

under my review in the Fever Institution; nor is there any class of people, so far as my information has yet extended, requiring any very remarkable modification in the treatment, except one, which shall therefore be particularly noticed. The people alluded to are of the lowest order in London, who live huddled together in extremely small, dirty, and ill ventilated apartments, who are at best badly and often irregularly fed, who are not so cleanly in their persons, or so well clothed and warmed as the poor in the country, whose moral habits are not so temperate, and whose minds are not so settled, from their employment being more interrupted and precarious, and from they themselves being much more removed from the direct intercourse and influence of their superiors. From these and other causes it results, that there is less muscular tone, and more nervous irritation among them than the poor of the country; so that when attacked with contagious typhus the depression of strength is greater, and the power of bearing depletion, particularly by the lancet, diminished in a proportionable degree; yet still this difference does not militate against the general principles of evacuation, since it requires, not that they should be abandoned, but merely modified to a certain degree in their application.

In the simple typhus, I seldom saw the stage of excitement commence with a soft, fluent, compressible pulse among the poor in the country; but among the above class in London, such a pulse is not uncommon at that period, even in children, whose weak constitutions mostly correspond to that of their parents, from having been cast in the same mould of circumstances. In these examples, however, so far from stimulants being indicated, they are as pernicious as poisons in this stage, in the beginning of which a few moderate doses of calomel with rhubarb daily determined to the bowels by castor oil, or the sulphate of magnesia are generally best; and the intestines having thus been effectually unloaded for some days, during the future progress of this stage hardly any purgative will be preferable to castor oil; though from the first, the antiphlogistic regimen must be enforced, together with absolute rest, tepid ablutions, sub-acid drinks, strict cleanliness, and

proper ventilation. If any threatenings of inflammation should arise during the excitement, it may generally be warded off by the prompt application of leeches and a blister, measures then, with a steady perseverance in purgatives, almost invariably well sustained and highly serviceable; but where the brain is the part endangered, shaving the hairy scalp, and using cold applications to the head are auxiliary means of considerable efficacy, and in suspicious cases should therefore hardly ever be omitted. Under the purgative and cooling plan, however, I have known many instances terminate without any signs of genuine inflammation, and though these have been most common in young, yet some have occurred in old subjects. In the young, the general excitement runs higher, yet as their internal organs are commonly the soundest before the attack, so they are oftener free from visceral inflammation in idiopathic fevers such as typhus; and, on the other hand, in the old, from the frequently torpid state of the heart and nervous system, the general excitement is sometimes exceedingly moderate, which affords them a fair chance of escaping inflammation, when the vital organs had been previously entire. Though the poor of the metropolis bear daily purging better than any other species of evacuation, yet towards the decline of the stage of excitement, purgatives must be much more cautiously applied than in the beginning, except where large accumulations of morbid feces had taken place, from previous neglect of the bowels, and then one or two brisk doses are necessary, after which milder aperients should be employed. Indeed, when patients have been brought into the Fever Institution at rather an advanced period of the stage of excitement, I have found it a point of the first importance to ascertain whether or not the bowels were loaded with scybala; for if scybala had not been retained, mild laxatives have then generally answered the best purpose, whereas if scybala had been retained with much morbid secretion, calomel and rhubarb, or repeated doses of castor oil, have been necessary to dislodge them, and to free the patient from their perilous irritation. When typhus has been neglected or mal-treated in the stage

of excitement, scybala collect to a large amount in the colon, and by their irritation, with that of the morbid secretions, often provoke loose evacuations. This state of the bowels may be a cause of serious or even fatal mistakes. If the loose evacuations be regarded as a genuine diarrhœa and treated accordingly, the patient will be in danger of expiring under the abdominal and general irritation thus excited and maintained by the unnatural contents of the intestines; but if, instead of prescribing such medicines as the opiate confection and the cretaceous mixture to restrain this supposed diarrhœa, the bowels be fully unloaded by suitable purgatives, such as calomel and rhubarb, or repeated doses of castor oil, the looseness will be removed, and the patient saved. In doubtful cases, where general exhaustion is considerable from the long continued excitement, and where the evacuations are loose and muddy without any portion of scybala, it is often a good expedient to inject a tolerably large enema, which will commonly show, by what is passed, whether much scybala be retained in the colon; since if some hard, dark, offensive pieces be evacuated amidst the fluid matter, it may safely be presumed, that considerably more are accumulated in the large intestines. But if possible a previous history should be obtained respecting the quantity of food taken, and the daily state of the alvine evacuations, from which, and from the condition of the tongue and breath, a tolerably correct notion may be formed, whether laxatives or purgatives be necessary. When a considerable quantity even of liquids have been taken, when the bowels have been but scantily opened, and, when the tongue is foul and the breath offensive, most certainly the bowels will be so loaded as to require a few brisk purges; and, on the contrary, at an advanced period of the stage of excitement, when little food has been taken, when the bowels have been daily evacuated, and when the tongue is not foul, and the breath not offensive, little else then the usual secretions will be contained in the intestines, requiring the use merely of gentle aperients. It seems to have been taken for granted, that all the secretions are diminished in fever, but though this may be the case with

some, it is not assuredly so with all of them; at least attentive observation will convince any one, that the intestinal secretions are increased, and this is a circumstance which should always be taken into account in the treatment of typhus, as their retention, while morbid, often keeps up more or less irritation during the stage of excitement.

In the peculiar subjects of the metropolis so particularly noticed above, the stage of collapse in the simple typhus is accompanied by a far more profound relaxation of the whole system than among the poor of the country: but though this relaxation extends to every muscular and common fibre, it seems to be greatest in the heart, arteries, and veins, so that for want of power in the first, and want of tonicity in the two last, the circulation is carried on with difficulty; the blood almost seeming to stagnate in the capillaries, and to be especially retarded in its return by the veins, which often gives the skin a plum-coloured or purplish shade. The artery at the wrist has a most remarkable feel. In pressing the fingers moderately upon it, the pulse is extinguished, but on making the pressure slighter, it conveys an idea as if the blood were flowing along an uncommonly soft silken channel; while its feebly renewed strokes, or rather undulations, at once convince the examiner, that the heart has sustained an immense loss of natural force, whether the pulse be frequent or slow. In fine, there is a combination of peculiar softness and weakness in this pulse which cannot be forgotten by those who have once felt it carefully, and it more nearly resembles that which occurs immediately on a patient's recovery from syncope, occasioned by a large loss of blood, than any other with which I am acquainted. It has been again and again repeated on the authority of Celsus, who is in general a mere echo of the ancients, that the pulse is a most fallacious thing. Yet as I hardly know a better guide for the propriety of performing venesection, than a tense, jerky, and resisting pulse, so I do not know any single symptom more decisive against bleeding than the peculiar pulse in question; for in the last stage I have never known the lancet used, where it was present, nay, nor local bleeding by leeches, without highly dan-

gerous or mortal results; and therefore warn others against those sweeping assertions of the day which would have us to disregard the state of the pulse, and to bleed whenever the brain is embarrassed. This caution, too, is the more necessary, since the peculiar pulse above described, is often found, in the last stage, with delirium, tendency to stupor, injected eyes, and other signs, which, on a first impression, might be mistaken for inflammation of the brain in the simple typhus; but these, in the last stage of this form, are consequences of a remora of blood in the capillary system from sheer exhaustion, as the relaxed soft skin, the prostration of voluntary power, the enervated expression of the countenance, the hollow eyes, the supine, sunk position, the diminution of the heart's action, and the feeble respiration, might all indicate in such examples. This peculiarly soft and weak pulse is quick in some cases, in others slow, and we judge of its being really dangerous or the contrary by the concomitant symptoms. When no bad concomitant symptoms exist, it is nearly always an indication of that universal relaxation which follows the excitement as its effect, which is proportionate to the degree of that excitement, and which will gradually disappear under a light nutritious diet; but when bad concomitant symptoms do exist with this pulse, the condition of which it is the sign greatly magnifies the danger, yet even then a mild treatment may, though an active one never can, save the exhausted patient. In this state, moderately good animal broths are mostly useful in small and repeated quantities throughout the day and night, so as to keep up the strength without at all oppressing the stomach; and in several instances a certain allowance of wine does good, but at first it should be given in tea-spoonfuls at a time diluted with water, and continued or withdrawn according to its favourable or unfavourable influence. It is remarkable what benefit wine occasionally produces when it lessens the frequency and increases the force of the pulse, allays thirst, quiets an agitated respiration, and induces rest in the last stage of typhus: but it is also remarkable what mischief a full dose of wine sometimes occasions at that period, the face becoming flushed after it, the breathing laborious, the pulse hurried to a

countless rapidity, and the general irritation and exhaustion greatly increased; and as we cannot *a priori* anticipate its precise effect, of course it is necessary that we should be as circumspect as possible in its first administration. Those purgative medicines which are liable to produce full and frequent effects must be avoided where this peculiar pulse is found, in short whatever might tend to exhaust the heart, or to irritate the nervous system, as a slight shock to either might be mortal. One part of the practice of physic in acute diseases, especially in fevers, consists in the decisive employment of active agents in the beginning: another part is to select and apply intermediate means in the intermediate stages, that a due relation between the treatment and the disease may still be observed; and the third part is, either to forbear altogether, or to do little, in the very last stage, in which powerful measures are generally the most destructive which can be used. When the stage of collapse is marked by such an exceeding relaxation as has been mentioned, upon the whole enemata are frequently the most proper, as they dislodge the feces in the lower intestines with the least possible exhaustion. It appears from Celsus, that both the Greeks and Romans ordered enemata in fevers much more frequently than we do at present; and the practice, it would seem, has been continued on some parts of the continent from the influence of their authority, not to mention that Sydenham often employed enemata day after day in fevers, much in the manner of the ancients. On many occasions, we should not hesitate to return to this as an ordinary practice, because experience proves it to be more expedient than purgatives by the stomach, where great debility exists in the last stage. Indeed it is often a very round-about way of procuring an evacuation to pass a purgative along the whole tract of the intestines when the matter to be dislodged is only in the lower portion, and when it can be more safely and promptly accomplished by an injection. Except when some very irritating substance is added, glysters operate principally by the stimulus of distension; and tepid water therefore will commonly suit as well as any thing else, the quantity being varied as circumstances may require.

A small quantity of fluid thrown into the rectum will often fail to operate, whereas a large quantity will rarely fail to procure a full motion. Where the bowels were so much loaded as to need something more than enemata, and where the collapse was formidable in such habits as have been described, I have most frequently prescribed castor oil, with appropriate support, sometimes in the dose of half an ounce repeated as occasion might require, and sometimes have found a drachm or two sufficient, when properly aided by enemata. In instances of this kind, I have often observed, that the stools were almost as dark as tar at first, but as the remains of fever subsided, they became natural, a clear indication that their previously morbid state had depended upon the constitutional affection called fever, as castor oil cannot change secretions by its topical effects; and I am fully convinced, that even in many chronic diseases the unnatural condition of the abdominal secretions is not unfrequently owing to an insidious degree of constitutional fever, or to speak definitely, to some increase in the action of the heart and in the animal heat, which must be removed before the secretions can become natural, but which is often disregarded or misunderstood in the search for some topical disease.

Perhaps in the progress of medical science something may be found to lessen the fatality of certain modifications of fever in the most advanced stage. At that period, as just hinted, the chief cause of death sometimes appears to consist in a collapse of the heart, and a loss of tone in the vascular system, by which the capillaries at last are left injected, and the larger veins loaded with very dark blood; so that, in reality, whatever some men have pretended, none of the genuine signs of inflammation are discoverable after death, such as an effusion of coagulable lymph, adhesion of parts, suppuration, or gangrene (29). In this ultimate state of relaxation, for

(29) Is not this fact a sufficient proof of the existence of idiopathic fever, independently of any local inflammation? Upon what other principle can the absence of every sign of structural derangement after death be explained?

such, in the present state of our knowledge, it must be accounted, would the application of the galvanic fluid, or the inhalation of oxygenated air be useful, the one by communicating energy to the nervous system, and the other by renovating the vitiated blood? This question is merely put to call the professional attention to some points which have not yet been sufficiently considered. The notable relaxation alluded to is sometimes gradually removed by the cautious administration of wine, æther, and similar stimulants; but as they are liable to fail, hence perhaps the galvanic fluid and oxygen are deserving of some notice as means of excitation. In the application of every stimulant in the last stage of fever, it ought always to be borne in mind, that powerful or too often repeated doses may soon sink the strength; and therefore if such measures as the galvanic fluid or oxygen should ever be ascertained expedient, they would require a still more circumspect employment than wine and the like excitants. It shall afterwards be shown, in contrasting true typhus with the common continued fever, that a peculiar duskiness of the skin is one of its distinguishing signs, varying in its shade as the disease may be recent or protracted, mild or severe; and as this preternatural darkness of the blood would almost seem to indicate an over-plus of carbon in it, possibly this state may be capable of correction through the influence of some chemical agent.* Whatever means tend to lessen this duskiness in typhus are commonly serviceable, and among these the nitric, muriatic, sulphuric, and citric acids deserve to be enumerated. The utility of certain mineral acids has been vaunted lately as a new discovery; but Sydenham employed them, and has left his unequivocal testimony in favour of the sulphuric. Of the mineral acids, the muriatic is that which I have most frequently prescribed, one or two drachms large-

* As the respiration is much affected in typhus, can there be less carbonic acid thrown off than is requisite to keep the blood pure, or can the disturbed respiration be in any other way concerned in this apparent change which the blood undergoes?

ly diluted with water in twenty-four hours, so as to make it a sort of common drink, and certainly its effects have sometimes been very beneficial, where it kept the bowels open, without exciting griping pains or diarrhoea. But fresh lemon juice is perhaps equally useful, at all events it is highly refreshing to the sick, and may be more extensively administered, since it does not, for example, disorder the bowels under the operation of calomel, a purgative often exceedingly serviceable in this state of the skin. All these acids in general much diminish the irritation of thirst, and also often act on the kidneys or skin, besides keeping the bowels soluble; but can they in any manner be efficacious by communicating oxygen to the blood, as it is darker than natural in typhus? (30)

The cases of the inflammatory typhus received into the Fever Institution this year have been much more numerous than any others, and when they occurred in the fore-mentioned class of the poor, the inflammation generally assumed the sub-acute form, and was mostly attended by a rather soft, compressible pulse. In these, the blood drawn from a large vein did not most frequently show the buffy coat even early in the stage of excitement, though the crassamentum was then commonly firm, but in some instances, where the lancet was somewhat later used, it was comparatively loose. General blood-letting, in such subjects and cases, was only beneficial when moderately used early in the attack, and when the fever had continued a few days, in them the general result of my experience is most in favour of local bleeding; for in referring to my notes, I have been much struck with the great relief which leeches have afforded, when timely applied to the head, chest, or abdomen, accordingly as the inflammation happened to be seated in one or other of these parts. But as the frequency or the force of the heart's ac-

(30) It has been supposed by an ingenious author, that mercury proves beneficial, by imparting its oxygen to the blood. In order to establish this theory, it is necessary to prove that there is a deficiency of this vital principle in the system in all those cases in which the virtues of this metal are universally admitted; such as inflammatory affections, syphilis, &c.

tion was invariably much diminished in those examples where leeching was so serviceable, it is mainly to the power of a small or moderate loss of blood, thus drawn, over the heart's action, that I would ascribe their efficacy rather than to the received notion of revulsion. However the fact may be explained, it shows how useful the application of leeches may be, when the object is to reduce inflammation and to save the strength in an enfeebled frame which has laboured under genuine typhus for some days; but the benefit of leeching has been no where more apparent than in sub-acute inflammation of the brain, the pain having been in general greatly lessened, and sometimes wholly removed, while the pulse fell considerably, and a most remarkable change for the better took place in the expression of the countenance. On inquiring into the previous history of the patients now specifically considered, I have found that many of them had lived upon the most meagre diet for some time before the attack, while not a few had indulged in the use of ardent spirits whenever attainable: so that these and the like circumstances had not only lessened the constitutional tone, but also created a species of nervous temperament which required a more cautious depletion than in patients ordinarily met with in private practice; for whenever too much blood is abstracted in morbidly susceptible habits of this kind, the nervous system at once grows highly irritable, and indeed, to use the forcible expression of an enlightened friend, often becomes as ungovernable as a wild horse without a bridle. Besides, there is something so peculiarly depressing in the influence of contagion itself over persons who have been previously destitute of most of the common comforts and some of the necessities of life, that nothing but the presence of some threatening mischief would justify in them the use either of general or local bleeding, the first of which for the most part is only admissible at an early stage of the inflammatory typhus; but as the stage of excitement is often so prolonged when the inflammation is sub-acute, it is most difficult to mark the limit at which we should stop in the use of local blood-letting, except where the stage of collapse is actually present or rapid.