Wallis, have

* Origin and Progress of Cholera in Manchester, page 120.

established one fact, which cannot be too strongly impressed on the public mind. A very large majority of our patients are received from those unpaved streets, in which animal and refuse matters are allowed to accumulate, evolving, during decomposition, the most pernicious effluvia. It is earnestly to be hoped that some plan may be adopted of subjecting such streets to the usual police regulations." In the report for 1830, the diminution of the number of patients and absence of any epidemic fever is noticed. "Whether our comparative immunity from such a scourge may be imputed to the course of the seasons, to a more efficient system of police, or to an increase of comfort, and more animating prospects among the labouring classes, it is not easy to say. That the relative condition of these classes has, with a few exceptions, been improving lately, is tolerably clear; and it is hardly necessary to point out the importance of dry and airy dwellings, along with abundance of wholesome food and freedom from anxiety about the future, as preservatives against the inroads of fever." In the preface for 1831, the writer, Dr. Carbutt, in noticing the existence of fever of a peculiar type termed "gastro-enteritis," attended with ulceration of the mucous membrane of the alimentary canal, alludes to the disgraceful state of the streets and dwellings of the poor. "This affection seems to have its origin, partly in some peculiar and unknown state of the atmosphere, quite independent of heat or cold, moisture or dryness,—partly in poverty of diet, in habits of intemperance, in the alternation of exciting and depressing passions, in the want of personal cleanliness, and in the impure air generated in the filthy back streets, lanes, alleys, and courts of the town, and in the miserable, dark, and ill-ventilated hovels of the poorer classes, more especially those of the Irish labourers, in which 6, 8, 10, 12, and even 14 persons, are sometimes found occupying, nightly as well as daily, the same room. It is a melancholy, but certain fact, that 6 or even 8 patients will occasionally follow in succession from the same wretched cellar or house, before the attention of the inmates or of the owner is roused to make the necessary exertions for extirpating the disease by ventilation, whitewashing, and other means of cleanliness."

5. Besides the causes of fever which have hitherto been under consideration, there are several others whose power to generate the disease cannot be doubted; and as some of these are in active and extensive operation in Manchester, it is necessary they should be noticed, to render this inquiry complete. The chief of the causes here alluded to are, all the depressing passions of the mind, imperfect nutrition, exposure to cold and moisture, arising from deficiency of clothing and fuel, or from the damp and dilapidated state of dwellings, the state of exhaustion and fatigue arising from too long continued toil, without adequate repose, neglect of personal cleanliness, and the languor and exhaustion consequent on intoxication.

Few of these causes acting singly appear adequate to generate fever, but when several operate in conjunction, they become a most powerful agent in the production of the disease; and under such circumstances its appearance may be pretty certainly predicted. The more usual mode, however, in which they act in promoting the diffusion of fever is by increasing the susceptibility of the body to the reception of contagion or malaria, and they are in consequence commonly termed *predisposing causes*. And as under this head must be included all those circumstances which have the effect of weakening the constitution and lowering the vital powers, it obviously comprehends a great variety of injurious agents to which the indigent poor, in large towns, are constantly exposed.

Disease has ever been remarked to go hand in hand with poverty and want, and to be proportionate to their extent. It is a matter of universal observation also that fever always prevails extensively during periods of unusual scarcity or distress, and that the most destitute are its earliest and most frequent victims. The reason of this is self-evident, for at such times the poor necessarily suffer from the combined operation of all those causes here enumerated as most powerful in lowering the standard of health, and reducing the vital energies; and under such aggravated circumstances they change their position as mere *predisposing*, and become most energetic *exciting causes* of fever.

It would, indeed, be taking a very contracted view of the subject to ascribe the prevalence of fever on these occasions to any one cause, when so many are in active operation. The poor are then undergoing increased suffering equally from anxiety and despondency as to the future, from deficiency of food and clothing, want of fuel, shelter, &c., a union of circumstances which is sure eventually to give rise to the disease.

The depressing passions act by exhausting the nervous system through the medium of the mind, and perhaps these are not the least efficacious in the production of fever. Indeed if I were inclined to attribute more power to one class of the causes now under consideration than another, I should probably select that depressing feeling of despair, despondency, and mental agony, which must ever attend a consciousness of helplesss poverty and destitution. On this subject I have elsewhere remarked, "It is well known that mental despondency is one of the most powerful causes in predisposing the system to receive the morbific influence of malaria or other sources of infection, and to suffer from all kinds of injurious exposure; whilst mental excitement and hilarity of spirit have enabled men to resist disease under exposures, hardship, and want of the most aggravated description."*

That the epidemic prevalence of fever is influenced by certain states of the atmosphere and the seasons, in respect to temperature, moisture, &c., and perhaps by other causes not cognizable to us,

* The Morbid effects of Deficiency of Food, 1839, page 46.

through which the virulence of its contagion, or the susceptibility of the human constitution to its reception, is increased, cannot be doubted; but when it prevails epidemically in any district to an unusual extent, and for a protracted period, its continuance may generally be traced to other evident causes. And of all these known causes, the effect of none is more clearly ascertained than that of poverty and destitution. Much evidence on this subject has been collected by Dr. Alison, and he has distinctly pointed out the close connexion which has always existed between periods of scarcity and distress, and the severe epidemics of fever which have occurred during a long period in Great Britain and Ireland. "These repeated and severe visitations of fever demand especial consideration on this account, that they are not merely the *occasion* of much and widely-spread suffering and destitution, but they 'argue a foregone conclusion;' they are, as I shall endeavour to show, in a great measure the result and the *indication and test,* of much previous misery and destitution, and I believe never occur, in peaceful times and in wealthy communities, where the condition of the lower orders is so generally comfortable, as it certainly is in some parts of Europe, and as every man of benevolent and Christian feeling must wish and hope it may be made in all . . . . . What we are sure of is, that it (destitution) is a cause of the *rapid diffusion* of contagious fever, and one of such peculiar power and efficacy, that its existence may always be presumed when we see fever prevailing in a large community to an unusual extent."*

Dr. Cowan, in making some observations on a table which he had drawn up of the deaths from *fever* in Glasgow, in the years 1836 and 1837, also alludes to the effect of poverty in increasing that disease. "It (the table) shows the slow progress of an epidemic disease when trade is prosperous, compared with what occurs in seasons of distress. Up to November, 1836, the period at which the commercial embarrassments were felt, the mortality from fever had not been rapidly increasing. In November it was just about double what it had been in January preceding, the number of deaths being 45 in January and 89 in November. The moment, however, the effects of the stagnation in trade extended to the working-classes, the mortality increased with fearful rapidity, aided, no doubt, by the season of the year, the high price of grain, and the scarcity or high price of fuel. The deaths from fever in the four months preceding 1st December, 1836, were 316; for the four months following, 696. The table also marks the period at which the epidemic reached its maximum amount of mortality, viz., in the second quarter of 1837, and in the month of May in that quarter, being the month succeeding that in which the strike of the cotton-spinners took place, by which 8000 individuals were thrown out of employment."†

* Management of the Poor in Scotland, page 18.
† Vital Statistics of Glasgow, 1838, page 39.

Alluding to the influence of imperfect nutrition in promoting the spread of fever, I have observed, in the publication already quoted, "In persons labouring under an impaired state of health from deficiency of food, there is a remarkable susceptibility to the effects of contagion, unwholesome conditions of the atmosphere, vicissitudes of the weather, and, in short, to all the exciting causes of disease; and it is this class which always suffers most severely during the prevalence of endemic, epidemic, or contagious disorders."*

The testimony of the most eminent practical physicians of Ireland fully proves the awful prevalence of fever in that country to be owing to the distressed state of the poor.

The records of the House of Recovery point out very clearly this relation between periods of distress and the epidemics of fever which have prevailed in Manchester, as will appear from the following statement of the number of patients admitted in each year since the establishment of the institution in 1796:—

Year ending May 31st.	Admitted.	Year ending May 31st.	Admitted.	Year ending May 31st.	Admitted.	Year ending May 31st.	Admitted.
1797	371	1808	183	1819	572	1830	315
1798	332	1809	258	1820	424	1831	472
1799	375	1810	262	1821	339	1832	774
1800	353	1811	167	1822	279	1833	287
1801	739	1812	136	1823	303	1834	404
1802	1,031	1813	125	1824	354	1835	402
1803	571	1814	222	1825	667	1836	592
1804	256	1815	372	1826	659	1837	799
1805	184	1816	174	1827	610	1838	1,372
1806	262	1817	160	1828	747	1839	1,042
1807	307	1818	446	1829	507		

On inspecting this table, it will be observed that the first great increase of patients occurs in 1801, 1802, and 1803: the average number admitted in these three years amounted to 780⅓, whilst that for the four previous years was only 357¾, and for the 14 succeeding years only 219½. This extraordinary increase immediately followed the remarkably bad harvests of 1799 and 1800; that of 1799 being one of the worst ever known, and in that of 1800 there was one-fourth less than an average crop. The consequent scarcity and high price of provisions produced the most dreadful distress amongst the poor, and to this circumstance the increase was undoubtedly attributable. This cause is frequently noticed in the Proceedings of the Board of Health at the time, and in the preface to the Annual Report for the year 1801. The following paragraph, in allusion to the great prevalence of fever, occurs:—"Last season, deficiency of the necessaries of life, with its attendants, weakness of body and depression of mind, contributed to the diffusion and to the virulence of the disease,

* Morbid Effects of Deficiency of Food, page 38.

there having been an increase above the former years of nearly 3000 patients."

The next increase of any importance followed the remarkably wet seasons, the deficient harvests, and the injured state of the grain in 1816 and 1817, and took place in 1818, 1819, and 1820, —a period in which, along with much political discontent, there was very great distress amongst the labouring classes. The year 1819 is notorious as that in which the great Radical meeting, commonly called "Peterloo," was held, the immediate result of which was necessarily much misery. A very considerable increase again occurred in 1825, and continued till 1829. The year 1825 will long be remembered as that of the "Panic," when so many great failures took place; and the long commercial depression which followed necessarily caused much distress amongst the poor, to which this increase may be fairly attributed. "The years 1825-6 were unhappily remarkable for more severe distress than any which had occurred since, or probably during the war. . . . The number of bankruptcies throughout the country was enormous, and the stagnation of trade everywhere such as to occasion the most poignant suffering to the working-classes—sufferings the more severe, because the previous great activity in business had given them no warning to lay up provisions for an evil day. A meeting was held in Manchester for the purpose of obtaining a subscription to relieve the distressed operatives; soup-shops were opened, and 14,000 persons were weekly assisted with soup, meal, peas, &c. . . . . In the township of Manchester the rate for the relief of the poor, which in 1824 was only 2*s.* in the pound, was in 1826 and 1827, 5*s.* . . . . The year 1829 is, unfortunately, remarkable only for the distress endured by the working-classes, and the disquietudes of which that distress was, as usual, the cause."*

In 1831 and 1832 trade was in a very depressed state in Manchester; the labouring classes generally suffered severe privations, and the number of fever-patients was again augmented.

The present commercial embarrassments commenced in 1836, when another remarkable increase of fever began, and has continued ever since. In the autumn of 1837 and winter of 1838, the distress which prevailed amongst the poor from want of employment, and the high price of provisions, was dreadful, and the amount of fever in the town was greater than it had been for many years. The number of patients admitted into the House of Recovery in that year exceeds that of any former year since its establishment by 341; but the amount stated in the table fails to give an accurate representation of the severity and extent of the epidemic, because great numbers were necessarily refused admission from want of room; and in addition to this, 182 patients were treated in the temporary hospital in Balloon-street, opened

* Wheeler's History of Manchester, 1836.

by the churchwardens in consequence of the inadequate accommodation of the House of Recovery.

On inquiring into the circumstances of the patients treated in the Balloon-street Hospital, I was much struck with the numbers who had suffered from want of food, clothing, and shelter, previous to their admission. Many had been long out of work, others followed no regular employment, and their means of support had been precarious and uncertain in the extreme; and some had passed several nights in privies or entries, from inability to procure lodgings. A few had found a temporary shelter in that excellent institution, the Night Asylum for the Destitute, established early in the year 1838, and which has indubitably been the means of saving many lives.

Some idea may be formed of the condition of the labouring classes from the expenditure of the poor-rates; for the amount of relief granted (where the poor laws are judiciously managed, as is universally allowed to be the case in Manchester) will be proportionate to the distress which exists.

The increased expenditure which took place in the suffering years of 1826 and 1827, has already been noticed; and in 1828 and 1829 it continued higher than usual,—all years in which fever prevailed extensively, as will be seen on referring to the table inserted at page 313.

In the year 1832, remarkable for the great prevalence of fever, the expenditure on account of the poor was again much augmented; and since the commencement of the last epidemic in the autumn of 1837 it has continued high; though, from an important change adopted in the system of granting relief to the Irish poor, a considerable reduction might have been anticipated, had no increased pressure arisen from the continuance of extensive distress.

Some of the above remarks will be confirmed by the following statement of the expenses of the township of Manchester for the last 10 years:—

TABLE exhibiting the Expenditure on Account of the Poor; the Sums paid for Constables' Accounts, and County and Hundred Rates, and the Gross Amount paid out of the Poor Rates in each Year since 1829.

Year ending 25th March.	Expenditure on Account of the Poor.			Amount of Constables' Accounts, and County and Hundred Rates.			Gross Amount paid out of the Poor Rates.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.
1830	48,977	10	11	8,939	19	2	57,917	10	1
1831	41,787	5	11	11,839	2	8	53,626	8	7
1832	47,191	7	9	9,708	3	11	56,899	11	8
1833	53,799	13	7	9,493	11	9	63,293	5	4
1834	33,634	4	6	9,835	5	5	43,469	9	11
1835	27,645	9	6½	9,393	15	10	37,039	5	4½
1836	25,762	19	2	9,663	0	8	35,425	19	10
1837	24,692	10	0½	7,757	7	9	32,449	17	9½
1838	31,349	10	1	9,732	0	11	41,081	11	0
1839	29,280	3	11	12,180	4	10	41,460	8	9

With regard to the relation between the amount of the poor-rates and the prevalence of fever, it has not escaped me that the increased expenditure may be considered in some degree rather as the consequence of the destitution produced by the ravages of fever than as an evidence of the previous existence of distress; and there cannot be a doubt that the latter has a full share in causing the increase.

Enough has, however, I think, been said to prove the frequent dependence of fever on the distressed and destitute condition of the poor; and I should be concealing a conclusion to which all my observations and all my experience have led me, and of the truth of which I am firmly convinced, if I did not distinctly avow my belief, that whatever the essential cause or causes of contagious fever may be, poverty and want are the most influential causes of its prevalence and extension amongst the labouring classes in Manchester. This avowal, be it observed, does not in any degree affect the question as to what may be the causes of this destitution; whether it is owing to the frequent want of employment, the disproportion between the rate of wages and the price of provisions and the necessaries of life, or to habits of reckless improvidence and dissipation, and want of economy and good management on the part of the poor themselves. I am extremely anxious to express my opinion on this point in the most decided and explicit manner, because I am satisfied that, as long as the poor are in a state of great destitution, and are not provided with adequate nourishment, clothing, and shelter, no sanitary regulations, with regard to the cleansing, draining, and ventilation of the streets, and the removal of the sources of malaria, will effectually check the spread of fever. Until the labouring classes are supplied with the common necessaries of life, and relieved from the state of extreme wretchedness and destitution in which great numbers habitually exist, fever and disease generally will continue to prevail extensively amongst them; and it must be equally the duty of a government to endeavour to devise means for insuring them these necessaries, whether their inability to procure them arises from causes which they themselves might be taught, by ordinary prudence and forethought, to avoid, or from circumstances which they cannot control. If the poverty of these classes is found to be owing to their own improvidence or ignorance, a remedy for the evil must be sought in a system of moral, religious, and general instruction, in which the advantages, and, in fact, the necessity of providing for their physical wants, as the only means of preserving their health, would be forcibly and impressively inculcated. But, I repeat, it is merely the *consequences* of the extreme indigence and destitution of the working-classes which I am at present endeavouring to show; an investigation of its *causes* constitutes quite a separate subject of inquiry, into which it is not my intention to enter.

The extent to which *intemperance* prevails amongst the labouring classes in Manchester, and its close bearing upon the subject of this report, render some notice of it necessary. That the languor and exhaustion immediately consequent on intoxication are a frequent cause of fever, by increasing, in an eminent degree, the susceptibility of the body to contagion, it would be easy to adduce abundant evidence; but the most extensively injurious effects of this vice proceed indirectly from the destitution to which it gives rise. From indulgence in this habit, many who regularly receive high wages are constantly in a state of the utmost indigence—often bordering on positive starvation; they make not the smallest provision for the future; and if any accidental circumstance occurs to deprive them (even temporarily) of employment, they are left completely without the means of subsistence. And it must be kept in mind that such individuals are less capable of enduring privations than those who have led a more regular life, and very speedily begin to suffer under the combined operation of want and the sudden withdrawal of their accustomed stimulus.

The moral and physical degradation which result from the prevalence of intemperance in large towns is an evil which has been long known and deeply deplored; but unless we take into account all the poverty, destitution, and consequent inability to procure food, clothing, and the other necessaries of life, which this failing entails upon the working-classes, we shall form a very inadequate idea of the appalling amount of disease, misery, and crime which are its consequences.

Although the preceding remarks have been made especially with reference to common continued fever, the same external physical causes which have been shown to promote its spread, promote equally also the extension of those febrile disorders arising from a specific contagion—small-pox, scarlatina, measles, &c. During epidemics, these diseases are always found to rage most extensively and destructively in the close and filthy localities of the poor, precisely as fever is observed to do. This simple fact is a clear illustration that there is no inconsistency in attributing the rapid and extensive spread of typhoid fever to these external causes, without the necessity of admitting them adequate *per se* to generate the disease; just as we do in the case of those disorders for the origin of which the operation of a specific contagion is avowedly essential.

Small-pox has not prevailed so extensively in Manchester within the last two or three years as it has in some other towns, and the number of cases has not been considerable. The mortality from it has been almost exclusively confined to young children who have not been vaccinated. When it has occurred after vaccination, the disease has *usually* been extremely mild, and I have seen nothing within the range of my observations to invalidate in any *practical* degree the immortal discovery of Jenner.

The indifference to vaccination which exists among the labouring classes is greatly to be lamented, and there is reason to fear it as an increasing evil. This indifference is most frequently observed in the case of Irish families, or those leading a vagrant life, and residing in common lodging-houses.

The number of children vaccinated at the various medical charities in Manchester during the last five years is only 4324, whilst that for the five previous years was 4868; a diminution of 544 has therefore taken place, which is very considerable when the increased population during that period is calculated, and shows a growing inattention to this important duty on the part of the poor.

With a view of ascertaining the extent to which vaccination is neglected by the poor, I put a series of queries on the subject to all the mothers of families indiscriminately, who happened to present themselves at the Ardwick and Ancoats Dispensary during several weeks, and the following is the result of my inquiries. My examination extended to 250 families, and comprised 1341 children. Of this number 412 had never been vaccinated, and of these unvaccinated children 192 had suffered attacks of small-pox, of which a great many died; whilst out of the whole number (929) of those who had undergone the protective influence of vaccination, only 26 had been attacked with that disease, and in these, with the exception of about 4 cases, the malady was extremely mild and modified in character. In this calculation, children under three months old were excluded, earlier than which age vaccination is not generally performed. To account for the large average number of children to each family, it is necessary to state that I included those who were dead as well as the living, provided they had lived three months. This was requisite to accomplish the object of the inquiry, inasmuch as many of the children had fallen victims to small-pox, in consequence of not having been vaccinated.

The effects of the lamentable neglect of vaccination hereby shown to exist will only be manifested gradually, and are not yet fully developed; but if the same negligence be allowed to continue, the ravages which small-pox must in a few years produce cannot fail to be dreadful, and from the greater proportion of adults who will then be unprotected by vaccination, the consequences will be infinitely more serious. At present the mortality is almost entirely confined to children, but it will gradually extend to those of maturer years; and we shall then witness the more melancholy spectacle of the heads of families falling victims to the disease, and leaving their orphan offspring (bereft of parental care and protection) exposed to all the hardships and temptations of the world, results which will not only entail a heavy burden upon the poor-rates, but, what is of still more serious import, will prove most disastrous to the moral as well as the physical welfare of the community.

This omission of vaccination is owing, in some instances, to a positive prejudice against the practice, or to a doubt of its efficacy as a protection against small-pox; but it is more generally attributable to indifference, procrastination, or thoughtless negligence. Though vaccination is performed gratuitously every week, and without the necessity of any recommendation, at the Royal Infirmary, Lying-in Hospital, and the various dispensaries, the poor will not be at the trouble of taking their children to get the operation done.

I have now made all the observations which appear to me requisite to enable you to form a just idea of the causes which are mainly instrumental in giving rise to, and promoting, the spread of infectious fevers amongst the labouring classes in Manchester.

Some of these causes are so complicated in their nature; are so interwoven with the perhaps unavoidably unpropitious position of the lower orders in densely populated manufacturing districts, constantly liable to fluctuations of commercial prosperity and depression; or are so much the effect of long established habits and customs, that their removal seems almost hopeless, or at least can only be accomplished by slow degrees. Others originate in the improvidence, dissipation, and irregularities of the people themselves; in their want of forethought and economy; in their total ignorance of good management in domestic matters, and in their neglect of various matters of hygiène, and can only be effectually remedied by education, with religious and moral instruction. There are others again (and these a very numerous class) which is quite within the power of a government, by means of a judicious code of sanitary laws, to mitigate, if not entirely to remove.

There are few objects which have greater claims on the attention of those to whom the enactments for the management of the poor are intrusted, than the means of lessening the prevalence of fever. When we reflect on the amount of misery which this disease inflicts upon the labouring classes themselves; the state of utter destitution and helpless poverty into which whole families are plunged by its ravages, and the heavy burden it entails upon the community at large, from the increase in the poor-rates thereby occasioned, the importance of the subject can scarcely be overrated. There are circumstances which render the effects of fever peculiarly disastrous to the welfare of the poor. It is ascertained that idiopathic contagious fever is much less frequent in children previous to the age of ten years than in older persons; and consequently it is most prevalent during that period of life when individuals have begun to obtain their own livelihood, and ceased to be dependent upon others for maintenance. Statistical documents have also proved that the mortality from fever increases with age, and consequently the deaths are most numerous amongst the heads of families, and those on whom the survivors have hitherto depended for support. This fact is forcibly stated by

Dr. Alison: "It is further to be remembered that the effect of the mortality of fever on the happiness of the community cannot be estimated merely from knowing its amount; for (unlike some other epidemic diseases) it always falls most heavily on the most valuable lives, particularly among the poor. An observation made by one of the Irish physicians, who reported to government on the great epidemic of 1817, is perfectly applicable to all that we have seen of the disease since that time in Edinburgh. "*The heads* of families, almost without exception, *became the victims*, while the rest escaped. The widows and orphans, who are so numerous in every quarter, can bear a sad testimony to the truth of this well-known observation." "A fever which consigns thousands to the grave," says Dr. Hardy, "consigns tens of thousands to a worse fate—to hopeless poverty; for fever spares the children, and cuts off the parents, leaving the wretched offspring to fill the future ranks of prostitution, mendicancy, and crime." "The mortality of fever," says Dr. Barker, "is most frequently where it is most injurious, viz., in men advanced in life, the heads and supports of families. The increase of poverty and mendicity, and the agonizing mental distress to which it must give rise, are consequences which must occur to every reflecting mind." There is no exaggeration in the simple and impressive statement of Dr. Cowan, that "the prevalence of fever presents obstacles to the promotion of social improvement among the lower classes, and is productive of an amount of human misery, credible only to those who have witnessed it."*

In drawing up my report, I have dwelt more especially on those external physical causes of fever which appeared most capable of being remedied by legislative measures, and respecting which I apprehend it was your chief object to obtain information. At the same time I have been anxious not to overlook or underrate the influence of other causes, lest such a partial view should lead to erroneous impressions as to the success likely to attend the removal of the former class of causes in diminishing fever.

It must, however, be evident to you that it is a matter of extreme difficulty, and requires the exercise of great discrimination, to estimate justly the relative efficacy of the various causes which have been under consideration, in the production of fever, from the circumstance of our seldom having an opportunity of observing their action singly. Thus, for instance, those close, crowded, undrained, and foul localities, where malaria is chiefly generated, are likewise just the situations which possess all the requisites for augmenting the activity and diffusion of contagion, when it has been once introduced; and moreover, it is in these neglected and filthy quarters of the town where the most destitute portion of the poor resides—those who are the most frequent sufferers from deficiency of food, clothing, fuel, and other necessaries of life; for individuals whose higher wages and regular

* Management of the Poor in Scotlond, page 16.

employment, or whose greater providence and more economical management enable them to pay a higher rent, shun these parts, and live in better houses and better streets. Here then we have three or four of the principal causes of fever in active co-operation; and in judging of their individual power, medical men will be liable to attach importance to each, in accordance with their preconceived opinions on the subject.

The most feasible and practicable means of diminishing the prevalence of fever appears to be the adoption of certain sanitary regulations by which many of its evident causes might be obviated. Of such a system of medical police, the following would constitute the most important measures:—

1. The establishment of certain police regulations by which the efficient paving, and sewering, and the regular cleansing of the streets would be secured, and the collections of refuse of all kinds in the neighbourhood of dwelling-houses strictly prohibited.

2. The passing of a Building Act, by which the laying out of all building land in large towns should be subject to certain restrictions, whereby the crowding and erecting houses on plans injurious to health would be prohibited. Such an Act is essential to guard against the evils now complained of in this respect being perpetuated, and should confer power to prevent the formation of streets of less than a specified width,—the building houses on undrained and unlevelled land, or without privies and covered drains to carry off the water and refuse—the occupation of cellars as dwellings, and the construction of courts or alleys with only one outlet. It would indeed be a great advantage if the latter could be entirely abolished.

3. The improvement of some of the more crowded and dense parts of the town by making a few wide streets and spacious openings, and by throwing open the confined courts and lanes, so as as to permit more effectual ventilation.

4. The placing the common lodging-houses of the poor under the jurisdiction and surveillance of the municipal authorities, in order that they may be regularly inspected, with a view of preventing injurious crowding, and enforcing the observance of cleanliness and ventilation.

5. An effective establishment of fever wards, to which all persons labouring under infectious diseases should be removed as speedily as possible.

It might be hazardous to risk an opinion as to the extent to which the prevalence of fever and all its attendant evils might be lessened by the adoption of these measures, but that it would be very considerable no one can doubt. It would, however, be taking a very narrow view of the subject to estimate their advantages merely by the diminution of fever which might be thereby effected: for the amount of other diseases, of destitution and crime which would be prevented; the reduction which would

take place in the poor-rates, and the improvement in the physical condition of the inhabitants which would ensue, cannot be esteemed matters of slight importance in promoting the general happiness and prosperity of the kingdom.

I have the honour to be, Gentlemen,
Your obedient servant,
RICHARD BARON HOWARD.

No. 21.

AN IMPROVED DESCRIPTION OF COTTAGE TENEMENTS FOR THE LABOURING CLASSES.

BY EDMUND ASHWORTH, ESQ.

Respected Friend,

EDWIN CHADWICK, *Egerton*, 12 *Mo.* 30, 1839.

I HAVE to acknowledge the receipt of copies of the Instructions issued by the Poor Law Commissioners "for promoting an inquiry into the residences of the labouring classes."

This is a subject which has interested us (my family) for many years, and I rejoice to see that public attention is likely to be drawn to it, believing, that if it leads to increased provision for the domestic comfort of the labouring population, it is calculated to elevate and improve their condition above most others.

I fully concur in the sentiment contained in the instructions issued by the Commissioners, "that the state of the dwellings occupied by the labouring classes exercised an important influence upon the health and indirectly upon the moral state of themselves and families." In any remarks I may make, our particular circumstances must be borne in mind; situated in a country district, surrounded by a population mainly dependent upon us for employment, and therefore in some degree under our control, we have had from necessity to provide dwellings for a considerable portion of them, and therefore had the opportunity of marking their improvement and the causes which have conduced to it.

On the occasion of building cottages we have of late years consulted the opinions and wants of those who were likely to occupy them; and consequently the various points enumerated in your inquiry as "to comfort and accommodation, cost, and rent paid, as well as the moral effects arising from improved domestic habits," have each been brought under our notice and consideration.

It must be confessed that the manufacturing population generally have a much less knowledge of domestic comforts and happiness than might be expected from the amount of income which most of them enjoy.

Many causes have operated to produce this lamentable state of things.

On the early introduction of the cotton manufacture, the parties who entered into it were often men of limited capital, and anxious to invest the whole of it in mills and machinery, and therefore too much absorbed with the doubtful success of their own affairs to look after the necessities of their workpeople.

Families were attracted from all parts for the benefit of employment, and obliged as a temporary resort to crowd together into such dwellings as the neighbourhood afforded: often two families into one house; others into cellars or very small dwellings: eventually, as the works became established, either the proprietor or some neighbour would probably see it advantageous to build a few cottages: these were often of the worst description: in such case the prevailing consideration was not how to promote the health and comfort of the occupants, but how many cottages would be built upon the smallest space of ground and at the least possible cost. We find many built back to back—a most objectionable form, as preluding the possibility of any outlet behind.

People brought together as these were for a living had no alternative but to occupy such dwellings. Whatever the weekly income, the wife could never make such a house comfortable; she had only one room in which to do all her work: it may be readily supposed the husband would not always find the comfort he wished in such a home. The public-house would then be his only resort. But here the evil does not end; the children brought up in such dwellings knew no better accommodation than such afforded, nor had they any opportunities of seeing better domestic management. Few of the parents in these parts have ever lived as domestic servants, so that it becomes no matter of surprise that the major part should have so little knowledge of improving their social condition even when the pecuniary means are within their reach. It must be allowed that the introduction of manufactures is not justly chargeable with producing the whole of this evil. About this time the old Poor Law was exercising a very pernicious influence upon the labouring classes, by means of inducing both the landowners and farmers to discourage cottage property for fear the inmates should gain parish settlements.

Cottages were forbidden to be built; some pulled down when empty, and others fell to decay for want of repair; poor people were banished as much as possible from the agricultural districts on account of the burden of parish settlements: even in this county I saw the ruins of two cottages which I was informed were the two last cottages in the parish.

Under such depressing causes it is not to be wondered at that we frequently received families into our employ who did not know how to conduct (with propriety) a decent cottage in such