

on certain days, in preference to others, has always appeared to me an opinion not strictly applicable even to typhus fever. Agreeably to my observation, so far from crises of this kind occurring on particular days in ordinary fevers collectively taken, they do not generally occur on particular days in the same fevers; but, not to mention that they are often wholly absent, such crises sometimes take place at one period and sometimes at another, without any stated regularity (9). But if by critical days were to be understood, that typhus has a sort of determinate duration, then I would subscribe to the doctrine, with certain limitations; for the simple typhus, when it preserves its unmixed character, for the most part naturally goes on for a certain number of days, and then declines, but the inflammatory and congestive have no such regular and determinate duration. Nor can we correctly fix the duration of the simple typhus, like that of the small pox and measles, to almost a precise period of time; since it has a much greater range, sometimes terminating within ten, generally within fourteen or twenty-one days, and occasionally extending to the fourth, fifth, or even sixth week. Yet I am fully persuaded, that the simple typhus may often be cut short in the very commencement, though when it has existed unchecked for a few days, I am equally confident, that its course can only be moderated; and it is of great practical importance to bear both these truths in recollection, that we may not be too inert in the beginning, nor too active in the progress of this fever. With respect to the inflammatory typhus, when the attendant inflammation is acute and has occurred early, both the typhus and its attendant may be arrested at

(9) In this country, the doctrine of critical days in fevers, has received no support whatever from experience. By some it has been supposed that this has been entirely owing to the treatment pursued by our physicians being so energetic as to change completely the aspect of these diseases. That this, however, cannot be the true cause appears from the fact, that the observations of those physicians who have adopted a temporizing and inert treatment have not been at variance on this point with those of the boldest and most active of our practitioners. For proof we refer to Professor N. Smith's Essay on Typhus, Gallup's Sketches, &c. &c.

the same time: but when the acute inflammation exists in a typhous case of some days' duration, the fever will hold a determinate course, though the inflammation be subdued; and what is here asserted of the acute inflammation also equally obtains in regard to the sub-acute, when complicated with typhus. As to the congestive typhus, every sign of disease will sometimes be wholly removed with the symptoms of venous engorgement; but at other times, the fever will run a determinate course, even when the venous congestion has been removed. The doctrine of critical days has been so far important in every age, that it seems to have had a considerable influence over practice. Hippocrates himself was so much guided by it on many occasions as merely to have been a spectator of fevers, and numerous disciples have followed his example; whereas those who wholly disregarded the doctrine often ran completely into the opposite extreme, or at least neglected that medium of treatment which diseases of a certain duration will be found to require in their course.

Many other febrile diseases might be examined, to show, that, however various their causes, their grand effects on the vital organs, are still simple excitement, inflammation, and congestion; and I am greatly mistaken if this doctrine does not afford a key which will unlock the principal difficulties on the subject of fevers particular and general. The causes of fevers are very various, and so is their *external pathology*; but still I must contend, that their *internal pathology* is uniform. If in our consideration of the methods of treatment we could, for the time, consider the causes and the mere *external pathology* as only of a secondary interest, and look more particularly at the great effects on the vital organs, or in other words at the *internal pathology*, our success would be much greater; and until we do disembarass our minds from that confusion which arises from the contemplation of so many causes, and of so many external symptoms, we shall never be able to arrive at those comprehensive and plain principles of practice, which may be successfully applied to the whole class of acute fevers. But in the course of these practical illustrations, this part of the subject will be advert-



ed to again, meantime the treatment of typhus shall be brought under discussion; and conformably to the distinctions already made, the cure of its simple, inflammatory, and congestive varieties, shall be explained in succession, as the treatment of each necessarily differs in some important particulars.

#### TREATMENT OF THE SIMPLE TYPHUS.

It would be fortunate if professional advice were sought for on the first attack of fevers, because for the most part they might then be either completely arrested, or reduced so much in their force, as to be finally overcome; but unhappily the patient often flatters himself, that the primary feelings of indisposition will gradually abate of themselves, and under this impression allows the disease to proceed, until a dangerous combination of symptoms renders the success of the best measures uncertain. The symptoms of the simplest typhus vary according to the time that it has continued; and this fact shows the necessity of carefully noting the several stages which have been described, for the remedies proper at one period will be found extremely pernicious at another. Yet self-evident as these truths are, they have not been sufficiently regarded by practical authorities, whose contrarieties might probably be reconciled, if we knew the circumstances under which their various remedies were employed.

As soon as any patient falls sick of typhus, and the remark may be extended to almost every fever, absolute rest should be immediately enjoined; since, how mild soever the symptoms may be at the commencement, it is impossible to foresee to what they may finally lead, if then neglected; and the hazard is always greatly increased by attempts to cast them off by business or exercise. It is in the first stage of the simple typhus, that a period may always be observed, in which, by the retrocession of blood from the surface, and by certain degrees of internal venous congestion, the general balance of the circulation is disturbed, and in which much good may be done, by very simple means. Above all things, the practitioner

must not be deterred by the appearances of debility from the use of some evacuants, for they are not only safe, but highly salutary at this time, when the system is merely oppressed by a kind of preternatural burden, and not really in a state of exhaustion.

At the beginning of this stage, the stomach frequently rejects the greater part of whatever may be taken; and, on this account, there are very few medicines which can be advantageously prescribed. Antimonial emetics, however, have been very generally recommended, and, according to my observation, are serviceable when the fever is of the least complicated form, commonly producing an improvement in the condition of the skin, respiration, and pulse, in particular; and perhaps it is on the power which they possess of determining the blood to the surface, and of changing the morbid states of the circulation, that their efficacy is chiefly to be explained. In the beginning of almost all febrile complaints of a simple character, emetics will generally be found very beneficial; though much neglected now-a-days by many practitioners, probably on account of the universal introduction of purgatives (10). When the stomach has been sufficiently evacuated in the simple typhus, no time should be lost in freely moving the bowels; and it is better first to empty the lower intestines of their contents, by a large cathartic injection, which frequently lessens or allays the irritability of the stomach, and thus gives the aperients afterwards exhibited the fairest chance of being retained.

(10) By our own physicians, too, we fear emetics are too much neglected in the early stage of fever. This is the more to be regretted, because we are convinced that their prompt use would, in a great number of cases, obviate the necessity of resorting to any other measures. By their means incipient fever may not unfrequently be arrested at once; and where this desirable point is not gained, the disease is at all events rendered milder and more susceptible of the salutary impressions of medicines. It is a curious circumstance, that while emetics are so frequently neglected in typhus and other fevers, they should have been strongly recommended by certain writers, in yellow fever, a disease in which their use is so clearly contra-indicated not merely by theory but experience.



The system in general is more torpid than natural in the stage of oppression; and of this torpor the bowels largely participate, so that purgatives ought to be given in such doses as to insure their full operation. Nor need any risk be apprehended from three, four, or even more copious motions during the day; for, instead of weakening the patient, they will renovate his powers, lighten the system of the load which weighs it down, and contribute to restore the circulation to its healthy equilibrium. Sometimes I have known at this early period, an emetic and a brisk purgative cut short the fever at once; and where this desirable effect has not been produced, they have hardly ever failed to shorten its duration, and to lessen its danger (11).

The want of preternatural heat, and of arterial activity on the surface, in this stage, would *a priori* seem to contraindicate the use of the affusion of cold water. Without doubt it is highly improper, and might even put the life of the patient in jeopardy, by the sudden diminution of temperature and the great pressure on the vital parts, which it would occasion by the recoil of the blood towards the interior. Yet the warm bath is a safe and efficacious remedy, and, with the means before mentioned, has considerable effect in equalizing the circulation. Tepid barley water, or thin gruel, which should now form the diet as well as beverage, may be taken with advantage, as they often have a tendency to lessen the irritability of the stomach, and sometimes to induce a gentle and general perspiration, without finally causing any injurious excitement, local or universal. There may be cases in very old or debilitated habits, where, in conjunction with mild emetics, purgatives, the warm bath, and small portions of weak wine may be requisite before the second stage takes

(11) It is not without surprise that we find Dr. Smith, in his Essay on this disease, attempting to deny that typhus ever has been or ever can be arrested in its progress. According to his mode of treatment, it may indeed be doubted whether this event can be brought about. It is no less absurd, however, than improper to discourage an attempt which the experience of practitioners, both in Europe and in this country, has proved frequently attainable.

place;—but in general, diffusible stimulants are quite inadmissible at this period, because they forcibly tend to make the consequent excitement of the second stage much more violent than it otherwise would have been, and might in that manner convert a simple, into an inflammatory typhus.

The apartment of the patient should, if possible, be large and well ventilated, the heat of which ought not to be below fifty-six or sixty degrees of Fahrenheit's scale; for it must be recollected, that as the excitement has not yet taken place the surface of the body cannot be long acted upon by a low temperature without prejudice. On several occasions, I have been able to trace the origin of local inflammations, particularly of the chest, to an imprudent exposure to cold, in the first stage of typhus.

The second stage, or that of excitement, is far more frequently witnessed than the first, at least by physicians, who are seldom consulted until the fever has fully developed itself, and even reached its acme; when the dry, burning heat of the skin is amongst the most conspicuous symptoms, and when a treatment is required, in many respects different from that which has been recommended in the stage of oppression. But as the morbidly increased temperature now involves so many important considerations, the rules relative to its management shall be explained, before proceeding to the other parts of the practice. Among the names of those who have contributed to illustrate the effects of cold and warm water, as a remedy for fever, that of the late Dr. James Currie stands deservedly pre-eminent, and will long be remembered with respect, by the philosopher, the philanthropist, and the physician. Agreeably to the experience of this estimable writer, the best time for reducing the preternatural heat in typhus, by the aspersion or affusion of cold water, is when the exacerbation is at its height, or immediately after it has begun to decline; and he therefore directs either the one or the other to be employed from six to nine in the evening, the period in which the febrile action is most intense. But he also expressly declares, that the cold water may be used at any time of the day, when there is no sense of chillness pre-



sent, when the heat of the skin is steadily above what is natural, and when there is no general or profuse perspiration. These principles are equally simple and intelligible, and on repeated trials I have found them excellent guides, during the whole time of excitement; although, as shall be afterwards shown, they may be deceptive, and even dangerous, if followed in the stage of collapse. And so far as I have remarked, a *slight* sense of chillness ought not to preclude the application of cold water, provided the arterial excitement be universally developed, and the temperature every where steadily at a morbidly high point; care being taken, in such cases, that the water be not lower than 60° of Fahrenheit's thermometer, and that too large a quantity be not affused at one time.

During the first, second, and third day of the stage of excitement, more especially during the first, I have sometimes seen the simple typhus entirely extinguished by the affusions of cold water, and failing to effect so much, they have generally been highly refreshing to patients, and, with other measures afterwards to be noticed, have enabled me so to lessen the fever as to ensure a favourable issue. But from the fourth day of this stage, I have not often seen them useful; and from that time onward, until the period of collapse, it has been customary with me to employ the tepid affusions or bath, at the temperature of 94° or 96° of Fahrenheit's scale. When the former are used, in general I order, four or five times in twenty-four hours, about two gallons of sea-water, or spring-water mixed with some common salt, to be poured over the patient while he is supported upon a stool placed in a low, wide tub, his feet being covered with warm water: this operation is repeated at intervals of about one or two minutes, twice or thrice each time, until the skin become comfortably cool, but not chilly or contracted. The surface is then carefully dried, the patient put to bed, thinly covered, between clean sheets, and allowed to take moderate portions of some milk-warm, bland fluid, by way of promoting a gentle perspiration. Frequently when the tepid affusions have not succeeded in cooling the cuticle, I have added a small portion of

ardent spirit to the water, with excellent effect, for it carries off the superfluous heat by a more rapid evaporation from the surface. In ordinary practice, a little *common* vinegar is the usual substitute on such occasions; but it is rather objectionable, because it very often contains a quantity of mucilaginous matter, which being spread over the skin, by the affusion, prevents the cooling process from taking place so readily, as when water merely, or when water and spirits are used, and which also, interrupting the perspiration afterwards, causes a more rapid accumulation of the febrile heat. This observation may seem too minute, but of its accuracy I am fully convinced (12).

When the warm bath is employed, the patient should remain in it at least ten minutes, or a quarter of an hour, otherwise it will be rarely followed by any permanent good. Perhaps it is difficult to speak with accuracy of the comparative utility of the tepid affusions and bath; but the latter has appeared to me more decidedly serviceable, its power in reducing heat, frequency of pulse, and febrile irritation, having been generally greater, and of longer continuance.\* But,

(12) Dr. Smith speaks no less favourably than our author concerning the beneficial effects of cold affusion in typhus fever. The mode in which he recommends it to be applied is "to turn down the bed-clothes, and to dash from a pint to a gallon of cold water on the patient's head, face, and body, so as to wet both the bed and body thoroughly." This is to be repeated as often as the clothes become dry until the temperature of the body is reduced "so that the skin may feel rather cool to the hand of a healthy person." The effect upon which Dr. Smith principally relies is evaporation; and therefore he does not consider it of much consequence what the temperature of the water is, provided it be below blood heat. In cases where stupor or coma is present, a lower temperature is preferable; because it is desirable to produce a sudden impression or shock upon the system. No additions of spirits or vinegar should be made to the water, as they do not add to the efficacy of the application, but leave impurities on the skin, and produce an unpleasant odour about the patient.

\* It may at first sight appear paradoxical to say, that the warm bath is useful by removing heat. But this is certainly the fact, for when properly used, it will always tend to diminish morbid temperature; at the same time, its good effects are partly to be ascribed to the power which it evidently has in equalizing the circulation.



as a counter-balance to these advantages, the affusions can be more frequently used, since they do not induce so much fatigue. Where insurmountable objections exist, in the patient or his friends, against the use of the tepid bath or affusions, partial ablutions of cold or warm water may be substituted, and with the aid of the free admission of fresh air, they are often of much benefit.

Among some of my medical friends, a strong prejudice prevails against the application of cold water in typhus, which has arisen from their having known several cases prove fatal, shortly after its use; three of this nature have come within my observation, but in one of them, the cold affusion was tried in the stage of oppression, and in the others at a very advanced period of the fever. Indeed I have reason to believe, that in all the fatal examples above alluded to, it was unfortunately employed under similar circumstances. Occurrences such as these are the more to be deplored, not only because they might have been prevented by an acquaintance with the principles of Dr. Currie, but because they likewise contribute to raise false prejudices and fears in the minds of the faculty, and of the public in particular.

The morbid temperature in typhus, is sometimes partly dependent on extraneous causes, as the heat and closeness of the chamber, or an extraordinary quantity of bed-coverings; and even under such a state, I have occasionally known patients with a dry and burning skin actually to complain of chilliness, their too officious attendants carefully excluding every breath of air, and drawing the curtains closely round the bed, to prevent them, as they supposed, from catching cold. When causes similar to the above are present, the practitioner cannot immediately ascertain whether the morbid temperature of the skin be strictly febrile or not: and therefore he ought to remove them, and wait at least half an hour, that he may entirely satisfy himself as to this point; for if the cold water were rashly dashed at once over a patient, confined in such a warm, stifling atmosphere, the result might be injurious, if not dangerous. Nor should any one, when about to advise this powerful remedy, rely implicitly upon

his sense of touch, or upon the feelings of the sick, in regard to the degree of preternatural heat, but ascertain it precisely by an accurate thermometer.

The cold and warm effusions may be serviceable not only by exciting a new train of sensations in the nervous system, but by removing morbid heat and irritation, and by reducing the force and frequency of the pulse, as well as by restoring the natural functions of the skin. It is chiefly with a view of cooling the surface of the body, that both these expedients have been used and recommended; as if modern practitioners had imbibed the speculation of Plato, who thought that a continual fever proceeded from an excess of fire. But I have never seen them really advantageous, except when they diminished the action of the heart and arteries, and produced something like a healthy perspiration; and I suspect that, whatever may be their immediate influence on the temperature and nervous system, their permanently good effects are to be attributed to the changes which they induce in the circulation. With the exception perhaps of venesection, there is not a more powerfully antiphlogistic mean, in certain fevers, than the affusion of cold water, which has also this peculiar advantage, that it is highly invigorating; while phlebotomy and other depletory measures have a tendency to debilitate, when pushed beyond a certain point. It is, however, in the simplest forms of typhus, that this remedy is so generally efficacious; and the warmest admirers of Dr. Currie surely cannot deny, that, in the ardour of his inquiries, he has overlooked some of the most interesting varieties of idiopathic fever, in which cold water is either wholly inapplicable, or of limited utility, as will be exemplified in another place.

From all that has been remarked, it will be manifest, that cold and tepid water may be profitably applied during almost the whole period of excitement. It is in this stage, too, that purgative medicines are so exceedingly useful, and they ought to be exhibited every day, either a little before or after the application of the warm or cold affusions; a judicious combination of both these means being much more efficacious, than either of them singly employed.