ditary diseases will appear to arise from hereditary similarity of structure, rather than from the *semina morbi* lying in a latent form in the patient's frame, as is commonly supposed.

The subject is one of great interest, and in order to be properly investigated, requires a great number of observations. The above are offered merely to induce others, who may be in possession of similar facts, to record them, and thus to aid in furnishing the materials for enabling us to arrive at a definite conclusion on the subject.

ART. V.—*Practical Observations on Fever, particularly with reference to the Plan of Treatment which has been generally pursued in the Belfast Fever Hospital for several years.*

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FROM the very frequent occurrence of contagious fever in this country, and from the great annual mortality which it produces, especially amongst the lower classes of the people, I consider it entitled to more attention on the part of the student of medicine and that of the practical physician, than almost any other disease with which I am acquainted. Most other epidemic and contagious diseases occur only at intervals of one, two or more years, and then only prevail for a short time and afterwards disappear. This, however, is not by any means the case with the disease in question, for it is to be met with, particularly in large towns, at every season of the year, and although it has its periods of increase and decline, yet it cannot be said to be extinct at any one time. One would naturally suppose, from the great prevalence of this disease, that its nature would be much better understood by physicians than almost any other. This, however, is not the case, and I am certain, there is scarcely

another disease, about the nature and treatment of which physicians are more completely divided, than about that in question; and as the remedies which are employed for its cure, must be calculated to produce certain physical changes, either on the solids or fluids of which the body is composed, it is of course a matter of the first importance, to ascertain what the nature of such changes should be, for if the theories held relative to the nature of a disease be incorrect, it will not be possible to apply those remedies for its cure which will prove most beneficial. As almost every disease of an infectious nature, seems to run, if not interrupted during its progress, an almost uniform course, and as no disease of that description could manifest more uniform symptoms, than the one I am now considering, I think there can be no doubt, that some of those theorists, who are at variance respecting its nature, must be in error. If it be a disease of debility, as some will have it to be from the very commencement, antiphlogistic remedies would be injurious in its treatment; and if on the other hand, it be in every instance an inflammatory disease, tonic medicines would not fail to prove dangerous. It should on these accounts be the anxious wish of every physician to ascertain, if possible, the real nature of fever, before he attempts to take charge of its treatment.

The doctrine taught by some of the French and British physicians for many years past, respecting the inflammatory nature of fever, has given rise to a plan of treatment almost completely antiphlogistic. How far this plan has been successful, I will not now consider, as I will have occasion to examine it at considerable length in a subsequent part of this paper. There can be no doubt, that the character of different epidemics is in many instances different, so that those remedies which would be most suitable in one instance, would be improper in another. It should be observed, however, that the great cause of fever not being possessed of the same characters at all times, is the acci-

dental complications which sometimes occur from certain internal or external causes, in addition to those which are peculiar to its production. It will be found, for instance, that at some particular seasons of the year, the mucous lining of the air tubes of the lungs will be the part most particularly affected ; and, again, it will be found, that the mucous lining of the stomach and bowels suffers most. From these circumstances it is evident, that those diseased actions which appear to be most prominent at some particular seasons of the year, will not be so at others. It certainly would be quite improper to come to any general conclusion relative to the nature of fever, without a long and careful consideration of all those circumstances, whether external or internal, by which its character or progress can be influenced ; so that the average of a great number of cases should be strictly examined, before any one organ or part of the body is considered to be more affected than another. I state it as the result of the most careful *post mortem* examinations, in most of those cases of fever which have proved fatal under my care, in the Belfast hospital for the last four years, that the disease I am considering is not essentially inflammatory in its nature, and that those diseased actions which constitute the contagious fever of this country, are not produced by some local inflammatory action in certain of the most important internal organs of the body. I am quite sensible that some localities predispose, more than others, to inflammation of the mucous lining of the stomach and bowels, as well as other internal parts ; but making every possible allowance of this kind, I am quite satisfied that physicians have overrated the number of inflammatory complications, and this is more particularly the case with reference to the mucous lining of the stomach and bowels. Out of sixty fatal cases of fever in the Belfast hospital, which I examined with the greatest care, I did not find one of acute inflammation of the mucous lining of the stomach and bowels, and out of the same number of patients, I only found two cases of inflammation of the brain. The mucous lining of

the lungs, however, was considerably inflamed in four out of the sixty cases, but I did not find in one of the sixty inflammation of the substance of the lungs nor of the liver. The last mentioned organ was, however, in many instances much gorged with blood of a dark colour. It would therefore appear, that so far from inflammation of any internal organ of the body, being necessary to the existence of contagious fever, it is an occurrence which I have seldom met with in the Belfast hospital.

It is in my opinion quite idle to talk of one part of the body being more affected in fever than another, whether fluids or solids, and whoever has watched with attention its progress, must have observed, that from the very commencement of the attack, every individual part manifests diseased actions; and if these be more prominent in one organ than another, they are to be attributed to something peculiar in its powers, or to some internal or external cause, favouring more excitement of one part than another from the operation of contagion. The very first symptoms of the disease in question are marked by a deranged state of the brain and nervous system; the organs of secretion and absorption; muscular motion; animal heat, and in fact, every function and action of the body. It might just as well be said, that the pain which is generally experienced in the entire course of the spine, indicates inflammation of the spinal marrow, as that pain of the head indicates at the beginning, or during the progress of fever, inflammation of the brain. In some, I might say in many, of those cases of fever I have examined after death, where all those symptoms were present from the commencement, which are generally said to indicate inflammation of the brain, I have found that organ in the most healthy state, and the very same was the case with the stomach and bowels, and various other internal parts. I cannot, therefore, think, that local inflammation is necessary to the existence of contagious fever, but on the contrary, I am of opinion, that it is of very rare occurrence in that disease, and in very few in-

stances to be met with, no matter what internal part of the body be examined. From the great debility of the vascular system, but more particularly in the low types of fever, it very frequently happens, that some particular organ or part of the body receives more than its usual share of blood, and hence, from mere debility, there will be frequently found in fatal cases of fever, great vascularity of particular organs. When the part is examined, however, into which the excessive accumulation of blood has taken place, it will be found, that no organic changes, such as are produced by inflammation, have occurred, and this could not possibly be the case, provided it had continued for any considerable length of time, and had been possessed of the usual inflammatory characters. Venous and also arterial congestions are, therefore, frequently to be met with in fatal cases of fever, when nothing similar to the inflammatory process had taken place at any time during its course; and these congestions are merely the result of debility general and local. I know no part of the body so liable to these passive congestions, as the mucous lining of the air tubes of the lungs; and although the brain and some other internal parts suffer occasionally in the same way, yet it is more particularly in the lungs that congestion produces most frequently injurious effects on the progress and termination of the disease. I have found in the Belfast hospital, for the last four years, a very large proportion of the patients suffer from catarrhal affections during the winter season, and these I have always observed to produce a very injurious effect on the progress of the fever, from the copious mucous secretion with which they were generally accompanied. Notwithstanding that these congestions proceed in most cases from general and local debility, and not from active inflammatory action, they are not the less worthy the attention of the physician, as they often give rise to effusion, or an increase of the usual secretions of the part, and, consequently, to great functional derangement. In a subsequent part of this paper, I will have occasion to point out the effects of the loss of blood

on the progress of fever, and on that account I think it necessary to state what I have observed, with regard to what occurs respecting the state of particular parts of the vascular system, for the opinion that has been entertained, that vascular congestions in fever are mostly of an inflammatory nature, has given rise to a mode of practice, any thing but safe to the patient.

The changes which have been observed to take place in the qualities of the blood during the progress of fever, have given rise to the idea with some physicians of eminence, that the blood is primarily affected, and the diseased actions of the solids are merely symptomatic. In the course of contagious fever, the blood undoubtedly does exhibit various morbid appearances, but it certainly does not follow from this, that it is necessarily the part of the body in which the matter of contagion first produces its destructive influence ; for if the digestive organs by means of which it is formed, the arteries and veins by means of which it is circulated through the body, and the lungs by means of which it is purified, be all in a diseased state from the commencement, it would not be possible for the blood to retain those qualities it possesses in health. I think it is, therefore, just to consider the blood in contagious fever to be only changed in common with the various solids of the body.

From these premises it must appear, that I consider local inflammation not by any means necessary to the existence of contagious fever, nor even a frequent complication; and also, that the diseased appearances which the blood very generally assumes, is closely connected with the deranged state of the solids, and the general functional disorder of the solids with the changes which have taken place in the fluids. It is a matter of the greatest importance, in the treatment of fever, to settle the question whether it be a general disease or not, and also whether it be always inflammatory or not. It is besides of very great consequence to know how far the operation of contagious typhus is confined to the blood. It is certainly, however, very difficult to settle these points, on account of the

great variety of parts which enter into the composition of the human body, all mutually depending on each other for the regularity of their actions.

There is one thing that I would wish particularly to observe, respecting the changes produced on the solids and fluids of the body in fever ; it is, that the former never fail from the very commencement until the termination, or until the febrile action ceases, and the healthy action is established, to manifest the greatest diminution of strength, and the latter always exhibit a considerable change in their qualities. It is, therefore, with debility of the solids and an accompanying diseased state of the blood, that the physician has to contend from the commencement until the termination of this disease, and he cannot possibly apply a remedy useful for the one, that will not prove useful for the other. I have thus thought it necessary to give an outline of the views I hold relative to the nature of contagious fever, before I proceed to state what practice appears to me to be most beneficial, when it either exists in a complicated or uncomplicated form, or when it is accompanied with a great or slight diminution of all the powers of life.

Whether fever be a contagious disease or not, there is considerable diversity of opinion amongst medical men: some argue that it is always, or almost always, conveyed from one individual to another by close communication, and others, that it never spreads in this way, but proceeds from atmospheric causes, or in other words, from malaria, either general or local. From what I have observed respecting the spreading of fever, I would certainly maintain, that it is a disease very infectious in its nature, but more especially when the system is in a weak state at the time of exposure. I am quite convinced that fever does not always depend on exposure to contagion in its production, but sometimes proceeds from exposure to cold and moisture ; great bodily fatigue ; anxiety of mind, and other causes reducing suddenly the tone of the system ; so that the causes of this disease, which are very generally believed to be only

predisposing are occasionally exciting; an attack of fever from any of the debilitating causes I have mentioned may be precisely the same as that produced by exposure to the exhalations arising from the body of a person labouring under that disease; and this fever, not proceeding from the influence of contagion, may be communicated to attendants or persons coming into the sick chamber, in the usual way. I have known more than one or two instances, where great fatigue of body and mind brought on typhus fever, without any possibility of exposure to contagion, and the disease was communicated, notwithstanding this origin, in the usual way to other members of the family where the patient was confined, even when the place of attack and confinement were remote from each other.

Of all the patients admitted, labouring under fever, into the Belfast Fever Hospital for the last four years, there were only a very few, comparatively, who had not been exposed to contagion shortly before the attack, and there were very few indeed, who had not suffered before exposure from some or all of those causes which are considered the most predisposing. There is a very striking difference between the prevalence of fever amongst the rich and poor, and in the same class of patients, there is a wonderful difference between the temperate and intemperate. General debilitating causes of body and mind seem to be not only favourable to the operation of contagion, but even capable of producing the disease itself. To show how much poor living, accompanied with great bodily fatigue, favours the spreading of fever, I may instance what occurred in the Belfast hospital amongst the nurses, when their allowance of food and drink was not by any means so generous, as it has been for some years past. There was never a year that several of the nurses had not one or more attacks of fever, while their fatigue was great and their living was poor; but since the food and drink became more generous, it is a very rare thing indeed for any of them to become affected. Besides these changes tending to prevent the occurrence of fever

amongst the nurses, there were others which I consider of the greatest consequence in fever hospitals, as well as private families. I allude to a regulation, which requires the nurses to remove all the evacuations of the patients immediately, and expose the vessels in which they were contained, after being well washed, to the air for some time before they are again brought into the wards. In addition to this mode of preventing any disagreeable smell, and at the same time keeping down as far as possible contagious exhalations, the wards are well washed daily with warm water, and at all seasons of the year, when the temperature of the air is not too low, they are well ventilated. When the weather is very cold, the circulation of fresh air cannot be kept up so freely, as when the air is pretty warm, as is the case during all the summer months; and hence, the great difficulty, and sometimes even danger, of keeping up such a renewal of air in fever wards, during the winter season, as will be compatible with the safety of the patients, and at the same time prevent those contagious exhalations which are constantly rising from their bodies, from accumulating to such an extent as to become injurious to themselves or their attendants. By preventing contagious matter from accumulating in the air of a fever ward, the patient is guarded against danger, as well as his attendants, for that influence which is capable of producing in a healthy person, those diseased actions which constitute fever, must have a most dangerous effect, when continued after the morbid actions have taken place. It is, therefore, in the Belfast hospital, both for the safety of the fever patients and their attendants, an established rule to renew the air of the wards as frequently as possible.

It must appear from what has been said respecting contagion, that a generous diet and whatever else is necessary to keep up the tone of the system, is the best plan of preventing its operation on the body; and that to prevent any accumulation of those exhalations, which must surround, to a greater or less

extent, every person labouring under fever, has the most salutary effect both on the patient and attendant.

It is very difficult to determine what time must elapse after the commencement or decline of fever, before contagion commences or ceases to be generated. This point could not be possibly settled in a satisfactory way, while nothing is known positively as to the length of time that must elapse after exposure to contagion, before the febrile symptoms begin to manifest themselves. I have known persons, in many instances, contract fever by being exposed three weeks or a month after a patient's convalescence. This I have particularly noticed to occur in some instances, where patients were discharged from the hospital, and at once brought into close communication with their friends. It is no uncommon thing for every member of a family to suffer in succession, in consequence of being exposed to contagion in this way. I have very seldom, however, known the disease communicated to attendants or friends during the first three or four days after the commencement of the attack.

Amongst the poor, where every thing tends to favour the spreading of fever, the only chance of safety consists in their early removal from their ill-ventilated, damp, and dirty habitations, into the wards of a dry, well ventilated, clean hospital, where they can get suitable food, drink, and every other requisite necessary for their condition. I have had, during the last four years, frequently occasion to regret, that the fever patients were not sent into the Belfast hospital at an early stage of their disease. I have not only found delay in sending patients into hospital in fever, give rise to its spreading amongst the other inmates of the family, but to little chance of recovery when they were admitted; a great many patients are admitted into the wards of this institution, when what might be called the curable stage of the disease is past. When a patient labouring under fever is in a very weak state, I have always seen the worst effects produced by his removal. It is, therefore, in my opi-

nion, worse than useless, as far as recovery is concerned, to remove fever patients unless at an early stage, and the only possible excuse that can be offered for their removal at an advanced stage, is the prevention of the spreading of the disease. The fatal delay which I have frequently witnessed amongst these patients admitted into the Belfast hospital, was no doubt in very many instances owing to their friends or relations not making early application for medical advice, or to an unwillingness to be moved; but in by far the great majority of cases the delay arose from their not being able to get medical advice, notwithstanding it was earnestly sought for in proper time. In Belfast, the poor are attended at their own habitations gratuitously, by a number of medical men appointed for that purpose. This gratuitous attendance, in my opinion, is neither useful to the poor, nor profitable to the public; and I am quite satisfied, that it has been productive altogether of many disadvantages, and one of the most important of these is, the delay to which I have alluded. I think a pauper should just be attended with as much regularity, as a patient in the most comfortable circumstances, but such will never be the case, as long as medical men find money necessary to procure the means of subsistence; for no matter how humane they may be, the patients who are able to pay the fee must receive the first attention, and in all probability the patient who is able to pay nothing, will be neglected altogether, or what amounts to the same thing, he will not get advice until it is quite too late. If the diseases of the poor were less dangerous than the diseases of the rich, the plan of attendance that is very generally pursued in Belfast, might answer the purpose well enough, but if, on the contrary, they are more rapid in their progress, and fatal in their termination, they should receive more attention instead of less. I think, therefore, that medical men in large towns, and in none more than Belfast, are very blameable for undertaking gratuitous duties for the poor, which they cannot possibly perform in an efficient manner. It is true, that some of those who undertake to

attend the sick poor in this way, have little or no private practice, or are merely boys from college; but the person without practical experience, is in all probability, on account of his want of a correct knowledge of the characters and best mode of treating the different diseases which will come under his care, far more dangerous with regard to the safety of his patients, than the persons of experience who neglect them altogether. I am convinced, therefore, that the poor should be attended, not by physicians and surgeons just fresh from college, nor by men actively engaged in private practice, but by persons of experience who are allowed a proper remuneration, and who will devote their entire time to them. I do not mean by these observations to throw any blame on those medical gentlemen who have attended, and who are attending the poor gratuitously in Belfast, for they have all, to my own certain knowledge, done a great deal, certainly far more than should reasonably be expected of them, but not by any means so much as the sick poor required. I hope, however, the gratuitous system, which is in this town most injurious to the interests of the poor, will soon be changed for one more serviceable, not only to the interests of medical men, but to the public at large.

I have been induced to make the foregoing observations relative to the gratuitous attendance on the sick poor of this place, because I consider it is a system that has rendered the results in the Belfast fever hospital, for many years, totally different from what they might otherwise have been; and also, because the public are generally at least quite ignorant of the value of an efficient attendance on the poor, unless medical men lay aside all those selfish views which they generally expect to result indirectly from gratuitous attendance on paupers, and impress the public with the absolute necessity of their paying for medical attendance, in the same way that they pay for other necessities to the destitute sick, when unable to procure them themselves.

The type of fever has varied considerably in the Belfast

Fever Hospital for the last four years at different seasons, indifferent states of the atmosphere, and also according to the state of the physical powers of the body at the time of the attack. The calculation I have made is, that taking an average of all the cases admitted for four years, the one-third might be included under the head of synochus, one-third under that of typhus mitior, and one-third under that of typhus gravior. I have always observed in the Belfast hospital, that during the prevalence of close damp weather the disease was more asthenic, and during the prevalence of dry clear weather more of a sthenic character. The varieties of fever which are described by nosologists, are, in my opinion, always owing to internal or external causes, totally different from that of the nature of the contagion. I have, for instance, repeatedly known fever attack in succession five or six members of the same family, and while the first was in all probability severe typhus, the next was the mildest synochus, so that no two successive cases exhibited the same characters. In delicate females, and in weakly males, or in persons of both sexes who are advanced beyond forty or fifty years of age, I have always observed a large proportion of the cases to assume the typhoid character, and in children, and persons from fifteen to forty or fifty years of age, provided the treatment has been suitable from the commencement, the character of the disease is not so liable to be of the low kind. This however is still more particularly the case with children under fifteen years of age. I think it thus necessary to give a kind of outline of the character of those cases of fever which have been admitted into the Belfast hospital during the last four years, before I begin to detail the treatment which has been generally pursued.

By those who believe contagious fever to be always an inflammatory affection, blood-letting is a favourite remedy, on account of its supposed powers in the removal of some local inflammatory congestion, on which they imagine the general diseased actions which characterize the complaint depend. From

what I have already stated, respecting what appears to me to occur in consequence of the body being exposed to contagion, or when any other exciting cause of fever occurs, it could not be supposed that I would advocate the depleting plan of treatment. So far from being found useful in the hospital in this town, blood-letting has been found a most dangerous remedy, on account of its debilitating effects, its conversion of fever of a synchoid into that of a typhoid character, and the want of any good effect it seemed to possess in almost all cases of stopping the progress of the disease. Almost all young physicians have made trial of this remedy, after commencing their labours in the Belfast hospital, but have been all completely disappointed in its effects, and of course soon gave it up as not of a useful, but on the contrary of a dangerous kind.

Fever is a disease, which being once formed, has a tendency to run a determinate course, and to leave the body, before it disappears, in a state of very great debility. It, therefore, requires, that no remedies should be employed at any time during its progress, which have a strong tendency to lower the powers of the system, and at the same time possess no specific properties over the febrile action. I have not seen a single case of genuine contagious fever, where the loss of blood appeared to diminish its duration, but on the contrary, I have seen many cases where depletion, to the amount of twelve or sixteen ounces, had the most decided injurious effects. As blood-letting is seldom employed in the Belfast Fever Hospital, it is more particularly amongst those patients who have been treated for some time in their own habitations before admission, that its injurious effects are fully manifested. Amongst some of the bad effects resulting from the loss of blood, I may mention delirium, muscular tremors, and restlessness. I have in several instances seen delirium succeed almost immediately to the loss of blood, and when this occurrence took place, I have very seldom known the patient to recover. Delirium may be connected with great vascular excitement of the brain, or a languid

state of the circulation. It will be generally found, however, that in contagious fever, the last mentioned state of the cerebral circulation is that which is in nine cases out of ten to be met with; it is, therefore, no wonder that delirium is frequently excited, and in many instances increased by the loss of blood. In the treatment of different types of fever, the loss of blood will no doubt vary in its effects: there is one thing, however, of which I am quite convinced, that nothing that tends to relax the system suddenly can be useful, and on which account the loss of blood should be guarded against, as it in most instances favours that debility that must necessarily ensue, when the disease has proceeded a certain length. There cannot be the least doubt, that in the course of contagious fever, the different important organs of the body in many instances receive an unequal supply of blood, but such irregular distributions of blood are not in most instances owing to local inflammation, but local debility. It cannot, therefore, be expected that they can be removed by the use of the lancet; and hence, in all such cases, no matter whether the local congestion be in the brain, lungs, or abdominal viscera, it must be aggravated by debilitating means. In cases of local determinations of blood in fever, when it is not of a very low type, the abstraction of a small quantity of that fluid may not be productive of any harm; I think, however, that such irregular distributions can, in the great majority of instances, be remedied by means of a safer kind than that of depletion, and it forms, therefore, no part of the general plan of treating fever in the Belfast hospital, nor has it been found so safe as other means of a less debilitating nature. Even the abstraction of blood by means of leeches is seldom employed in that institution, although less liable to produce sudden relaxation of the system, than when the same amount is taken away by means of the lancet.

When any of the more important internal parts of the body suffer from inflammatory action, during the progress of contagious fever, a thing, as I have already mentioned, of very rare

occurrence, the abstraction of blood, by means of the lancet, to such an extent as would be perfectly safe, and absolutely necessary, were the inflammatory action not complicated in this way, would, in cases where febrile and inflammatory action are blended together, be productive of the most dangerous effects. I have witnessed in acute bronchitis, occurring during the progress of contagious fever, as well as in inflammatory affections of other important parts, the very worst effects produced by blood-letting, when not more than twelve or fourteen ounces of that fluid were abstracted. It is, in fact, quite impossible to calculate what effects may be produced by even a moderate bleeding in fever, when it is most likely from the local and general symptoms to prove beneficial. When, for instance, the mucous lining of the air tubes of the lungs is inflamed, the detraction of a very few ounces of blood will, in many cases, render the mucous secretion so abundant, as to produce death suddenly by suffocation. The fact is, contagious fever is a disease that does not bear the loss of blood well, no matter whether it be complicated with local inflammation or not; and although, like many dangerous remedies, it may not give rise in some cases to any very injurious effects, still it will in many others prove a most dangerous, nay a fatal mode of treatment, no matter to what extent it is carried, or how apparently favourable the case may seem to the physician to be for its removal. Being therefore satisfied, that it is a remedy that will prove very seldom useful in fever, and that it may, on the contrary, be productive of the worst effects, no matter to what extent it be carried, I would certainly lay it down as a rule, that it should not be employed, except in a very few instances, where that disease is complicated with local inflammatory action, and then only with the greatest circumspection, and by means of leeches in most cases instead of the lancet.

Calomel, either alone or combined with opium, is a very common remedy in the treatment of fever, but more particularly amongst those medical practitioners, who consider it an inflammatory affection. It is, however, either alone or in com-

bination, a medicine which I almost never employ in the Belfast hospital at any stage, or in any type or complication, and the reason why it is not more frequently employed is, because, like blood-letting, it is found to be too debilitating, and not by any means conducive to the favourable or speedy termination of the disease. I think it is very doubtful if calomel be possessed of any power at all in arresting the progress of contagious fever, whether used in large or small doses, or at an early or advanced stage. There can be no question, however, about its debilitating effects on the system, if used to such an extent as to act freely on the bowels; and in such a disease as that in question, when from the very commencement every action and function of the body manifest a want of vital energy, no good can be expected to result from its use. It is supposed by some physicians, that almost no disease can be cured without the aid of mercury, and they must give it as a matter of course in fever, as they do in other complaints. This mode of prescribing may perpetuate error, but it cannot be favourable in the management of diseases, as no medicine should ever be given, unless its operation and that of the disease for which it is intended as a cure, be properly considered and duly compared. When the operation of calomel is therefore considered, it is only wonderful, that it should be given in such a disease as contagious fever, when it is known to produce the most depressing effects, and cannot be of any use in either diminishing its course or mitigating its violence.

If mercury be administered in contagious fever, with the view of overcoming inflammatory action, it must be quite useless in the great majority of cases, if I be right in the opinion I have already expressed, respecting its non-inflammatory nature. The use of calomel, or any other mercurial preparation, cannot be profitable in improving the secretions, which are generally much vitiated in fever, while the general disorder of the nervous and vascular systems continues. It is not, therefore, medicine which improves this or that secretion,

but such as improve those parts of the body by means of which they are formed, that can be at all profitable in this disease, and on that account the physician should not lay too much stress on the advantages of remedies, of no avail in the improvement of the system as a whole. Calomel, when given in such doses as to act on the bowels, has in fever the most debilitating effects on every part of the body, and as debility in this disease seems to be the chief cause of derangement in the secreting organs, it must be clear, that remedies of a weakening kind cannot produce, in the majority of instances, any good effects. I do not mean, however, by these observations to say, that the antiphlogistic effects of calomel purgatives are never useful in the treatment of contagious fever, but wish merely to forbid their use in all those cases where there is no acute inflammatory action present.

The liver is an organ over whose secretions mercury is said to possess the most powerful effects ; and hence, when any symptom manifests itself of biliary derangement, it is this medicine that is employed, although any mild laxative would answer the purpose intended better, and at the same time, without any risk of producing too much general debility of the system.

The cold effusion that was so much praised for a length of time, on account of its powers in arresting the progress of fever, when employed at an early stage, is I believe at the present time almost in complete disuse, even by those who were its greatest advocates. In the Belfast hospital, during the last four years, I may say, that it has not been employed at all, for although I consider it to be possessed of considerable powers in some instances, when used at a proper time, and with the necessary precautions, yet I am persuaded that it is not at all suited to hospital practice. I have tried this remedy in private practice repeatedly, and under the most favourable circumstances, and I cannot say that it was by any means so successful, as others of a safer kind, and at the same time of easier application. During the winter season, I think the cold effusion

should never be employed, nor even during the spring and summer, when easterly winds prevail, lest inflammation should be excited in some important internal organ.

Having stated some of the remedies not in use, or at least very seldom used, in the Belfast Fever Hospital, I will now proceed to give an outline of the usual mode of treating fever in that institution, and it will be seen from the annexed table, that it is one attended with considerable success, notwithstanding the very advanced stage of the disease in which patients are usually admitted.

During the first three or four days of fever, there is very little increase of the heat of the surface of the body, and instead of the patient feeling too warm, he feels quite chilly. It is during this stage, that the progress of the disease can be easiest checked; but unfortunately in the Belfast hospital it is very seldom that a patient is admitted into the fever wards, until the disease has advanced to the eighth or tenth day. The treatment which I would particularly recommend, and which I have found most useful, consists, in the early stage of fever, in the use of diaphoretics and cooling laxatives. Sweating medicines, when employed in the usual way, are of very little avail, at the beginning of fever, in establishing the healthy actions of the body, just because the usual method consists in exciting sweating only for an hour or two hours at a time, and afterwards allowing it to completely subside, whereas, when once excited, it should be kept up for at least fifteen or sixteen hours, and should at no time be profuse. After the warm bath, or after being well sponged with warm water, I next usually prescribe a combination of cream of tartar, calcined magnesia, and compound powder of hippo, in small and frequently repeated doses, with a large quantity of warm whey, or some other mild warm fluid. Each of these powders generally contains, when intended for an adult, half a drachm of cream of tartar, fifteen grains of calcined magnesia, and eight grains of the compound powder of hippo. By being repeated every hour, with at least half a pint

of the warm fluid, the skin, at the end of two or three hours, will in most cases become quite moist, and can be kept so afterwards, by giving the powders at much longer intervals, provided a sufficient quantity of warm drink be taken between each dose. The sweating should never be profuse, and on that account, when it is easily excited, it will be found in many instances much better not to use any diaphoretic after the skin becomes moist, except some warm fluid, which should be taken freely. If the skin, during the first two or three days of an attack of fever, be kept moist, and if the bowels be kept at the same time free, it will be found, in two cases out of three, that the disease will be checked before it has been fully formed, or else, it will be diminished in duration after it has been completely formed, or rendered much milder. While efforts are made by the physician to check the progress or diminish the severity of fever, it is absolutely necessary for the patient to be kept in a state of absolute rest, for this being neglected, all his efforts will be quite unavailing. No strong purgative should ever be ordered to a patient labouring under this disease, and this is a thing that has been as strictly observed by me in the Belfast Fever Hospital at the beginning, as at any other time of the disease. I may say, that with the exception of castor-oil, calcined magnesia, either alone or in combination with cream of tartar, or epsom salts, no other purgative medicine has been given by my directions to any fever patient in the Belfast hospital for the last four years. Strong purgative medicines, administered at the beginning of fever, never fail to prove injurious, either in rendering its type lower, or preventing it from being suddenly checked: and at a more advanced stage, they, like blood-letting, debilitate the system quite too much. In every stage of this disease, it is absolutely necessary to prevent the bowels from becoming too much loaded with feculent matter; but this is all that is required at any time, for nothing has a greater tendency to lower the tone of the system than drastic purgatives. When the more fluid part of the blood is carried

off by mild diaphoretics, there is almost no exhaustion produced, if a patient drinks during their operation plenty of fluid; so that the moderate sweating I recommend at the commencement of fever, has not a debilitating effect, unless it be forced by medicines of a stimulating kind, and little drink be taken during their operation; but no matter what precaution be taken, drastic purgatives will be found very debilitating. When the second or hot stage of fever has been once established, it is then no easy matter to diminish its duration by any remedies that can be employed. In this stage, one of the most important things that the medical practitioner can do, is to reduce the heat of the surface, and establish its natural secretions. Some attempt to accomplish these very important objects, by the internal use of cooling diaphoretics, and others place the greatest reliance on the application of cold water, or vinegar and water, to the surface, by means of a sponge. In the Belfast hospital I have been long in the habit of using the vinegar and water tepid instead of cold, and I am quite satisfied, that it has a more powerfully cooling effect, and at the same time is more applicable to the different seasons of the year, the different stages of the disease, powers of the system, and inflammatory complications. The sponging with tepid vinegar and water should be repeated every twenty minutes or half hour, and should be continued, observing these intervals, until the heat of the skin is brought to the healthy standard, and until its secretions are completely established. Besides the valuable properties of tepid vinegar and water in exciting the cutaneous secretion, it has the very best effects in promoting other secretions. It frequently, for instance, renders the tongue moist, and increases the urinary discharge. By bringing down the heat of the surface, and by diluting the blood, the tepid application I am now considering, appears to me to be far superior to any other remedy that can be employed. In addition to the valuable properties I have just mentioned, the tepid application to the skin will be found to have a most powerful effect in lessen-

ing or preventing delirium, and procuring sleep. The last mentioned effects, when it has been freely applied for a short time, will in many cases prove most decided. The fact is, that when the surface is kept moist with tepid vinegar and water, there will very seldom be occasion to make use of internal sedatives or narcotics, and this is a thing in my opinion of the greatest consequence, because opium, which is the narcotic mostly employed, tends not only to increase delirium, but also to diminish all the secretions, and thus keep up the disease.

In addition to the application I have been considering, the internal use of spirit of nitre, combined with hippo wine and extract of hyosciamus, has certainly a good effect during the second stage of fever; but tartar emetic or any other medicine of a debilitating kind would, in all cases, be productive of very considerable injury, and should, therefore, not be employed. Diluting drinks are no less useful during the second than they are during the first stage of fever, and I think they should be employed, no matter whether there be urgent thirst or not. The drink that is generally used in the Belfast hospital, particularly when the disease is of a very low type, is the infusion of roses, which is sometimes taken to the extent of three pints or two quarts daily. It is very frequently the case that patients labouring under fever, whose mouths and fauces are perfectly parched, do not ask for drink, in consequence of their being unable from delirium to attend to their sensations. Drink should, therefore, be presented to a patient labouring under this disease, whether he ask for it or not, at very short intervals, say every half hour, and in all cases when the mouth is dry, he should be urged to take as large draughts at a time as possible.

Wine and other cordial and stimulating remedies are used at a very early stage of fever in the Belfast hospital, and it is to that practice that the very great success in that institution is mainly to be attributed. As soon as the pulse indicates any general weakness of the system, the use of wine is imme-

diately commenced. In the first place, the quantity given daily does not exceed four or six ounces, but in proportion as the disease advances and as the debility increases, the quantity is increased until it sometimes amounts to sixteen or twenty ounces daily. In every case, the wine is mixed with three or four parts of water, and in some cases, instead of water, with the same proportion of the infusion of roses.

It is a very mistaken idea, and it is one that too often prevails, that the use of wine is improper, until, from the state of the pulse and other circumstances, great debility is indicated. If cordials, such as wine and spirit of nitre, be not given in this disease before great debility sets in, they will be found in very few instances of much use. Wine is certainly not required in all cases of contagious fever, but only in those where there is considerable general debility, and should this manifest itself at the third or fourth day of the disease, its use should be begun, and instead of increasing the heat of the surface, the dryness of the tongue and fauces, the delirium and other symptoms, it will have the very best effect in lessening them, when its use is combined with copious diluting drinks, and the reduction of the heat of the surface is attended to by means of the tepid ablu-
tion. When there is any local inflammatory action going on in conjunction with fever, the use of wine would in most instances be improper, notwithstanding the presence of much general debility, and it is only when these inflammatory complications exist, that wine is improper in fever, for as I have stated, when there is any considerable debility, no matter how far the disease has advanced, it should be given. One great advantage in the early use of wine, is its effects in bringing the fever soon to a termination by establishing the tone of the system. I know no better plan of preventing fever, than preserving the healthy tone of the body, and when it has taken place, I know no better mode of lessening its long continuance, than that of giving such remedies as will preserve, and at the same time

rouse the system. In addition to the good effects of wine already mentioned, it is most powerful in allaying delirium and procuring sleep, so that neither of the two last mentioned symptoms should contra-indicate its use, but on the contrary favour it. I have known a few ounces of wine quiet a patient in the most restless state of delirium; and I have also known by its use sleep produced, when it had been completely absent for several days. The use of wine in low fever seems, therefore, not only to have a tonic but also a sedative effect. This is quite clear, not only from its promoting sleep and lessening delirium, but likewise from its allaying that general muscular inquietude of the body, which in this disease is so distressing, and which must add very much to the exhaustion, which is the invariable result of continued febrile action.

Aromatic spirit of ammonia, ether, camphor, whiskey, and other strong stimulants may be necessary in fever, when there is very great debility. I may observe here, however, that it is only when the disease is not properly treated from the commencement that their use is rendered necessary; this is at least the case in nine patients out of ten. By allowing the strength to sink very low in fever, it will be found that strong stimulants may give a very temporary vigour, but it is very seldom that they are so far effectual, as to prevent a fatal termination, no matter to what extent they are given. The reason why stimulating remedies have been considered by some of little efficacy in the treatment of this disease, is owing to their use being delayed too long for any thing of the kind to prove of much avail. The fact is, that medicines of a stimulating or tonic nature cannot be of much use in that disease, unless the system be possessed of a certain degree of strength; but the strength of the system is very frequently allowed to sink so low, before such remedies are administered, that no good effects can be expected. I am, therefore, decidedly of opinion, that wine, spirit of nitre, and other suitable tonics and cordials, cannot be commenced too soon in contagious fever, when it is likely to assume

a low type ; and so far from aggravating the febrile symptoms, they will be found most effectual in bringing the disease to a speedy and at the same time a favourable termination. It is absolutely necessary, however, to combine with the use of cordials, such as I have just mentioned, the repeated application of tepid vinegar and water to the surface ; the internal use of cooling and sedative diaphoretics and mild laxatives. I may mention here, that laxatives during the second stage of fever, as well as the first, should be composed of castor oil, or calcined magnesia, combined with cream of tartar, or epsom salt.

In low cases of contagious fever, it will sometimes be found, that sulphate of quina and aromatic sulphuric acid, will have the most happy effect in diminishing its duration. In the Belfast hospital, this combination is very much used, long before a crisis has taken place. It is very frequently the case, that no perceptible crisis ever takes place in fever, and instead of the symptoms suddenly giving way, they go on, though gradually diminishing in degree for many days. In such cases as these, the quina and acid, when carried sufficiently far, will be found very effectual in establishing the healthy actions of the body. Neither dryness of the skin, nor any other symptom indicating the continuance of febrile action, would forbid the use of these tonics. It is, therefore, quite wrong to think, that quina and other strengthening remedies should be deferred until no symptom is present but that of general debility, while their efficacy will be found of the greatest value, before any crisis has taken place.

In the convalescent stage of fever, the wine, quina, aromatic sulphuric acid, and other tonics are employed very freely in the Belfast hospital, and it is a very rare thing for a relapse to take place in that institution. When stimulating or tonic medicines are found necessary during any stage of this disease, the greatest care should be taken to allow the strength of the system to be sufficiently established before their use be discontinued. If this be not attended to, and if the patient either

from overloading his stomach, taking too much exercise, or from any other cause, should reduce suddenly the powers of the system, relapse will in many cases be the consequence. Among all the patients admitted annually into the Belfast Fever Hospital, I am quite satisfied there occur not more than one or two relapses.

While patients labouring under fever should get large quantities of mild diluting drinks at every stage during its continuance, I think they should also be allowed a considerable quantity of light nutritious food, from the very commencement of the febrile attack. It is true, that the functions of the stomach and bowels are very much impaired in this disease, and of course they cannot be expected to assimilate food as in health, and consequently, any thing difficult of digestion taken into the stomach, will not be changed in such a manner as to become fit for the support of the system. But if light food, such as very thin gruel, light panada, or arrow root boiled in water, and sweetened with sugar, be given in small quantities at short intervals, it will not oppress the stomach, while it will prevent much of that debility which is produced by the want of food, which patients labouring under fever generally experience. I do think that the extreme prostration of the system which takes place in the great majority of cases of contagious fever, would never arrive at such a height as is generally the case, were the use of light, nourishing food looked upon as a thing more likely to be useful, than all the medicine the physician can order. As long as fever continues, so long there will be no desire for food ; but that is no reason that food of a light, nutritious kind should not be given with the greatest regularity. While the acute symptoms of the disease continue, light food, such as I have mentioned, would be quite sufficient ; but as soon as convalescence has taken place, it should then be gradually made more generous. I am quite satisfied, that very many patients are allowed to sink in fever, not for want of wine nor any other cordial, but for want of nutritious food,

such as I have mentioned, and such as would be suitable to the powers of the stomach at the time. As the patient labouring under fever should be encouraged to take drink freely, no matter whether he experiences the sensation of thirst or not, in like manner he should get food sufficient to repair the waste of the body, whether he have a desire for it or not. Food must, therefore, be presented to a patient labouring under this disease, and he must be encouraged to take it in small quantities, at short intervals, whether he be delirious and unable to attend to his sensations, or, as is generally the case, from the beginning until the termination of a febrile attack, the appetite for food is nearly extinct. Wine is, in the treatment of the disease in question, a most valuable cordial, but it does not possess any considerable nutritious qualities, and it cannot be a substitute for light food.

In the contagious fever of this country, I have already mentioned, that acute inflammatory complications are not very common, but that what might be called passive congestions of blood in different important vital organs of the body, such as the brain, mucous lining of the trachea and bronchiæ, &c. are of frequent occurrence. In the Belfast hospital, instead of the lancet, the application of different counter-irritants is mostly trusted to for the relief of those important internal organs of the body, which sometimes suffer much from an excessive accumulation of blood. When symptoms indicative of a fulness of the blood vessels of the brain manifest themselves, a blister should either be immediately applied to the nape of the neck, or turpentine should be applied over the neck and back part of the head. I would in most cases prefer the blister when the head is the part affected. The lower the type of the fever is, the more the functions of the brain become diseased from mere debility of its vessels, and the greater the necessity is of avoiding any thing of a debilitating kind, such as blood-letting, and of having recourse merely to such remedies as will rouse the action of its vessels, and determine to the external parts. Besides the effect which counter-irritation produces in lessening

delirium, and procuring sleep, it has a very powerful stimulating effect on the entire system. Independently, therefore, of the valuable properties of blister and other counter-irritating applications to the upper part of the spine and back part of the head, the system receives by them in low cases of fever a most salutary influence, so they are not to be considered so much local as general remedies.

When the mucous lining of the trachea and bronchiæ, or any other part of the respiratory organs, becomes the seat of sanguineous congestion during the progress of fever, the application of turpentine as a counter-irritant is preferred to any other remedy of that description, on account of its anti-spasmodic, in addition to its stimulating effects. When the slightest symptom is present of any chest affection in connexion with contagious fever, I make it a rule in the hospital, to commence immediately the turpentine application, and keep up by it a degree of cutaneous irritation just proportioned to the necessity of the case. In some instances a few applications of the turpentine daily, will be sufficient; but again, the state of the internal parts may require the application to be made at very short intervals, so as to excite a very high degree of external irritation. I am convinced, that the early application of this embrocation to the chest, when the internal parts manifest symptoms of disease, has saved very many individuals that could not have been preserved by any other means; and hence, in this institution, it is a remedy that has been very extensively used under my direction. When affections of the mucous lining of the air tubes of the lungs occur in fever, they are generally productive of the most disastrous effects, if either treated by depletion, or allowed to proceed without the necessary applications. When blood-letting is practised, the local and general debility of the system which frequently ensue, give rise in very many instances to such an accumulation of mucus in the air tubes, as will produce, by the exclusion of atmospheric air from the air cells of the lungs, complete asphyxia. With regard to expectorants they are generally a very unprofitable class of remedies in pulmonary affec-

tions, under any circumstances, but when these are complicated with fever, they seem particularly to be of little avail.

It is very seldom that the mucous coat of the stomach and bowels is affected with inflammatory symptoms in the Belfast fever hospital, but when this is the case, the application of blisters or turpentine is mostly trusted to, and in almost all cases with complete success. The preference, however, is mostly given to the turpentine, so that when vomiting, diarrhœa, or any other symptom of intestinal irritation manifests itself, its use is commenced and continued at such intervals as to keep up a degree of cutaneous inflammation, sufficient for the relief of the internal parts. If the application of turpentine to the abdomen do not succeed in arresting the progress of diarrhœa, and other affections depending on sanguineous congestions of the digestive organs, it is because it is not applied efficiently at an early stage. When diarrhœa supervenes during the progress of contagious fever, it very soon terminates in ulceration of the bowels, if allowed to go on for a considerable length of time, and it is, therefore, only at an early stage that much can be expected from any remedy, whether internal or external. I have frequently tried the comparative advantages of external and internal remedies for the cure of looseness of the bowels, both in cases where it is complicated with contagious fever, and in cases where no complication of the kind exists, and I would certainly, if trusting to either, give the preference to the former, but more particularly when used at an early stage.

Stomachic and intestinal affections are certainly of far less frequent occurrence amongst the fever patients admitted into the Belfast hospital, than it would appear they are in some other establishments of the same kind, and this I am fully convinced, is not to be attributed to any thing peculiar in the place giving rise to such exemption, but to the general mode of treatment which is produced in that institution. When irritating purgative medicines are given from the commencement of contagious fever, there will be in hospital practice a great many cases of diarrhœa, and it is from the very great mildness of the

laxative medicines which are given, at all times, that this complication is so seldom to be met with in the institution to which I have been alluding.

The gastro-intestinal inflammation, which has of late years been considered by some physicians an invariable accompaniment of contagious fever, is in my opinion, in almost all cases, a mere creature of the imagination. The redness of the tongue, epigastric sensibility, and retching or vomiting, by which symptoms its presence is said to be indicated, are, in my opinion, in very few instances, owing to any local inflammatory action in the mucous lining of the stomach and bowels.

From the foregoing observations respecting the nature and treatment of contagious fever, it will be seen, that I do not consider it essentially, nor even frequently, an inflammatory disease, but, on the contrary, a disease of debility; and viewing it as such in most instances, I consider that strong antiphlogistic remedies are improper at any stage from its commencement until its termination. But notwithstanding that I consider contagious fever to be, during all its stages, a disease of debility, yet from what has been stated respecting its treatment in the course of this paper, it must be quite evident, that I do not recommend any thing stimulating either as food, or drink, or medicine, at any stage, unless the debility is so great, as to render the powers of the system unequal to establish its own healthy actions. The time at which dangerous debility may set in, so as to require the use of tonic and stimulating remedies, may be as early as the third, fourth, or fifth days, and hence no rule can be laid down with regard to the time such medicines should be commenced. I have stated, that so far from the use of wine increasing delirium, muscular tremors, heat of the surface, and other febrile symptoms, it will be found in the great majority of cases, where these symptoms are accompanied with much debility, to prove a most potent means of relieving them. The sweating that has been recommended in the first stage of the disease in question, is so slight, that it could not possibly produce much debility, but more particularly when it is in a great

measure excited and kept up by warm diluting drinks, so that although perspiration is recommended as one of the best means of putting an end to febrile action, when employed at an early stage, it is not a remedy that is calculated to produce debility, when only carried to the extent I have stated. The laxatives which are employed in the first and in all the subsequent stages of fever, are of the mildest description, and the tepid sponging, which is a remedy that is much trusted to during the entire progress of the disease, while the skin remains dry and unusually warm, cannot in any way lower the tone of the system. It would, therefore, appear that nothing should be used at any stage of fever that can debilitate, while all unnecessary stimulants are guarded against. This is the practice that has been pursued in the Belfast Fever Hospital for several years, and it is one, as will be seen by a reference to the annexed table, which has proved eminently successful.

BELFAST FEVER HOSPITAL.

	ADMITTED.			DIED.		
	Males.	Females.	Total.	Males.	Females.	Total.
Fever patients remaining } in Hospital, }	7	6	13			
do. admitted in 1831,	258	303	561	21	23	44
do. do. 1832,	490	545	1,035	43	36	79
do. do. 1833,	247	255	502	26	22	48
do. do. 1834,	229	247	476	19	24	43
Total cases treated,	1,231	1,356	2,587	109	105	214
Of these moribund on } admission, }						43
Total deaths,						171
Total recoveries,			2,416			
Shewing a mortality of one in 15 $\frac{22}{17}$ cases.						