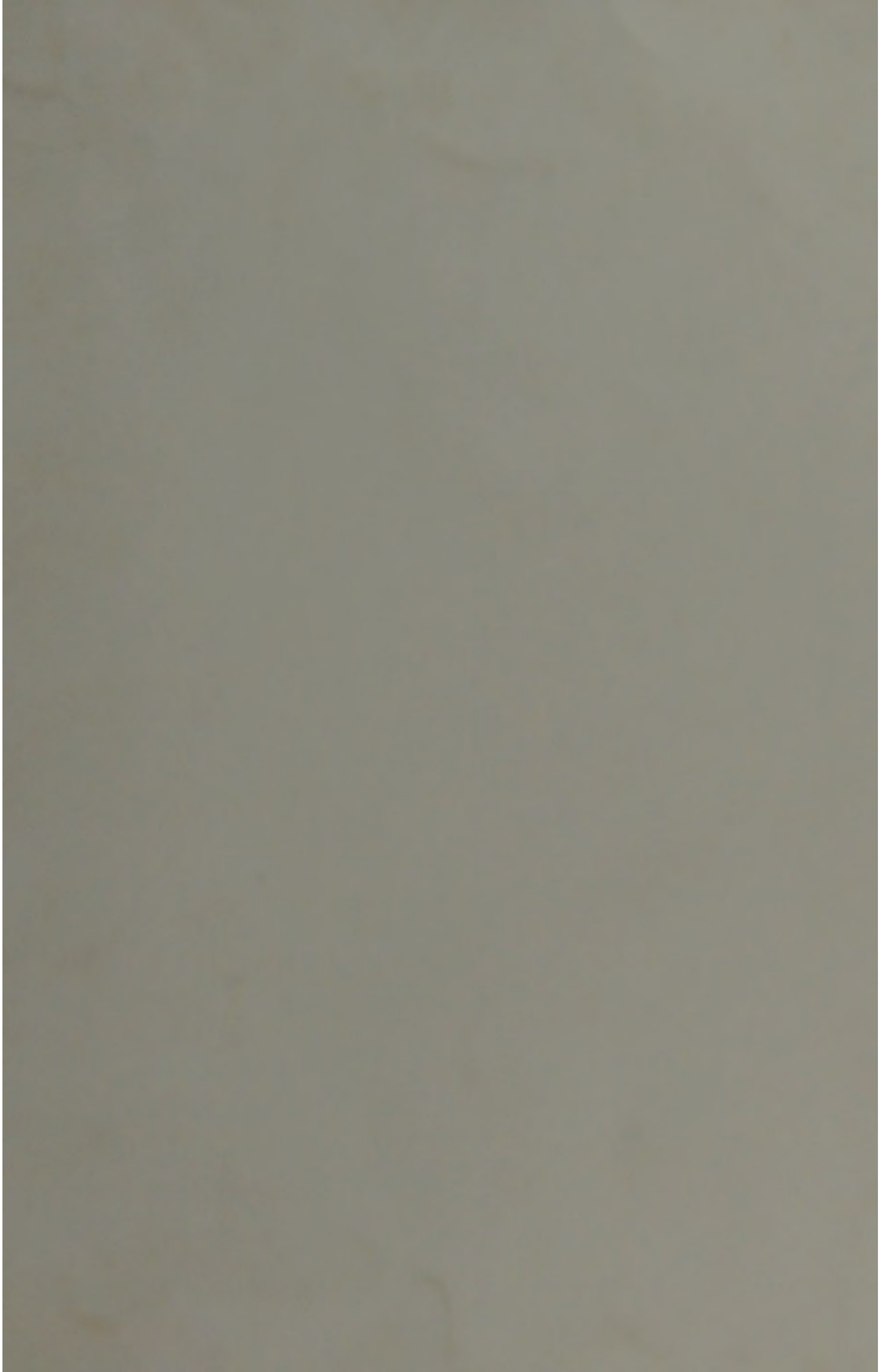
Practical observations on continued fever, especially that form at present existing as an epidemic : with some remarks on the most efficient plans for its suppression / by Robert Graham.



PRACTICAL

OBSERVATIONS

ON

CONTINUED FEVER,

ESPECIALLY

THAT FORM AT PRESENT

EXISTING AS

AN EPIDEMIC;

WITH

SOME REMARKS ON THE MOST EFFICIENT

PLANS FOR ITS SUPPRESSION.

By ROBERT GRAHAM, M.D.

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1818.

TO THE

MANAGERS

OF THE

Royal Infirmary, Glasgow,

Gentlemen,

Limited observation of a disease which is constantly varying in its appearance, can never lead to general conclusions. Therefore, when the public have placed an individual in a situation where he can investigate such disease on a great scale, I question whether he does his duty to that public, if he withhold the observations they have enabled him to make, particularly if the subject is of general interest. I have taken the liberty of prefixing your name to these remarks on the prevailing Epidemic, because while I bear testimony to the efforts you have made to suppress it, I am desirous of acknowledging the personal ob-

ligation under which I feel myself laid, by your very frequent nomination of me as Physician to the admirable Charity under your care.

I have the honour to be,

GENTLEMEN,

Your much obliged,

Very obedient Servant,

ROBERT GRAHAM.

INGRAM STREET,
April 27th, 1818.

PRACTICAL OBSERVATIONS

ON

COMMON FEVER.

THERE are persons, I believe, who think that the causes, and the history, and the cure of fever are perfectly known, and as well understood, and that though we cannot ensure the life of every patient attacked with this disease, it is because our treatment, though perfectly applicable in kind, is not always sufficiently powerful in degree. The only points on which they think their medical brethren have an apology for differing, are altogether of a speculative nature, referring solely to the doctrines of proximate causes,—doctrines fit rather to amuse the pathologist and to engage the student, than to appear in the capacity of prompters or of guides in our contest with disease. To such, the publication of Practical Observations on Common

Fever, may seem, at the least, to be unnecessary,—to be neither called for, nor likely to be of the smallest use. I acknowledge that there was a time when I held some such notions as these myself. I believed that every case of common fever in this country was preceded by languor, oppression, collapse,—that these were presently followed by shivering, cutis anserina, and other symptoms ranked under the title "cold stage;"—that this in due time gave place to heat of skin, quick, hard pulse, and other symptoms of increased action in the arterial system, which in its turn gave way before gentle, general, and warm perspiration, during which the wandering intellect returned, the pulse fell to its natural standard, the heat of skin was removed, and the morbid symptoms disappearing, health was restored.

Such is the creed which an arbitrary faith in system must often lead to; and, what is worse, it must suggest a mode of treatment equally systematical, equally precise, and equally mistaken. I believed that we ought to keep our eye constantly upon the state of debility into which the patient might perhaps sink, and that whatever the present symptoms were, we ought never to employ depletion in such manner as in typhous cases would endanger our patient at the last, and that above all there was not more

than one patient in a hundred, who could bear blood-letting without injury;—that we ought to stimulate gently—very gently in the cold stage,—keep the patient cold, and purge moderately in the hot stage, and pour in wine and all manner of stimuli when the typhoid symptoms set in.

Now there appears to me something of truth, and a great deal of error in these opinions. I believe them to be the fair deductions from the writings and the reasonings of the disciples of system, yet I cannot persuade myself that the practice of these can be fairly estimated from their works. An author who has adopted a particular view of disease, culls from his patients such as will best illustrate this, and he does it honestly, because he is himself persuaded of the stability of his speculations, and he selects such examples as he thinks will most certainly point out the truth to others, forgetting meanwhile, that what he has himself seen, establishes the important fact, that the exceptions far outnumber the general rule. He gazes upon what he considers the prominent features of the case, and paints these minutely, sketching with little care such as are of a more ordinary cast, and thus his picture is a caricature even of his own practice, in the aggregate at least, if not of every individual patient.

I confess I am become so decided a sceptic, that I now never read a medical work without this view of the subject in my mind; and I am not quite sure that I know any one book, in the pages of which it has not a full illustration. I know it is a sin which easily besets every man; and, therefore, lest I should myself fall into it, before I have done with these brief remarks, I may premise, by way of caution, that with respect to fever I have been able to draw no general rule, excepting that generalizing is nearly impossible in that disease. Much must always be left to the *pro re nata* discernment of the physician; and if he allows himself to be guided by preconceived notions, rather than by reflection on the circumstances of the case, and the symptoms which it presents, it would have been well for his patient if he had entrusted himself to the *vis medicatrix naturæ* alone. So far am I from thinking, with some people to whom I have already alluded, that *the causes, and the history, and the cure of fever are perfectly known, and as well understood*, that I believe the ignorance of every one of us on all these particulars is very great; and I have the fullest conviction that we are only to become wiser by a repeated and more careful investigation of its phenomena, by contrasting symptoms and circumstances; the many futile attempts at

theory, show that we are not yet ripe for giving a plausible *rationale* of the disease. I am willing, then, to hope that every little communication made to the public from actual practice, may have its use, and I shall, in what I am to write, confine myself entirely to what I have seen, disclaiming any intention of giving a full history of the disease, but professing only to draw the attention to such phenomena as seem to me to have, for the most part, too little importance given to them.

It is constantly stated by almost every practitioner in this city, that for several years previous to 1812, there had scarcely been any continued fever in Glasgow,—I mean scarcely any of a contagious nature, and which approached to typhus in its appearance. This is a curious circumstance in the history of this disease, and has been attributed, I am persuaded, erroneously, to a variety of causes. The most plausible of these is the supposed effect of the erecting a public Infirmary here, possessing all the advantages derived from modern experience in the construction of such buildings. It was supposed that this gave a facility of confining the infected, of secluding them from the mass of the inhabitants, and that this prevented the spreading, and finally effected the extinction of the contagious matter. I am very far indeed

from doubting the value of asylums for the sick, in our attempts at eradicating contagion; but infectious fever has repeatedly occurred in Glasgow since the erection of the Infirmary, and, therefore, it is probable that it was not the sole efficient means of its removal, though, no doubt, it must have rendered this more easily effected, supposing it effected at all; but an inspection of Table I. may excite doubts on this head. From my not having attended the Infirmary previous to 1812, I cannot, from my own experience, state whether the cases marked fever in the records of that Hospital immediately anterior to this date, were similar in their nature to what we now meet with; but I certainly am disposed to believe that contagious fever never entirely disappears from any crowded and extensive population, though its type is sometimes so much mitigated, that it is overlooked or disguised in the few cases which occur. The fact is, there seems to be something in the nature of all epidemics, which disposes them to ebb and flow in particular situations; something which we do not at all understand, and which we cannot altogether controul. The very circumstance of duration seems to effect changes in the appearance of an infectious disease. The plague, small-pox, and others, are much more fatal at their first introduction into a country,

and get more and more mild during their prevalence; so that even the first, the plague, is said to become ultimately a disease of little danger; yet this mild disease, carried to another country, becomes as virulent as ever. This last circumstance is said to prove that the change is not in the contagion, but in the air. It appears to me, however, greatly more wise to say that it is one of the many phenomena we meet with about which we are much too ignorant to be able to reason at all; for it is quite inconceivable how a permanent change can be effected on the atmosphere, which is in a constant state of migration from one country to another. I must observe, however, that I am taking these facts a good deal on authority, not from my own observation. The present epidemic certainly does not illustrate the gradual amelioration of infectious disease, by residence among us. We have had it now upwards of five years; and at the moment that I write, (1st April,) though I am unwilling to think that the cases are more severe than ever, yet I am quite certain that at no time have urgent cases been more frequent; and I am also most certain that they are greatly more frequent now than they were a few weeks ago.

But to leave this discussion.—In 1812, the disease re-appeared here in a typhoid form. In the spring of that year I had occasion to know

of several very urgent cases which occurred at Campsie, (ten miles to the northward,) some of which proved fatal. I am not aware, that any of them were seen in Glasgow till the approach of the following winter: I then began to attend the Royal Infirmary, and admitted several mild cases into that hospital. With the interval of a few months, I have been in constant attendance there since, and have never been without some of them under my care, though their numbers have fluctuated, and their type and severity varied greatly. They have on the whole gradually increased, though, as is the case with all epidemics, this has been irregularly, or in starts. During the last winter, and at this moment, their numbers have been most alarming. Till of late, the disease has been, in Glasgow, confined almost entirely to the lower classes, but at present it threatens here, as elsewhere, to climb into the dwellings of the rich*. It is a

* Some time ago, I was requested by the Lord Provost and Magistrates, to ascertain how many fever patients were attended by Members of Faculty, that they might form some estimate of the extent of the evil, and determine on the steps necessary for its removal. I accordingly called a *pro re nata* meeting, and received reports from thirty-one members, by which it appeared, as I had before expected, that little information was to be obtained from this quarter. Thirty-one cases of fever only were mentioned, and the bulk of these, though not paupers, were in the lower ranks of life. Several practitioners, in very extensive practice, had not met with one case, because their practice led them into circles where the disease was unknown. That such is the real explanation of the circumstance appears from this, as I stated in my answer to the communication from the Magistrates, that the Infirmary was then crowded, I having in my own wards alone, forty-nine fever patients.

remarkable fact, that servants have, for a considerable time, been frequently affected while the families of their masters remained exempt.

HISTORY.

I HAVE seen a few cases of what I would be inclined to consider almost pure typhus, in which there was scarcely any appearance of local inflammatory action, and that extremely transient. The great majority of the patients have laboured under what Armstrong calls Inflammatory Typhus, and perhaps a few have presented that form of the disease which he calls Congestive. Many cases which have been much more than usually inflammatory at the beginning, have become much more than usually typhoid before the end, and that altogether independent of the treatment. There has been a very remarkable tendency to gangrene of the lower extremities even in inflammatory cases, and that too, however odd it may seem, in some instances when the inflammatory symptoms were present, and even violent. During the fever, but more remarkably still, during the convalescence, patients have often complained of severe pain in the toes. This was a threatening of gangrene,

and was often followed, in spite of every endeavour to check it, by sloughing to a greater or smaller extent, for the most part only superficially, but sometimes to the destruction of a joint or two of the toes. When this symptom was neglected, I have seen the most frightful effects result. One young woman was brought into the Infirmary with mortification as far up as the calf of one leg; after amputation she recovered. Another was brought in, after both the feet had dropped off, and while sinking under the extent of the purulent discharge from the sores. Both legs were amputated with immediate benefit, but her recovery is still doubtful. I ought to observe of this case, that the previous history could not be correctly ascertained, but *I conjecture*, she had been affected with fever, as the only way in which I can suppose that life was preserved, while she lay for several weeks without attendance, and little food, among some straw in an outhouse. A man was brought in, with both his legs in a state of mortification for some way above the ankles, and as his strength could not be supported, he died. Another man was brought into the surgeon's ward, convalescent from fever, but having lost all the toes from both his feet. I feel confident, from the recovery of one most unpromising case under my own care, that these miseries can in almost every instance be avoided

by the most simple means, if entrusted to the hands of a careful nurse.

During the whole period since the commencement of this epidemic, I have remarked that its type often suddenly and completely changed, so that for a week together, severe cases only were admitted; in another week, nothing but mild cases; for perhaps a similar length of time all the patients had determination to the head, to the chest, or to the abdomen; now, all the cases readily yielded to the treatment, or got well of themselves, and immediately after, every case was untractable, and several perhaps died. Such variations I am aware are common in all diseases, especially such as are of a febrile nature; it was the suddenness, and the almost universality of the change that struck me as remarkable.

Multitudes of these cases possessed nothing of any interest; the fever was mild, the pulse never quick, the countenance, skin, and evacuations nearly natural, the appetite tolerable, and scarcely any symptom present but languor, and some degree of debility, with slight headach. Even such cases, however, were sometimes tedious, but ultimately recovered without any aggravation of the symptoms, or great loss of flesh. At other times, however, after the disease had thus hung upon the patient for weeks, the pulse rose, the skin became husky and dry, and

the symptoms of common fever becoming more marked, ran the usual course, as if they had only then begun. I have seen a patient after lingering for some days in this way, dismissed from the Infirmary as well, and return two or three weeks after with very marked disease. In the great bulk of cases, the attack of the disease was gradual, the patient complaining of feeling uncomfortable for several days before he was well aware of what was wrong, but sometimes it has been sudden. A gentleman who was acting as my clerk in the Infirmary, was writing a report at the bed-side of a patient, became suddenly sick, and I believe would have fallen down had I not supported him, and led him to bed. Perhaps in none of the cases have I seen the cold stage severe, but I have often seen chilliness, and flushing alternate for a fortnight after the attack, and even return during the convalescence, though generally it ceased to recur after eight or ten days. The rigor is by no means in every case the first symptom; the disease has been frequently present for several days before it was felt. I have seen a patient disposed to intermittent fever, attacked with a violent rigor during the convalescence, but this was easily distinguished from the chill previous to a relapse, by its severity. In comparatively few cases has the heat of skin been high. I have not often

measured it with the thermometer, but the instances were very rare where I suspected it might be above 102° or 103°, and in by far the greater number, I am satisfied, it has been below 100°, and sometimes even lower than natural.

The muscular pains, so common at the beginning of fevers have been frequent, though often they were entirely wanting, and, which I believe is not so common, they sometimes were very much complained of during the convalescence. I have seen them then, as well as during the course of the fever, so severe, that the patient talked of them alone, and was almost entirely deprived by them, of the motion of his limbs. In only one case, however, do I recollect to have seen the joints swollen.

The pulse in some cases did not rise above the natural standard for several days after the other symptoms had sufficiently marked the disease, and in other instances it was scarcely raised during its whole progress. Where there was no obvious local inflammation, it was almost always soft, though sometimes feeble, and very quick. A curious circumstance I observed in many cases, namely, that the pulse intermitted extremely, during the whole progress of the disease and convalescence, and frequently without one other untoward symptom. In one young woman I observed a circumstance regarding the pulse,

which appeared to me very peculiar, and which perhaps I am right in supposing one of those anomalies, which are constantly occurring along with the hysterical diathesis. She had so perfectly recruited, that I talked of dismissing her, when the clerk told me he had reckoned her pulse, and found it as high as 140. I of course detained her in the ward, where she assisted the nurse to take care of the other patients, and laughed at the supposition of her being considered still unwell. Her pulse, however, gradually rose to 170, was notwithstanding this great rapidity, perfectly distinct, and did not come down till some Digitalis had been taken. Sometimes the pulse is found considerably below the natural standard, sluggish, and full, with other symptoms of oppressed brain, but this I have not met with in more than a very few cases.

The countenance has been extremely various, and its expression of infinitely greater importance in forming a prognosis, than all the other symptoms put together. Sometimes it was natural from first to last, and the symptoms were uniformly mild; at other times, indicative of much more languor and debility, but the cases have not been frequent where I have seen the dilated pupil, and the complete typhoid look. In the case of one patient who died, there was a singular maniacal, yet happy expression of

countenance, so peculiar, that a medical friend who saw him, could not be persuaded that he had not been mad before the attack of fever. I have not in general been led to think that delirium indicated much danger when the countenance was placid. In one case there was much of the expression of the delirium tremens, with frequent incoherent raving, but no want of strength, no affection of the head or other morbid symptom, but slight suffusion of the eyes, and thick black crust covering the tongue, teeth, and lips, proceeding, in part at least, from an exudation of blood. He of course recovered.

The inflammatory and typhoid symptoms are often mixed together, and no one symptom bears any fixed proportion to the others. I had a case in the Infirmary very recently, which remarkably illustrates this truth; and twenty others might be quoted to the same effect. The patient was a plethoric young man, in whom the symptoms were at first so mild, that they required no particular treatment. Soon, however, the head became affected with symptoms of inflammation. There was the most violent delirium; the eyes were prominent, inflamed, staring; the pupils contracted to mere points, and the pulse very rapid, hard, and thready, while the feet were perfectly cold, and gangrene commenced along the joints of the toes. I had no nerve for

depletion in such a case;—in this state the patient died.

The bowels are often regular, and the evacuations natural; sometimes they are slow; occasionally loose; not unfrequently the discharge is dark; now and then almost black, more especially when attended with the typhoid countenance. So very much is the countenance indicative of the nature of the alvine discharge, that I can in a very great proportion of cases, determine the latter by the first glance of the former. The sallow skin, the dull suffused eye, the turgid, languid, and bloated countenance, and the thickly incrusted tongue, denote dark and fetid stools.

In mild cases, the skin is generally soft, as well as of natural temperature, but very often it is harsh and husky, and I have frequently, with some anxiety, remarked that it continued so after the convalescence was far advanced. While it remains in this state, we are never secure from a relapse, which I have known to occur very late, and once to kill the patient though every symptom had been for sometime removed, but this and a loaded chapped state of the tongue.

I have seen hemorrhage occur to a most alarming extent. Epistaxis has been frequent, and the quantity of blood lost considerable, but I never saw any reason to believe that such patients

suffered from the discharge; not so, however, with other forms of hemorrhage. One patient in the Infirmary, a large, rather corpulent woman, lost several pounds of blood at stool. She bore the loss wonderfully well, yet had her strength very considerably shaken by it. A young woman of a robust make, repeatedly lost above a pound of blood at a time, from the stomach, and once or twice the hemorrhage continued till syncope was induced. A woman just recovered from fever, suddenly sunk, and died in a few minutes. On opening the abdomen, about six pounds of blood was found effused into that cavity, partly clotted, and partly fluid. No large vessel was ruptured, but the spleen was found three times its natural size, and denuded of its peritoneal coat at its lower part, from whence water, forced into the aorta by a syringe, escaped freely. The history of the case, gave every reason to believe, that chronic disease of the spleen, had existed for years, and this viscus was so soft, that it was removed from the body by a bleeding-cup. Petechiæ are very common, and in not a few instances large vibices have formed, sometimes degenerating into gangrene.

In some cases of local determination, I believe there is congestion in the part only, and that inflammation is not present, but it is often

extremely difficult to distinguish these two states. Perhaps it is not always of much consequence, as the treatment is often the same, though I believe congestion may more frequently be left with greater safety in Nature's hands. Congestion in the head may, in many cases, be distinguished from inflammation there, by the state of the pulse, which in the former is generally slow, in the latter, when uncombined, I believe, always quick. The head, the spinal canal, the thorax, the abdomen, and the external cellular substance, have each been the seat of inflammation, in the fever of which I am treating, and I have seen it in all these situations, except in the abdomen, and perhaps also in the spine, prove fatal. It is the presence of these inflammatory symptoms, which I have found chiefly to indicate danger, and it is to their obstinacy, that I have almost in every case of death to attribute the fatal issue. I must, therefore, as faithfully, but as briefly as I can, state the appearances, which I have found them to assume.

The symptoms which indicate inflammation of the brain, or its membranes, are related by all authors who treat of fever; but here, as in other cases, I have to complain, that the description is caricatured. In the present epidemic, I have found it to be that form of inflammation, which, by much the most frequently,

ran up to an alarming height; but I have very seldom felt that "increased heat of the temples, forehead, and hairy scalp," which with other symptoms set forth in fearful array by authors, describe with such beauty of romance, the burning, fiery furnace placed within. Violent local action, either within the head, or elsewhere, is by no means, in every instance of this disease, attended with much general inflammatory fever. It is the eye which I have especially seen to mark inflammatory action within the head; to its appearance I have often had occasion to trust, when every other symptom was wanting, and I do not recollect that it ever deceived me. The pupil is uniformly contracted, sometimes to a mere point, the eye is more or less suffused, and sparkles wildly. But though this is often all that is seen, where the brain or its membranes are inflamed, and to such a degree as will prove fatal if not checked by proper treatment, yet there are other symptoms which very frequently accompany these. Of such, the most common are headach—occasionally very intense, flushing of the countenance, (turgescence I have oftener seen to attend a more purely typhoid fever,) dry, but not foul tongue, and a jarring pulse, varying extremely in fulness and frequency, perhaps not in the same, but very remarkably in different patients. When these symptoms are attended

with delirium, or even without this, I have no hesitation in declaring that there is inflammation within the head, or at least whatever doubt theoretical speculations have suggested, and the dissection of similar cases may seem to have countenanced, I do not delay for an instant the abstraction of blood, either generally, or topically, and the other means, which alone can save life when the brain is inflamed. But it is in well marked cases of this kind, that a physician has comfort in following his profession. He feels assured of his diagnosis, and, therefore, confident in his practice. Unfortunately, however, he is met by many cases, calculated to excite feelings of much greater anxiety. Cases are often met with in fever, where the head is obviously affected, yet where the nature of that affection is extremely doubtful, where two conditions of the brain, that are thought to require the most opposite treatment, exhibit symptoms, which may be supposed to have their origin in either. I have seen many cases, where it was extremely difficult to determine from the symptoms, whether there was active inflammation within the head, or a state the very reverse of this. I am unable to describe these cases otherwise, than by saying, there is a contradiction in all the appearances, which requires the closest attention, the most careful combination of evidence, and

the most extensive experience to unravel. Of course it is unnecessary to remark, that delirium, taken by itself, can never be considered as a symptom of inflammation. It often arises from a modification of nervous energy, independant of the existence of either inflammation or congestion, and is removed, either by an effort of the patient himself, or by the application of a stimulus. I have often seen it occur early without implying danger, for it was evident that it did not proceed from any organic disease, which alone is the source of dangerous delirium in the onset of fever.

A symptom of much importance, which, in many cases, accompanies inflammation within the head, is convulsive action in every variety of degree. It is tremor, subsultus tendinum, convulsive twitching of a greater or smaller number of muscles, and in one or two cases I have seen it amount to regular epileptic paroxysms. These increase as the inflammation does, and subside when the means adopted for the removal of this are effectual. I do not mean to assert, that in these fevers, tremor, or a more violent degree of convulsion never occurred, without inflammation of the brain, or its membranes being present; on the contrary, I assert once for all, that whatever be the symptoms, if the state of the eye, already attempted to be

described, be wanting, we have not sufficient reason for believing that inflammation exists.

The existence of inflammation in the spinal canal, has I suspect, been often overlooked in fevers, and we have been too ready at all times to attribute the pain of back, to a rheumatic affection of the muscles. No doubt, this is most frequently its cause; but in other cases, I verily believe it is produced by an inflammatory affection of the spinal marrow, or its coverings, similar to that, of which the brain or its meninges are often the seat. This is a view of the symptom, which I acknowledge I have only taken of late, and if it is a just one, the credit is due to the clerks in the Infirmary, to whom I owe the hint. On inquiry, I have found, that though the pain is in general so diffuse, it is obviously in the greater part at least muscular; yet there are cases in which it is confined to two fingers' breadth, extending from the occiput to the sacrum, along the centre of the back. This circumstance alone, might have suggested a suspicion that the disease, which gave rise to it was seated within the spinal canal, and analogous to the affection of the head, but it is the appearance observed on dissection, that leaves me no room for doubting, that this is really sometimes true. So important an organ as the spinal marrow, is

too often overlooked in our investigations of the proximate cause of disease*.

Inflammation of the lungs, or pleura, is more common than a similar affection within the head, but, as I have already stated, I have not found its symptoms run up so frequently to an alarming height. Of course, we are not to suppose that every case of dyspnœa, which occurs in these patients, proceeds from inflammatory action. Dyspnœa comes on in almost every stage of fever, from a variety of affections altogether different. During the cold stage, I am not sure that I have seen good reason to suspect inflammation; at any rate, I believe it more frequently comes on afterwards. At this period, however, there is often very considerable dyspnœa, probably arising from a spasm of the extreme vessels of the pulmonary system, similar to what is supposed to occur in asthma, the congestion in the lungs, arising from repulsion from the surface, no doubt adding to it. After-

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* Mr. James Sym, lately clerk in the Infirmary, in an essay, submitted to the Faculty of Physicians and Surgeons, as his probationary discourse, states it as his opinion, from the inspection of the spine, after death, that the pain in the back, and the muscular pains in general, proceed from an inflammatory affection, giving rise to the serous effusion, and that this, by its pressure, occasions the retention of urine, and the gangrene of the extremities, occasionally met with in the latter stages. He quotes the case of a patient of mine, in whom the catheter had been required for the three last days of his life, and in whom the cauda equina was found floating, in four ounces of serous fluid.

wards, however, pure pneumonia may come on;—in the latter stage, after this has been removed, effusion frequently follows;—and, last of all, just before the fatal termination, we have the slow stertorous breathing, depending upon a different cause still. I need not detail the symptoms of pneumonia which occur in these fevers. There is nothing peculiar in them, and, therefore, when prominent cannot be overlooked or mistaken. I may only mention, that, in the great majority of cases, like common examples of synochus, they are trifling, require no attention, and gradually subside of themselves; but, in not a few instances, they are insidious in their approach, run to a great height, require very active treatment, and sometimes resist it all. I have seen these come on at the very end of the fever, and prove fatal, as well as take the lead in the disease. The symptoms which follow this attack, supposing it obstinate, vary, according as it terminates in effusion, or lead on to phthisis.

I have stated that I have seen obscure symptoms of inflammation of the abdomen in these fevers, but they never ran high, and were always readily removed, without any active treatment. It is not so easy as it has been thought, to fix upon the precise abdominal viscus which is diseased; but I am inclined to think, that, in

these patients, it was the smaller intestines which were inflamed. As this modification of the disease never presented any formidable appearance in the cases which I have seen, I pass them over with this brief notice; after stating that the nausea, so common in fevers, does not, by any means, in every instance depend upon a direct affection of the stomach, or its secretions, but upon the oppressed state of the brain, as is shown by the manner in which it is sometimes removed.

This strong tendency to active inflammation, which is met with in many of these cases, is particularly marked in some of them, by the formation of large external abscesses. Bubos and abscesses are mentioned by authors as occurring in malignant fevers, and often proving critical. There was not the least appearance of their conducting the disease to a favourable termination, in any of the cases which came under my care; on the contrary, they appeared after the fever had declined considerably, and materially retarded the convalescence. In one case they proved fatal. The patient was a stout, plethoric young man, subject to occasional mania. He came into the Infirmary pretty early in the disease, and was soon after seized with inflammation of the brain, and violent and ungovernable derangement. He was obliged to

be restrained by the jacket, as at one time he very nearly threw himself from the window, having dashed his head and shoulders through the glass. The fever was in the usual time subdued, and the delirium subsided along with it. While the convalescence was going on, large abscesses began to form in succession upon his shoulders, arms, and breast. I was inclined to think they proceeded from bruises, occasioned by his struggles while the jacket was on, though it had been removed a very considerable time before the first of them made its appearance. Though the constitutional disease seemed to me entirely removed, he sunk, apparently from the extent of the discharge. A case which occurred to me immediately afterwards, and another which I have had more lately under my care, satisfied me, that the jacket had nothing to do with it. In the former of these, at the same period of convalescence, abscesses of equal size formed all over the same parts, as well as upon the lower extremities, and one upon the heel assumed a very unpleasant gangrenous look. This patient had at the same time, a very threatening inflammatory affection of his chest, requiring repeated venesection. I laid my account with losing him also, but after a tedious convalescence, he got well. The third patient of this description, was less fortunate. The

whole history was remarkably like the last, but the appearances were more decidedly phthisical. He died while this sheet was at press. The inferior costa of the scapula, and the head of the humerus, were carious, pus was found within the shoulder-joint, and the articulating cartilages were destroyed. All these cases are males. I may remark, that such abscesses are not to be accounted for by pressure in lying. Several of them occurred in situations where no pressure could be applied, as in the fore part of the chest, over the belly of the pectoral muscle.

The local inflammatory action is further exemplified, in the frequent occurrence of ear-ache, followed by a copious discharge of sero-purulent matter from the meatus, and also by extensive and tedious suppurations near, or in the substance of the parotid gland.

I cannot fix, from my own observation, any very definite duration for this disease, or talk so confidently about the doctrine of critical days, as the experience even of many moderns would seem to warrant. In general, I have found the period of convalescence ill defined; in repeated instances, the patient has lingered for several weeks, the symptoms sometimes subsiding a little, giving promise of a speedy recovery, but by and by, again becoming rather more prominent, suspended the patient between hope and fear,

and either gradually overcame his strength, or left him to creep slowly back into the world again.

I have thus endeavoured to detail, pretty much at large, the history of the fever which has been so long prevalent among us; and I have endeavoured, as much as I could in a few pages, to give a general idea of its appearances, not to describe the phenomena peculiar to a few cases only. By dwelling so long on this part of the subject, I hope to be able so much the more easily to compress into little space, what it is necessary to state of the prognosis and method of cure. The disease is confined to no age or habit: most common, perhaps, from 15 to 45, but of this I do not consider myself entitled to give a very confident opinion, because children are very rarely admitted into the Infirmary, from whence my observations have been chiefly drawn. I have reason to believe, however, that children are very often affected, and I have at present in two adjoining beds in the Hospital, a mother and two of her children, the younger of whom is six, the other seven years old. I have frequently had patients very far advanced in life, (for example, one at present seventy-eight years of age,) but certainly these have borne no considerable proportion to the cases below puberty. Mr. Kidd (Edinburgh Medical and Surgical Journal, April, 1818) found the

disease to occur, in Ireland, much more frequently among the women than the men of the lower classes; but that it attacked either sex indifferently, in the higher ranks of society. It will be seen by Table III. that the numbers of males and females admitted into the Infirmary here, are remarkably equal, in the twenty-two months previous to March last, there being 556 males, and 594 females; but, I must observe, that no conclusion can be drawn from this, in opposition to Mr. Kidd's remark, for we have had till lately the same number of beds allotted to males and to females, and, for a long while back, we have been occasionally obliged to refuse admission to either division of the house, for want of room. We have within these few months opened an additional ward for females, but this proceeds from convenience of arrangement, rather than a disproportion of female patients. I have not been able to see an affinity between the occurrence of this fever, and any particular state of the constitution. It is widely extended over the whole country, and has appeared with very terrible severity in Ireland in particular. Nor is it to the different districts of the British Empire only, that contagious fever has extended of late, as a very prevailing epidemic. It has spread widely over the Continent of Europe also, and in several quarters has occasioned very considerable alarm.

The general diffusion of an infectious disease throughout the country, must always happen whenever it establishes itself in a manufacturing town with such widely extended connexions as Glasgow has. Every carrier leaving town, takes with him bales of infectious matter in the shape of cotton yarn, to be dropped at every village within fifty miles, and thence scattered indefinitely. At least, in one instance, the disease of which I am treating, has been traced from this to Edinburgh. In spring 1816, a beggar leaving this, carried it to a lodging-house in the Grassmarket, in which fourteen of the inhabitants were soon affected.—(Edin. Monthly Mag. July, 1817.) The extinction of contagion, therefore, in such a situation as this, is not the concern of its own Police only, it may justly call the attention of the country in general, and if legislative interference could do any good, it would be fully warranted.

Whatever difference of opinion there may be about the total disappearance of contagious fever in Glasgow, for some years previous to 1812, it is impossible for any man, who does not shut his eyes to the most direct evidence, to doubt that, at this moment, and for sometime back, a much greater than usual number of fever cases exists; that they have been hitherto increasing in number; and that this increase has been

most remarkable within the last six months. Tables I. II. and III. will be considered as evidence upon this subject. The number of fever patients which have been admitted into the Infirmary, during the month of March, 1818, is 123, very considerably more than were admitted during *any one year* since its foundation, excepting 1799, when the number admitted was 128. During the three last years, there have been rather more fever patients in the Infirmary, than in the whole period before that from the time of its erection, and the proportion of fevers to the other medical patients has greatly increased. From the erection of the Infirmary to 1814, inclusive, the whole number of medical cases admitted, was 10315, of which 1340 were fevers, or one in $7\frac{185}{268}$; from 1815 to 1817, both inclusive, the whole number of medical cases admitted was 3554, of which 1343 were fevers, or one in $2\frac{868}{1343}$; and we see, by the weekly returns, that the proportion of fevers is still increasing. It appears, that on Monday last, 20th April, the whole number of medical cases in the house was 155, of which 110 were fevers, or one in $1\frac{23}{32}$. Dr. Duncan, Jun. who is of opinion that there was not much more fever in Edinburgh, in November last, than in former years, attributed the increased frequency of its appearance at the Infirmary, to the anxiety with which, on

account of the alarm then excited, cases were sought for, and hastened into that charity.—(Edin. Magazine, Nov. 1817.) No such account can be given of the statements which I have made in regard to our Infirmary. We have no organised society here, whose attention is turned to this subject, like the Society in Edinburgh for the Relief of the Destitute Sick; on the contrary, from the nature of our regulations regarding the admission of patients, many obstacles have been thrown in their way, and the disease is often of twelve or fourteen days duration before we see it. Nay, so far from using efforts to draw patients towards the Infirmary, the Managers have been obliged to adopt measures to check a pressure upon them, which threatened their funds with destruction. In the arrangements made by the Directors of the Town's Hospital, for the relief of sick paupers, the city is divided into several districts, to each of which a Surgeon is attached, who visits the sick in their houses. The Managers of the Infirmary were obliged, very unwillingly, to request of these district Surgeons, through the Directors of the Town's Hospital, that they would be as sparing of their recommendations of patients to the Infirmary as possible; and, accordingly, few, excepting the most urgent cases, have for a long while been sent in by these gentlemen.

PROGNOSIS.

Of the Prognosis I have got very little to say, in addition to what may be gathered from the statement of the symptoms. I have already observed, that it is from the inflammatory affections I had most reason to apprehend danger. I very rarely have seen death proceed from exhaustion; such cases, however, have been more common of late. A hard, thrilling pulse, though often small and thready, generally implied considerable inflammatory irritation even before it showed itself locally, and made me cautious in giving a favourable prognosis. Violent inflammatory action in the head, I have for the most part found more easily removed than violent inflammatory affection of the lungs. Both these states were attended with comparatively little danger, when they came on early than when they appeared late. When they were accompanied with great debility, the cases were most untractable, and generally terminated fatally. Tables II. and III. show the proportional as well as the actual number of patients which have died of this disease in the Royal Infirmary. I must remark, however, that if the degree of danger attending this disease be taken from these Tables, it will be estimated much too high. I have already stated that the worst cases are

always selected for the Infirmary, by the district Surgeons, and these often in the last stage, so that several of the patients who are marked in these Tables as deaths, were never seen by the physician at all, and many others were beyond the reach of medicine before he saw them, and lived only during one or two days. The real danger, then, to which an attack of this disease exposes a patient, is best estimated from the journals of such an hospital as that of Edinburgh, where it appears that the most unceasing efforts are made to send in every patient. I have accordingly given in Table IV. a statement of the number of fever patients dismissed from that hospital, during fourteen months, beginning with January 1817, by which it appears that the average proportion of deaths, during that time, was one in $15\frac{5}{23}$. A curious fact is exhibited in Tables II. and III.; I am sorry the Table from the journals of the Edinburgh Infirmary is not calculated to show whether the experience there is the same; namely, that the deaths among the males are very considerably greater than among the females. Of 601 patients under my own care, during the fourteen months I have stated, 288 were males, of whom 33 died, whereas, of 313 females, only 19 died; or rather more than 1 in 9 males, and about 1 in $16\frac{1}{2}$ females. It is also a fact, acknowledged both in Ireland and

every where in this country, that the mortality is much greater among the rich than the poor. Dr. Duncan, Jun. is of opinion, that, in Edinburgh, the mortality, though greater among the rich, is less among the poor than usual. Do not these observations bear me out in the opinion first formed, from observation of the phenomena of the disease, that it is from the local inflammatory affections we have most reason to apprehend danger. Where is it that the inflammatory diathesis is likely to prevail? Is it not among men rather than women, and among the rich rather than the poor? In farther support of this opinion, I may state, that within the last month, (March,) the mortality among the females has considerably exceeded that among the males, and that I have found the typhoid type of the disease also much more remarkable. I have had under my care, cases whose colour and symptoms might almost warrant me, in calling the disease yellow fever. Where there is the tumid countenance, yellow or bloated skin, yellow eyes, slimy mouth, tremulous tongue, with retching on pushing it out, great depression of spirits and weakness, with a loathing of all food or stimuli, the prognosis is nearly desperate. Such a case I have lost within these two weeks. The patient was a woman.

Mr. Kidd says he found relapses frequent, among the higher classes in Ireland. This has not been the case here. Relapses are very frequent, indeed, among the lower classes; but the few among the rich, who have yet been affected and died in Glasgow, have been carried off by a rapid disease.

DISSECTION.

To the Dissection of some of the fatal cases, I have looked with great anxiety, in hopes of getting some explanation of the symptoms, of being led with more certainty to a proper mode of treatment, or of being warranted, in doubtful cases, to push farther the treatment which I had been induced, from a consideration of the symptoms alone, to judge proper. I am sorry to say, that I have not found these marked appearances, which I had some reason to look for, and great reason to desire. In the typhoid cases, I did not expect to meet with much, and I found nothing. It was upon those bodies from which life had fled during the prevalence of symptoms, which I considered to indicate violent local inflammation, that I looked with most anxiety, and with most hope. In the majority of cases

I have been disappointed there also; and, in no one instance of affection of the head, have I found extensive and unequivocal appearances of inflammation. In general, all that has been found, is slight milkiness over the surface of the brain, proceeding from a serous effusion, between the tunica arachnoidea and the pia mater. Towards the base of the brain, this has sometimes been collected in considerable quantity; and it has also been observed to run from the spinal canal, after the brain had been removed. On opening the spine, in some cases, a large quantity of serum has been found within it, especially in the loins. Do these appearances tell us that we were mistaken, in supposing the brain was inflamed? Or shall we be right, in saying, with Armstrong, that certain viscera "occasionally lose their vitality from inflammation, and yet, on examination, exhibit no signs of the previous excitement; all trace of that having passed away before death, by an excess of morbid secretion?" I have seen this milkiness where there was no suspicion of inflammation; but this is equivocal evidence.

TREATMENT.

The greater part of these cases, as of almost every common epidemic fever in this country, require little or no Treatment at all. If left to run its own course, and the patient exposed to free air, supplied with plenty of cold drink, and a laxative administered, if required, the fever gradually subsides. In such cases, there is either no local affection, or, which is more common, a trifling degree of catarrh, that requires no attention. In these too, the appetite scarcely flags; and, throughout the whole disease, a moderate quantity of light nourishment is taken with relish. In such cases, or in others which are somewhat more severe, the common practice of giving an emetic at the onset of the disease, and following it up by a purgative, has been often attended by very marked advantage. Where the fever rises high, however, and is accompanied by local inflammation, the antiphlogistic treatment, in all its parts, will be found to be necessary.

I never employed blood-letting, to check geneeral fever in these cases, even when it seemed inflammatory, nor should I think of doing so now, retaining enough of former prejudice about me, to suspect, if not with good reason to believe, that the after typhoid state might

be aggravated by it. I know this is considered altogether fanciful by some, and I shall not be very averse to be persuaded that it is so. One thing, however, I must urge if we are to employ blood-letting merely on account of the extent of general fever, namely, *the great nicety, and the absolute necessity of the distinction between that which is inflammatory, and that which has a typhoid type.* If we bleed late in such cases, after the disease has put off its inflammatory, and assumed a typhoid type, we must be possessed of a wonderfully thick coating of emperical prejudice, to hinder the truth from shining through, and convincing even ourselves, that we have most certainly thrust into the grave, a patient, who might perhaps have slid past it, or who might, at all events, have lain more slowly down.

Much, however, as I am afraid of the lancet where it is not indicated by local disease, I am satisfied I cannot too strongly recommend it where it is, and that too without reference to the period of the fever when these symptoms occur. I advance this opinion in perfect confidence, and with my eyes open to the odium in which it will be held by many of the profession. There are some physicians who will not allow that any circumstance warrants the abstraction of blood in common contagious fever,

and many others insist on confining it to the early stage of the disease. "But, at any rate," says a writer on the present epidemic, "at any rate, the great objection to this practice, supposing it were in other respects proper, is, that we are seldom called in at the beginning of the disease, when only the lancet can be used with probable success." Now I contend most strenuously, that such arbitrary rules of conduct are unphilosophical, and mischievous in the treatment of disease. All disease varies infinitely in its shape; certainly no complaint does so more constantly than fever, and, therefore, in none is there more necessity for leaving a discretionary power to the physician. There needs not, I think, a stronger proof of a man treating fever ill, than the circumstance of all his patients being treated alike.

As I was fully saturated with all the prejudices against depletion, at my first acquaintance with these fevers, it is what I have seen that has compelled me, *nolens volens*, to adopt the sentiments which I now hold; and very fortunately for me, and most happily for the patients who have been under my care, I early met with some cases too decided in their nature to permit me to doubt. The first was a man with most intense headach, impetuous delirium, hard thrilling pulse, and the peculiar appearance of the eye, which I have attempted to describe.

In these days I could not think of the lancet without trembling, but I ventured to order leeches to the forehead and temples. The relief was obvious, but the symptoms presently returned—the leeches were repeated—the symptoms again and again returned—the leeches were again and again applied, till, after much suffering and a great waste of time, the man permanently recovered.

Imboldened by this success, I now ventured to direct blood to be taken from the arm of a man who had similar symptoms, and, in addition to the most painful restlessness produced by them, his whole body was constantly and greatly agitated by convulsive motions. When only six ounces of blood were withdrawn, this patient fell into a quiet sleep, never awoke till he was in all respects convalescent, and had not afterwards one unpleasant symptom. This was on the 21st day of the fever.

It is needless to multiply examples to this effect,—I shall only mention one other, the case of a man who lay in the same closet with this last. His symptoms were not so severe; they were as completely removed by venesection, but they required blood to be drawn in much larger quantity, and they frequently returned, but he ultimately recovered by the repetition of the treatment.

But I should commit that fault which I have blamed in others,—I should be publishing a caricature of my success in treating local affections, if I allowed these cases to go as a specimen of the invariable effect of blood-letting. No such thing; disease is not always so obedient. However, *I will* say, that I have often bled in the third week of fever, when there were inflammatory symptoms present, and though by no means always with the same decided success as in the cases quoted, yet constantly with sufficient benefit to satisfy me that I had done right; and generally I may state, that though I have had recourse to this practice times without number, yet I never once had to repent having done so, though often I have regretted that timidity which withheld the lancet in more doubtful cases. I am the more entitled, I think, to speak strongly upon this subject, because these opinions have been forced upon me, by actual and multiplied observation, in opposition to preconceived notions; and because these observations were chiefly made in a public hospital, where my practice was open to public scrutiny. I am not the only practitioner who has had his eyes opened to the necessity of blood-letting, during the prevalence of this epidemic. Mr. Kidd, who saw much of it while it was spreading alarm through Ireland, seems to have been

averse to depletion at first, for he only bled in four or five cases; but he adds, "they all did well, and I feel assured that the recovery of my patients was much accelerated by the loss of blood; and, should the same opportunity again be offered to me, I think I should probably make more use of my lancet than I then did."—(Edin. Med. and Sur. Jour. April 1818, p. 157.)

Dr. Brown, of Edinburgh, in an ingenious pamphlet, just published, estimates our power over fever, by any treatment, very low indeed, and possibly justly enough, in as far as regards the cutting short of the disease before it has run a certain course,—but he will forgive me for saying, I do not think he argues fairly on the subject of blood-letting, at least not as I employ it. If blood-letting is only employed to counteract a dangerous symptom, (I care not whether we consider it essential to the disease or superadded to it,) then it is not true, that "one unsuccessful case counterbalances a considerable plurality of others;" for, in the first place, it may be erroneously employed, where this symptom is not present; and next, we must all allow that it is not omnipotent, even where its employment is indicated. When the symptoms subside immediately and considerably, on the administration of a remedy, and when this sequence is observed in very many cases, it is but

fair to give the remedy the credit. Now, I never saw pneumonia give way more immediately before blood-letting, than the symptoms, which I have attempted to describe, yielded before the same remedy, in very many cases of fever.

Late in the disease, when the patient is a good deal exhausted, if inflammatory symptoms come on, we shall find them much more difficult to treat. It is natural to suppose that the only difference we should then have to remark, would be, that a smaller evacuation would answer the same purpose, but the very reverse is true. The patient bears bleeding much better than we would expect, but in a very considerable proportion of cases we find, to our extreme mortification, that the symptoms, though perhaps checked for the moment, appear again as soon as the exhaustion, the direct effect of the evacuation, begins to go off, and that, though with impunity we repeat the evacuation again and again, yet we make no permanent advance towards a cure. I believe I have already stated, that it is affections of the chest, which I have found in these circumstances to be most generally fatal. I have in several cases seen them degenerate into phthisis, and I ought to have remarked, in stating the appearances found on dissection, that in the more acute cases, I have generally seen within the lungs, more or less of a muco-purulent

matter, and a considerable quantity of serous effusion. I have reason to think that sometimes a state of ulceration, capable of cure, is produced; at least I have seen a patient when convalescent, fall away again, lose much flesh and strength, spit considerable quantities of purulent matter and blood, acquire a hectic look, yet finally recover. Possibly, however, this does not proceed from ulceration, but only from a purulent secretion from the surfaces of the bronchiæ.

I need not add, that in these cases, I never neglect the employment of blisters, which in mild examples of the disease, are sometimes themselves sufficient. Blisters to the head, are objected to by Kidd, from a supposition that they may interfere with the application of cold. It is important to state, that they do not. These two remedies are not at all inconsistent, and it would be unfortunate if they were, for they are both very valuable. The state of the skin is such, that I have not in any considerable proportion of cases, seen the cold affusion over the whole body requisite, or even admissible; but the local application of cold to the head is often of infinite advantage, and is most grateful to the feelings of the patient. I have also by its means checked vomiting, but for the removal of this symptom, often extremely troublesome, blisters to the epigastric region, are frequently necessary,

and sometimes ineffectual. Washing the whole body with a spunge, dipped either in cold or typid water, is often of great use, by refreshing the patient where the affusion would be improper. It not only refreshes the patient, but is of very great use in promoting cleanliness, a point of the utmost consequence, not to the comfort and health of the patient only, but to the safety of the attendants, by diminishing the risk of infection. Cough is often caused by febrile irritation, in other cases it must be considered a symptom of inflammation of the lungs. In the former case, I have known it removed by the cold affusion, though in other cases this may increase the catarrhal symptoms, where these, from their violence, might almost be considered primary. When cold is to be applied to the head alone, it is best done by bathing with water, continued for ten minutes or a quarter of an hour together, till the scalp becomes quite cool, or till the symptom, for which it was prescribed, is subdued. If the wetting of the head would occasion any inconvenience, cold may be applied very effectually by a bladder containing water, which must be frequently renewed, or have some pieces of ice in it.

Active purgatives, as a part of the antiphlogistic regimen, in inflammatory cases, are certainly very useful, but I am sure that they tend

very materially to increase debility in typhoid cases, and in such I cannot recommend them. In typhoid cases, I have thought it improper to do more than keep the bowels naturally open.

Calomel, especially conjoined with opium, is much lauded, in inflammatory fevers, by many high authorities. I have used it very freely, to the extent often of above two scruples of calomel, and three or four grains of opium, daily; but, from my own experience, I cannot rate its virtues very high. I have often given the calomel uncombined with opium, commencing with a dose of ten or twelve grains, and repeating it to two grains every hour, directing an enema with a drachm of laudanum, to be given if diarrhæa was induced, and to be repeated according to circumstances. In such cases as those to which I have alluded at page 24, where the head is obviously affected, but the nature of that affection doubtful, I have often been inclined to suspect, that either depletion or stimulants may occasionally effect a cure.

I forbear saying any thing about the purely typhoid cases, because I have less to object to in the ordinary treatment of them; and because these observations are extending to a greater length than was my intention or wish. They are few in number—very few, compared to the inflammatory; and, when they do occur, must

be treated on the stimulating plan. I have, however, found comparatively few cases where I could, with propriety, administer stimuli, excepting during the convalescence, or, at least, where these were required,—the mild cases may be treated in any way, and will recover in spite of the Doctor,—but where we do employ these, the particular tone of the pulse, and the expression of the countenance, will, if we listen to their representations, and be careful to look for them, quickly tell us whether we are right. If the pulse was harsh, or acquires a harsh feel from the use of stimuli,—if the face was flushed, or becomes flushed, their employment was, from the first, improper, or has become so. When stimuli are required, however, they must often be pushed in very great quantities. I have again and again been obliged to give wine almost *ad libitum;* and, not content with that, to exhibit alcohol, and ether, and camphor, in such doses as the patient could be made to swallow, and I have no doubt that, in some cases, he has owed his life to this treatment. External stimuli are also, in many cases, extremely useful, and, in doubtful ones, are safer far than those given internally. I greatly prefer sinapisms to blisters, when intended merely to rouse the system, on account of the facility with which they can be repeated, without the incon-

venience of a filthy, and perhaps debilitating, discharge after each. When the feet are perfectly cold and benumbed, or when the patient complains much of pain in the toes, we must be on our guard against gangrene, and all its frightful consequences. All that I have found necessary to check this, is to rub the parts affected frequently in the course of the day, and for at least ten minutes at a time, with warm turpentine, taken into the palm of the hand; to wrap up the feet and legs afterwards in flannel, and to apply a heated brick.

ORIGIN & PROPAGATION.

It is evident that before we can, with any chance of success, attempt to put a stop to an epidemic, we must use every means to ascertain as correctly as we can, its origin and mode of propagation, else our measures will be undecided, often inapplicable, and sometimes injurious. Both these points have afforded matter of controversy among physicians;—it is altogether foreign to my intention to enter into this discussion. I shall content myself with stating what I believe the true notions on the subject.

It has been ascertained, that a crowd, even of healthy bodies, generates fever. This is true,

whatever may have been the previous habit of the individuals, or the circumstances of the room in which they are confined,—only it must not be ventilated. There are circumstances, however, both in the individuals and their situation, which favour the engendering of contagion, and increase the susceptibility to disease in persons exposed. Among the first of these undoubtedly is filth;—damp, and every thing which tends to produce debility, are also considered, and probably with truth, as adding material facility to the engendering and propagation of contagious matter. That these circumstances tend greatly to increase the power of contagion, will be readily believed, when it is remembered, that for many months the present epidemic was found, almost exclusively, among the lower classes, in the most confined and dirty quarters of Glasgow, and that it has been able to propagate itself from this among the population near the Grass-Market of Edinburgh, (Edin. Monthly Mag. July 1817,) while it has hitherto made but very partial advances in our own clean and well-aired streets, although the communication with these must be unceasing.

It ought farther to be remarked, that certain circumstances in the persons exposed, greatly lessen the susceptibility to contagion. Habitual exposure is perhaps the most impor-

tant of these. Hence it is, that medical men and the other attendants upon the sick, so generally escape; hence it is, that prisoners brought from a crowded and airless gaol, have come into court with their persons loaded with contagion, yet themselves uninfected, and have scattered death through a crowded assembly, themselves unharmed. Farther we know, that after contagion has been produced, the same circumstances of want of ventilation, filth, and the causes of debility, are not, by any means, equally necessary for its propagation. It extends to all ranks and conditions, though much more slowly than among the causes of its origin.

That the present epidemic is contagious, it would be easy to multiply proofs. Several students of medicine, attending the Infirmary, have been taken ill, and two at least have died; many sick-nurses have been infected, and one has died; I have had two clerks affected with the disease, and the matron is at present confined. A medical man in Glasgow, died, as I understand, from infectious fever, soon after the period that I have mentioned for the return of the disease in a typhoid form. A Member of Faculty died very lately from fever, caught in attending the poor, and several others have been ill. One notable example of infection I may state, because it not only confirms the opinion of the

contagious nature of the disease, but it shows how it is scattered among the poor. In a very small room, in one of the filthy, crowded, airless quarters of the city, inhabited by the lower classes, twelve persons were lodged, and, for their accommodation, three beds only were provided. From this house, we got into the Infirmary, in succession, six patients with fever, the compliment of inhabitants, in the mean time, being kept up by the arrival of new inmates. At length, very fortunately, the mistress of the house was taken ill. The Surgeon, who was called to visit this nursery of pestilence, complained of it to the Magistrates as a public nuisance; he was requested to give in a statement in writing, when the woman was sent to the Infirmary, and the house ordered to be locked up. This was right; and, if measures of equal decision were taken, on a more extended scale, much might be done towards eradicating the contagion.

If any man wonders at the prevalence of continued fever, among the lower classes in Glasgow, or at its spreading from their habitations, let him take the walk which I did to-day with Mr. Angus, one of the district Surgeons. Let him pick his steps among every species of disgusting filth, through a long alley, from four to five feet wide, flanked by houses five floors high, with here and there an opening

for a pool of water, from which there is no drain, and in which all the nuisances of the neighbourhood are deposited, in endless succession, to float, and putrify, and waste away in noxious gases. Let him look, as he goes along, into the cellars which open into this lane, and he will probably find lodged, in alternate habitations, which are no way distinguished in their exterior, and very little by the furniture which is within them, pigs, and cows, and human beings, which can scarcely be recognised till brought to the light, or, till the eyes of the visitant get accustomed to the smoke and gloom of the cellar in which they live. I have been to-day in several dens of this kind, where I did not see persons lying on the floor near me, till Mr. Angus, whom a previous visit had taught where to find them, inquired after their health. I was in one closet, measuring twelve feet by less than five, on the floor of which, he told me, six people had lain, affected with fever, within these few days, and where I saw the seventh inhabitant now confined. We found, in one lodging-house, fifteen feet long, by nine feet from the front of the beds to the opposite wall, that fifteen people were sometimes accommodated; and when we expressed horror at the situation in which they were placed, the woman of the house, somewhat offended, and, I believe, a little alarmed lest we should cause

some inquiry to be made by the Police, said, in support of the character of her establishment, that *each family* was provided with *a bed*, and that she very seldom had any body lying on the floor. I shall only mention one other instance of misery. In a lodging-house, consisting of two rooms, separated by boards, the first thirteen feet by eleven, the other fifteen by eight, twenty-three of the lowest class of Irish were lately lodged. To-day there are fourteen, of whom two are confined with fever, three are convalescent, and one only has hitherto escaped. There are only three beds in this house, (denominated, with that facetiousness which enables an Irishman to joke with his own misery, Flea Barracks,) one of them in a press half-way up the wall, the others wooden frames, on which are laid some shavings of wood, scantily covered with dirty rags. Most of the patients were lying on the floor. A man, two sons, and an adult daughter, were lying side by side on the floor of the first room, their bedding of the same materials with the others, and the boys being destitute of shirts. Could imagination feign a combination of circumstances more horribly conducive to disease and immorality*!

* *24th April.*—Mr. Angus tells me that the father of this family is dead; that the Fever Committee have stepped from their usual rule, and sent one of the boys to the Relief Hospital; and that the only inhabitant of the house, who was well when I saw them, is now confined.

The contagious nature of the disease can admit of no doubt, with any one who will undertake to investigate it in these circumstances, and who will contrast them with its extension, among people of very different rank and habits*. Whatever may be urged, and plausibly urged about the engendering and propagation of fever, independent of contagion, and in defence of the opinion, that it arises from poor diet and certain states of the atmosphere, we cannot but be sensible, that, during the period when it has maintained its ground in Glasgow, the poor have been both well and ill fed, and we have had long continued tracks of weather of every kind excepting hot. I have no hesitation in saying, that these vicissitudes, in the degree that we have experienced them, have shown themselves nearly impotent, in regard of this epidemic. The hideous picture of want, which Mr. Kidd describes, in the Edin. Med. and Surg. Journal for this month, as endured in Ireland, must have aggravated the disease there, but thank God, in our worst times we have seen nothing approaching to the misery in which "many a delicious meal was furnished by bleeding the half-starved, and in some instances diseased cattle, and boiling the blood with a little barley-meal." The

* See also the manner in which the disease extended itself in Edinburgh. Blackwood's Edinburgh Magazine, October, 1817.

doctrine of contagion seems to me to be disputed on no better grounds, than that we do not know all the laws by which its extension is regulated.

No one doubts the propagation of syphilis by the application of a specific morbid poison, yet we find, that attention to its history has brought to our knowledge, certain facts regarding it, which bear the closest analogy to the history of infection, as illustrated in the cases of the plague and small-pox. It would appear that its long residence in a country diminishes its virulence, and that it becomes virulent again when it is carried abroad, or when a stranger is affected. (Medico Chirurgical Transactions, vol. IV.)

PREVENTION & REMOVAL.

The first questions that will be put to us, when we talk of preventing the diffusion of contagion, and of gradually abridging the spread of an epidemic already prevalent, are, Have you any such power? Can you by any means whatever, check or put down an evil of this description? Many attempts have been made to do so in similar cases, have these ever been successful?

Dr. Brown, in the pamphlet already quoted, in

my opinion, undervalues our ability to effect this desirable end, and the reasoning which leads him to this estimate of our power, is, I think, fallacious. "In no instance," he justly observes, "has a contagious ailment affected a whole population. In no instance has it been propagated for ever. In every instance on record, or within our own memory, it has ceased, although no fever houses were provided, nor any other extraordinary means employed." All this is true, and I have allowed, that contagious diseases ebb and flow in particular situations, according to laws which we do not understand. But surely this does not prove, that by exciting unnatural circumstances, we are unable to control their usual routine. I do allow, that in many instances, too much credit has been given even to judicious efforts at the extinction of infectious fever, and that great importance has been given to other plans which are quite as ineffectual as camphor bags, or other boarding-school fooleries; but I also believe, that by the steady prosecution of wise measures, fever has been rooted out, and its recurrence prevented, even among a population extremely well suited for its reception. By a reference to Table V. it will be seen that infectious fever was at one time fully more prevalent in Manchester than it has been in Glasgow; yet it has been eradicated there, and

the judicious steps which have been persevered in, have kept that great population exempt from its ravages, at a time when it is visiting with more or less severity, almost every other crowded town in the empire, and even attacking with too much success, the healthy population of our country villages. The experience of London too is greatly in favour of the idea, that by proper measures we can keep fever under*. Do not the whole quarantine laws proceed on the same supposition, and does not their success prove that the supposition is a correct one?

If these views are just, then, and if the statements which I have made in the last section regarding the origin of contagion, are well founded, then the principles which ought to regulate all our attempts at preventing it, are obvious. If it is true that the great source from whence contagion springs, is a crowd of human beings confined in an ill-ventilated room; then it is also true that if we can prevent this crowd, or if we can ventilate the apartment in which it meets, we shall at least make the occurrence of contagion much less frequent,

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* Before the commencement of the present system for the suppression of contagious fever, the annual number affected with this disease in London, was estimated at 40,000, and the deaths at 3,188. Now infectious fever is scarcely known at any of the London hospitals or dispensaries; and the number of cases at the House of Recovery is said to be seldom more than five or six.—(Blackwood's Edin. Mag. Oct. 1817.)

and as it is a matter of dispute whether it has any other source, it is possible, that by this means we may prevent the origin of contagious fever altogether.

As it may be found extremely difficult, however, to keep the houses of the poor under strict regulation in these respects, we must look to the circumstances which favour the operation of contagious matter, that by checking them also as much as we can, we may render this more manageable, if unfortunately it should at any time be generated. The principal of these I have stated to be filth, damp, scanty or unwholesome food, and generally every circumstance which promotes inaction and debility. If we can prevent or lessen these concomitant circumstances, it is probable we shall be able to prevent contagious matter from acquiring that degree of concentration which will enable it to produce disease.

I am afraid it will be found nearly impossible to ventilate the houses of a great body of the poor in Glasgow, as they are at present accommodated. The construction of the houses is such that on this account it would be extremely difficult; but perhaps a more insuperable impediment still we should find in the excessive apathy of the people, and their dislike to ventilation. To a person unacquainted with the habits of the

lower classes, this aversion would be nearly incredible; but every one who is in the habit of going among them, knows it well. It is a constant battle which their medical attendants have to fight, and I recollect one particularly aggravated case, where I only succeeded in preventing the shutting of the window whenever my back was turned, by sending for a carpenter, and making him carry it away with him.

An important step towards ventilation would be effected, if we could even open up the lanes in which the lower classes live. In Glasgow, the hovels which they inhabit are collected into dense masses of very great size between some of the larger streets. I believe it would greatly add to the healthiness of the place, if some improvements which I have heard talked of were effected, and straight and wide streets carried in different directions through these depositaries of wretchedness. It would not, I think, be easy to devise a more judicious charity, than the building of houses for the poor on an approved plan, and in a good situation. The avidity with which such houses are sought after, shows too, that it is a kind of benevolence which would cost very little money, if indeed it did not pay as a speculation. But to return—

However difficult it might be found to effect a proper ventilation of the houses of the poor,

the crowding of these may surely in many cases at least be prevented by the Police. Perhaps it might be thought a strong measure to enter a man's house, and regulate the accommodation of his family, even though public good seemed to require it, but I should conceive that lodging-houses are strictly under the cognizance of the Police, and that the Magistrates are quite entitled to licence these, and to put them under regulation. This would be of great use; it is in them chiefly that crowds form, and from them contagion is most readily disseminated by the constant flux and reflux of the lodgers.

With regard to the lessening of some of the circumstances which favour the action of contagion, I am confident the Police can and ought to do a great deal. They can compel the removal of the dunghills, or the filling up of the ground on which they stand, so that they may no longer remain a pool of stagnant filth; they can renew the pavement in the closes, giving them all an inclination towards the street, so that the water may not stagnate in them; or, if this cannot be done, they may put drains in them, to carry the water to the common sewer *; they can compel the cleaning of the closes

* Most of our streets, it is hoped, have sewers now; if not, they ought to be made where they are wanting.

by the inhabitants themselves, which can be no difficult task, as almost every where there is one, and sometimes two water-pipes in these places. I believe, the flooding of the kennels in the closes, once every day, and the removal of the multiplied nuisances with which they abound, would go farther than is generally supposed, in the prevention of contagion. But I cannot too strongly protest against half measures. Such are not only useless, but mischievous, by exciting a mistaken feeling of security, and, by their certain failure, bringing discredit upon a judicious system of prevention. By removing one or two of the smaller nuisances, which by themselves would be found innocent, we may put certain individuals to great inconvenience and to much loss, but we shall not advance one step towards an effectual security against contagion.

With the utmost care, contagion must occasionally be generated, and now it is spreading to a very great extent through Glasgow; we must, therefore, inquire whether there are any means in our power, by which we may remove it, after it has been fully established among a numerous, crowded, dirty, and poor population. I think these means are in our power, at least, in a very considerable degree, and the experience of other places, seems to prove that they are.

In the first place, we must separate, as quickly as possible, those who are infected from those who are well: secondly, We must endeavour to destroy the contagion already generated: and, thirdly, We must, if possible, put an end to all its exciting causes.

The separation of the infected can only be accomplished by providing hospitals for the reception of the sick. The Infirmary can only receive a small proportion of them, and the Relief Hospital, established within these few weeks, is on much too limited a scale, to have the semblance of an attempt at eradicating the disease. The want of buildings of sufficient extent, and the continued apathy of the public to this important matter, has allowed the evil to grow to such extent, that I almost doubt the possibility of raising a sufficient sum of money to provide accommodation for the multitude of fever patients now in town. Where the blame lies for having permitted this, it is not my intention to inquire; I shall only state, that it is not in the Managers of the Infirmary. Formerly, six bed-closets on each of three floors, were more than sufficient to receive all the fever patients which presented themselves; but since this epidemic became so prevalent, they have shown the greatest anxiety to accommodate the infected, to the utmost of their power. For a

considerable time past, they have, in addition to the former accommodation reserved for fevers, opened, for patients of this class, the whole of the new wing, consisting of eight wards and sixteen bed-closets; and lately they have appropriated for this purpose also, an entire ward in the old part of the house. Moreover, they have often allowed this great proportion of the Hospital to be so crowded, that beds were laid upon the floors, in every way that it was possible with any kind of safety, to accommodate the sick; and this they have done, at a loss of capital which threatens very seriously, the permanency of the Establishment, on its present scale. They have, at the same time, repeatedly warned the public of the extent of the danger; and, if it has grown to a magnitude which it may be very difficult now to repress, it is because the public would not believe the danger, and could not be persuaded to take steps, at a time when the rooting up of the evil was more obviously practicable. In the mean while, the gates of the Infirmary have, for want of room, been, of necessity, shut; and the tide of pestilence, which had before rolled towards it, and been absorbed there, has been turned back upon, and diffused through a community, which could not be persuaded of its existence. Still, however, I hope that, by the steady prosecution

of energetic measures, we may gradually gain upon the disease, and that, by taking advantage of any little abatement which the approach of warm weather may effect, we may, before the recurrence of another winter, get it so far under command, that we shall be able, at least, to prevent its spreading. If we allow it to go on unchecked, the individual misery which must occur during the winter will be incalculable, and the disease will, probably, by that time, be of such extent, that we shall find it quite beyond our power to restrain its farther progress, and we may then be compelled to wait as patiently as we can, till that period comes round at which this, in common with other epidemics, declines without any interference.

We do not want individuals who have humanity to undertake, and zeal to execute any proper plan, if the means were given to them. The Gentlemen associated under the name of the Fever Committee, are, I believe, most ready to take the trouble, and they have informed themselves as to the proper method of counteracting contagion,—a knowledge which they are ready to bring into action, whenever they shall be put in possession of the funds. They are quite sensible that the accommodation they have at present is not sufficient for effecting the separation of the infected, and, therefore,

they are doing what is surely very judicious, though it frequently lays upon them the irksome task of rejecting the most urgent cases of misery; they select for admission individual cases of infection, in houses or districts which have hitherto escaped, refusing to remove any from those houses in which the disease has attained such ascendency, that the greater part of the family is laid up, thus endeavouring to confine the contagion to its present limits, till better hopes are offered to them by the supply of greater funds. An attempt has been made to open the Riding-School as a fever ward, and has met with such opposition from the inhabitants of the houses around, that I am sorry to find the idea is given up. The Committee have applied for many other buildings, but either the proprietors have refused to accommodate them, from a fear that the application of their property to such a purpose would prevent its letting again; or they have been resisted by the neighbouring families.

The fear of infection from the neighbourhood of an hospital, is altogether imaginary. The contagion cannot excite disease above a very few feet from the body infected; and it is very much to be regretted, that a mistaken prejudice of this kind should be permitted to obstruct so much real good, to scatter so much real misery,

and, by increasing the extent of the disease, the *quantity* of the contagion, thereby to augment the risk of those very families who are at present arming themselves against an imaginary danger. There is not, I will venture to say, one case of fever contracted from vicinity to the Royal Infirmary; and it is very well known, that the erection of a fever hospital in Gray's Inn Lane, has had an effect the very reverse of fomenting the disease in that quarter. If, then, an institution of this kind, has *checked* the disease in the middle of the smoke and filth of one of the most crowded districts in London, surely there is not the smallest chance of its *diffusing* it in a situation so free from every auxiliary to contagion as York Street. Instead of contending against the establishment of a fever hospital in the quarter where we live, we would account it a piece of good luck if we were to listen to the voice of experience. The Manchester House of Recovery was at first confined to the streets in its neighbourhood, in which district the annual number of fever patients, before the establishment of the Hospital, was 400. In the year commencing *two months* after the Hospital was opened, twenty-six cases only occurred in the same district; and in the last four months of this period, there was only *one*.—(Blackwood's Edinburgh Magazine, October 1817.)

Let us, then, discard these fears for the neighbourhood of a fever hospital,—they may be natural, but they are groundless; and let us open every hall which can be procured in town for the accommodation of the miserable inhabitants of the dismal cellars to which I have before alluded, and where they are nursing contagion, which may one day be let forth in fearful vengeance upon us, if we do not use our utmost endeavours to alleviate such accumulated wretchedness. The experience just noticed, I think shows, that it is not being too sanguine to hope, that by the supply of hospitals on the scale which these halls would afford, conjointly with the prosecution of a judicious preventive system, the Fever Committee would, in the course of a few months, be able to put down the disease. Let the proprietors of these halls observe, that I have recorded in Table III. 113 deaths from fever, within 22 months, and that this is not nearly the total amount, but only such as have occurred in the Infirmary. Let them consider that the deaths will be still more numerous if the disease is allowed to increase during the next 22 months, and then let them say, even without the very possible aggravation of some of their own families having swollen the Bill of Mortality, whether they will feel very comfortable, when they reflect that they pertinaciously withheld the means of

saving all this slaughter. I am unwilling to believe that the want of money will be any permanent obstacle to the exertions of the Committee. I am persuaded that the tenth part of the miseries that the poor suffer, oppressed by disease and worn down by want, is not generally known, else a city, which, to its unspeakable credit, besides its other extensive charities, raises by voluntary subscription every year, nearly Two Thousand Pounds towards the support of a Public Infirmary, would not hesitate a moment to raise a sum competent to meet the present emergency.

Care ought to be taken, that no excessive formality be required about the admission of patients into the temporary hospitals. Every facility should be given to them, that no time may be lost before they are removed from their houses. The only recommendation required, should be the fact, that the disease is fever. Every inducement should be held forth to encourage the infected to take advantage of the offer made to them; but if the aversion which the lower classes in Scotland have to an Infirmary, (an aversion which by the by is greatly diminished, from the experience of the comfort of such an asylum,) should be such, as to keep any one from applying, it is for the Police to determine what steps the public good requires that they shall take, to oblige him to leave a situation in which he

cannot remain with safety to his fellow citizens. An organized plan should be commenced for obtaining information of such cases, either through the Elders of districts or the Town's Surgeons.

But we must do more than accommodate the sick with lodging. If we remove a patient to an hospital, and then allow his bed at home to be occupied by a person in health, without having taken any steps to prevent his sustaining injury from the contagion left behind, it is very questionable whether our interference shall have done good or harm. We must take steps to destroy the contagion, when we remove the infected. It must be destroyed in two quarters, on the body and dress of the individual, and in the house from whence he has been taken.

When a patient is removed to a fever hospital, it is a proper measure, and has been adopted in the Relief Hospital here, that, previous to his being carried to his bed, he should be taken to a room to be undressed, to have his head shaved, and to be washed, if this can be done without injury, and nothing but extreme exhaustion ever contraindicates it. He ought then to be supplied with an hospital shirt, and removed to bed. His own clothes ought immediately to be thrown into water, and left there till it is convenient to have them washed. Great

care must be taken that the patient is not fatigued by all this. Exhaustion may be irremediable in fever. Benches ought therefore to be placed in this anti-room, that the patients may lie down if exhausted, or while the others are getting cleaned.

One step, in this initiatory process, I consider very important, namely, the providing of an hospital dress, and the washing of the patient's own clothes. I am afraid, mischief is often done by allowing the sick to keep their clothes about their beds while in hospitals, and afterwards to put them on, loaded with contagion, when about to return to their families. Another important purpose it would serve. We very frequently have relapses in the Infirmary, from the patient getting up too early in the convalescence, and taking too much fatigue. If a shirt was the only article of dress provided for him, till the Physician ordered him more, he would be more completely under command. When dismissed, he ought to have his own clothes brought to him in the room where he was cleaned on coming in, and there he should leave his hospital dress.

The last circumstance which I shall mention, relative to the steps necessary to be taken with the individual, for preventing the spreading of the contagion from him, even after he has been removed to an hospital, is the prohibition of

visits to him from his friends. In the Royal Infirmary, certain hours are fixed, at which visits by the friends of the sick are permitted. We could so often trace infection to a visit at the Infirmary, that I mentioned the circumstance at a meeting of Managers, and requested that the fever wards might be shut against all visitors, unless in cases where the death of the patient was expected. The order was immediately given, and has been acted on ever since,—I am satisfied with essential benefit.

By acting upon such regulations as these which I have attempted to detail, I feel pretty certain, that there would be very little danger of contagion spreading from the patient, after he was removed to the hospital; but we must attend also to the house from whence he was taken, and we shall perhaps find this more difficult to manage. Fumigation and ventilation are the means which must be had recourse to, in regard of the houses from whence the sick have been removed.

One opinion, with regard to fumigation, is, that it does no good but by insuring ventilation, another, that it has a chemical action upon the contagious matter, and neutralises, or otherwise destroys it. I shall not enter into this discussion; I care not which notion is true; I care not whether the substance employed for fumi-

gation, has a specific action on the matter of contagion, or whether it simply acts like the pouring of an ink bottle on a poisoned wound,—when the stain is washed away we know that the poison is gone with it. Experience abundantly shows, that, after fumigation, infection has ceased, and this is all that is practically useful.

As soon, then, as a house has been cleared of the persons affected, it ought to be fumigated, under the inspection of a proper person entrusted with the charge. The only thing necessary to be attended to is, that the room shall be completely filled with the acid vapour, and left closed for some hours, if the whole of the inhabitants can be removed; if not, that it shall be kept for a considerable time as full of vapour as is consistent with respiration. It is probably of little consequence whether the nitrous or oxy-muriatic acid gas is selected for this purpose, if the house can be emptied of its inhabitants; but if it cannot, the nitrous acid must be preferred. I would recommend that this shall be done at least twice after the sick have been taken away, because the state of their dwellings is such, that I fear it will be very difficult to do it effectually. After each fumigation, as much air as possible should be let into the house, and the ventilation must never be considered com-

plete, till the smell of the acid vapour is gone. Ventilation should be encouraged at all times, in the dwellings of the poor; and if the houses are incapable of it from their construction, assistance should if possible be afforded to the occupants, to remedy the evil. They should then be urged to wash their clothes, and such visits repeated to them, and such inducements held out, as shall lead them to keep their persons and their dwellings decently clean. The rooms should be white-washed after cleaning. As much of the bedding is absolutely of no value, and as it must be nearly impossible to clean it, I would strongly urge that it be burned, and other given in its place. This may be done at a very small expense indeed, and the advantage derived from it, I am persuaded, would be incalculable. I propose, of course, to give bedding of scarcely better materials than that taken away; otherwise the expense would be considerable, as the scale is very extensive. As all the measures of cleanliness and ventilation will be much more cheerfully, and much more effectually, taken voluntarily, than by compulsion, I would recommend that rewards should be given to the poor who adopt these measures themselves, and that there should be no direct interference, unless it shall be found absolutely necessary. They will not fumi-

gate effectually, if left to themselves; but the persons entrusted with this charge, may *offer* to be present, that they may be of use in giving their advice. No reward should be given unless one of them was requested to attend.

Finally, we must bear in mind, that contagion may lurk in houses, and yet the inhabitants, from habitual exposure, may escape. Ventilation and cleanliness, therefore, must be every where inculcated; and as a very important method of effecting the former, as well as of lessening some of the causes which give contagion a stronger influence, is the lighting of fires, coals, if possible, should be distributed to those who are incapable of procuring them for themselves.

TABLE I.

Number of Medical Patients admitted into the Royal Infirmary, Glasgow, each Year since its erection, and the number of these affected with Fever.

Year.	Medical Patients.	Of these were Fever.	Year.	Medical Patients.	Of these were Fever.
1795	145	18	1806	504	75
1796	228	43	1807	532	25
1797	365	83	1808	602	27
1798	360	45	1809	638	76
1799	465	128	1810	656	82
1800	489	104	1811	500	45
1801	499	63	1812	569	16
1802	496	104	1813	744	35
1803	638	85	1814	855	90
1804	507	97	1815	958	230
1805	523	99	1816	1139	399
			1817	1457	714

TABLE II.

List of Fever Patients admitted into my own Wards in Royal Infirmary, Glasgow, noting the Sex, Event, and Average of Deaths in each Month, from May 1816 *to February* 1818, *both inclusive.*

Date.	Males.	Died	Average of Deaths in Males.	Females.	Died	Average of Deaths in Females.	Total Admissions, including both sexes.	General Average of Deaths, including both sexes.
1816.								
May,	4	1	1 in 4	7	1	1 in 7	11	1 in $5\frac{1}{2}$
June,	8	0	0	8	0	0	16	0
July,	4	0	0	9	1	1 in 9	13	1 in 13
Aug.	5	2	1 in $2\frac{1}{2}$	7	1	1 in 7	12	1 in 4
Sept.	7	1	1 in 7	7	1	1 in 7	14	1 in 7
Oct.	6	1	1 in 6	10	0	0	16	1 in 16
Nov.	6	1	1 in 6	7	1	1 in 7	13	1 in $6\frac{1}{2}$
Dec.	4	0	0	4	0	0	8	0
1817.								
Jan.	10	3	1 in $3\frac{1}{3}$	16	3	1 in $5\frac{1}{3}$	26	1 in $4\frac{1}{3}$
Feb.	6	1	1 in 6	5	1	1 in 5	11	1 in $5\frac{1}{2}$
March,	10	4	1 in $2\frac{1}{2}$	5	0	0	15	1 in $3\frac{3}{4}$
April,	18	4	1 in $4\frac{1}{2}$	7	1	1 in 7	25	1 in 5
May,	5	0	0	5	2	1 in $2\frac{1}{2}$	10	1 in 5
June,	15	1	1 in 15	18	2	1 in 9	33	1 in 11
July,	16	3	1 in $5\frac{1}{3}$	16	0	0	32	1 in $10\frac{2}{3}$
Aug.	22	1	1 in 22	20	2	1 in 10	42	1 in 14
Sept.	23	2	1 in $11\frac{1}{2}$	23	1	1 in 23	46	1 in $15\frac{1}{3}$
Oct.	15	1	1 in 15	16	1	1 in 16	31	1 in $15\frac{1}{2}$
Nov.	32	1	1 in 32	32	0	0	64	1 in 64
Dec.	30	0	0	36	0	0	66	0
1818.								
Jan.	25	4	1 in $6\frac{1}{4}$	32	0	0	57	1 in $14\frac{1}{4}$
Feb.	17	2	1 in $8\frac{1}{2}$	23	1	1 in 23	40	1 in $13\frac{1}{3}$
Total,	288	33	1 in $8\frac{8}{11}$	313	19	1 in $16\frac{9}{19}$	601	1 in $11\frac{29}{33}$

TABLE III.

Total number of FEVER PATIENTS *admitted into the several Wards of the Royal Infirmary, Glasgow, noting the Sex, Event, and Average of Deaths in each Month, from May* 1816 *to February* 1818, *both inclusive.*

Date.	Males.	Died.	Average of Deaths in Males.	Females.	Died.	Average of Deaths in Females.	Total Admissions, including both Sexes.	General Average of Deaths, including both Sexes.
1816.								
May,	8	1	1 in 8	16	1	1 in 16	24	1 in 12
June,	19	0	0	18	1	1 in 18	37	1 in 37
July,	9	0	0	13	1	1 in 13	22	1 in 22
Aug.	11	3	1 in $3\frac{2}{3}$	11	1	1 in 11	22	1 in $5\frac{1}{2}$
Sept.	15	2	1 in $7\frac{1}{2}$	11	1	1 in 11	26	1 in $8\frac{2}{3}$
Oct.	12	1	1 in 12	20	1	1 in 20	32	1 in 16
Nov.	18	2	1 in 9	14	1	1 in 14	82	1 in $10\frac{2}{3}$
Dec.	7	1	1 in 7	7	0	0	14	1 in 14
1817.								
Jan.	19	7	1 in $2\frac{5}{7}$	25	4	1 in $6\frac{1}{4}$	44	1 in 4
Feb.	15	3	1 in 5	10	2	1 in 5	25	1 in 5
March,	14	4	1 in $3\frac{1}{2}$	13	0	0	27	1 in $6\frac{3}{4}$
April,	33	8	1 in $4\frac{1}{8}$	10	1	1 in 10	43	1 in $4\frac{7}{9}$
May,	31	4	1 in $7\frac{3}{4}$	21	6	1 in $3\frac{1}{3}$	52	1 in $5\frac{1}{3}$
June,	25	3	1 in $8\frac{1}{3}$	32	5	1 in $6\frac{2}{5}$	57	1 in $7\frac{1}{8}$
July,	26	5	1 in $5\frac{1}{5}$	27	1	1 in 27	53	1 in $8\frac{5}{6}$
Aug.	41	4	1 in $10\frac{1}{4}$	38	3	1 in $12\frac{2}{3}$	79	1 in $11\frac{2}{7}$
Sept.	43	3	1 in $14\frac{1}{3}$	37	2	1 in $18\frac{1}{2}$	80	1 in 16
Oct.	35	2	1 in $17\frac{1}{2}$	34	1	1 in 34	69	1 in 23
Nov.	53	3	1 in $17\frac{2}{3}$	65	1	1 in 65	118	1 in $29\frac{1}{2}$
Dec.	49	5	1 in $9\frac{4}{5}$	66	2	1 in 33	115	1 in $16\frac{3}{7}$
1818.								
Jan.	42	8	1 in $5\frac{1}{4}$	58	2	1 in 29	100	1 in 10
Feb.	34	3	1 in $11\frac{1}{3}$	48	4	1 in 12	82	1 in $10\frac{2}{7}$
Total,	559	72	1 in $7\frac{55}{72}$	596	41	1 in $14\frac{22}{41}$	1153	1 in $10\frac{25}{113}$

TABLE IV.

Number of Fever Patients Dismissed from the Royal Infirmary, Edinburgh, from January 1817 *to February* 1818, *both inclusive.*

Date.	Cured.	Died.	Total.	One Death in
1817.				
January,	19	3	22	$7\frac{1}{3}$
February,	17	0	17	0
March,	18	1	19	19
April,	38	2	40	20
May,	34	4	38	$9\frac{1}{2}$
June,	26	1	27	27
July,	33	3	36	12
August,	39	3	42	14
September,	49	3	52	$17\frac{1}{3}$
October,	53	1	54	54
November,	59	6	65	$10\frac{5}{6}$
December,	93	6	99	$16\frac{1}{2}$
1818.				
January,	86	7	93	$13\frac{2}{7}$
February,	90	6	96	16
Total,	654	46	700	$15\frac{5}{23}$

TABLE V.

Number of Patients, Fever Hospital, Manchester.

Year.	Admissions.	Deaths.	Remaining in Hospital.	Proportion of Deaths.
1797	371	40	7	1 in 9+
1798	339	16	23	1 in 20—
1799	398	27	11	1 in 14+
1800	364	41	8	1 in 9+
1801	747	63	39	1 in 11+
1802	1070	84	30	1 in 12+
1803	601	53	9	1 in 11+
1804	256	33	8	1 in $7\frac{1}{2}$
1805	184	34	6	1 in $5\frac{1}{4}$
1806	288		4	1 in 9

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