

valuable for the accurate descriptions which they contain of many diseases, but it has always struck me, that his definition of typhus, notwithstanding its extensive adoption, is very defective; in reality, it is nothing more than an enumeration of some of the leading symptoms, which accompany the last stages of the simple and the inflammatory typhus, and the commencement of the congestive. It at best therefore only embraces a small part of the disease, and neither accurately discriminating stage nor variety, cannot but be dangerous, from the mere authority of his name. In the course of my experience, I have seen a great number of patients afflicted with typhus, and can with confidence declare, that there are no substantial grounds for believing it generally to be a low fever of real debility, when fairly contemplated from the time of its attack; for even in the congestive species, with a few exceptions, the debility is rather apparent than real in the first instance, as will be made evident by the nature and effects of the remedies employed.

Some bad cases have already been given of the congestive typhus, the terminations of which, under the common modes of treatment, were fatal; and one has been particularly noticed, which ended successfully by very early bleeding, purging, and the warm bath. This brief statement nearly accords with the general result of my observations in regard to such examples of contagious fever; since whenever treated, from the beginning, solely by palliatives and cordials, the event has been mortal, whereas a great many have proved favourable in which a different line of practice was pursued; although it must not be concealed, that the most judicious plan will not always succeed in the concentrated attacks of the congestive typhus which, like a resistless apoplexy, sometimes set every remedy at defiance. But if failures of this sort show the occasional inefficiency of depletion, they certainly do not disprove its general utility, since there are cases of other acute diseases, wherein the best measures are now and then wholly unavailable; as might be instanced in carditis, pneumonia, and similar affections, in which no person has the hardihood to dispute the general advantage of early evacuations.

In the severest cases of the congestive typhus, there is from the beginning great apparent debility, which speculative men have considered as real, and which they have attributed to the direct influence of the contagion as a sedative, without ever reflecting that it chiefly depends upon the changes which take place in the circulation; and that it is no more to be accounted positive exhaustion, than the loss of muscular power, which precedes and accompanies the threatening of genuine apoplexy, to which, in fact, this modification of typhus has often a most forcible resemblance (25). In general it comes on very suddenly; and what magical change, it may be asked, has been wrought in the system in the period of a few hours, that the subject, who the moment before his sickening, might have been largely bled without the least prejudice, should now, that he is actually indisposed, be all at once pronounced incapable of bearing the smallest abstraction of blood? To permit ourselves to be influenced by preconceived theories and puerile fears, on such emergencies, is in effect to conjure up ideal phantoms which paralyze our energies when they are most urgently required.

(25) We have always been opposed to the use of the term *typhoid*, in the sense in which it has been so generally employed, to denote debility and malignancy, because a resemblance to typhus is thus implied on account of the existence of symptoms which are by no means essential to this latter form of fever. They were indeed thought to be so by Cullen; and the opinion is not without its advocates even at the present day. It is, however, sufficiently evident that the views of Dr. Cullen, in relation to typhus fever, were erroneous in the extreme, the symptoms characterizing the last stages of the disease being alone regarded in his definition, while those of the earlier stages were entirely overlooked. It is due, however, to this distinguished man, to observe that he was fully aware of the difficulties attending this subject; although he was not sufficiently acquainted with the pathology of typhus to overcome them. Hence when he makes two distinct genera of synochus and typhus, he frankly states his doubts of the propriety of his own distinctions. The symptoms of Cullen's synochus are referable to the inflammatory species of our author, while his typhus is no other than the congestive variety which we are now considering. Still it must not be forgotten that, even in this variety, the debility is not, as Dr. Cullen supposed, always real. A neglect of this most important circumstance may be attended with the most dangerous consequences in practice.



Abstract but the idea of contagion from cases of this nature and we should be prepared to meet them boldly, as we would any other alarming disease of congestion, from the mere impression of the prominent symptoms (26). And why in our maturer deliberations should the assurance, that the morbid phenomena have proceeded from contagion, prevent us from using the remedies which for similar symptoms, arising from a different cause, we should not hesitate an instant to employ? In a rational practice, it is not surely necessary always to form our indications of cure from the consideration of the primary cause of any disorder: in general, it is only to the effects produced on the various parts of the system that our remedial agents ought to be applied; and wherever the effects are nearly or precisely similar in two acute diseases, it may be held as an axiom, that the principles of treatment ought also to be nearly or precisely similar, though the one originated in cold, and the other in contagion, or in any other opposite causes. It is the very error of the schools to avoid early depletion, on account of supposed exhaustion; and it is truly surprising upon what slender grounds men of sagacity, and even of great experience, have rejected venesection in congestive fever. The late Dr. John Clark of Newcastle, for example, who was one of the best practical physicians of his day, speaks decidedly against it, merely from an imperfect trial of it in two or three cases; and he seems never to have had the courage to give it an impartial trial afterwards. The assertions of such weighty characters, founded upon partial observation, and defective evidence,

(26) Dr. Armstrong is entitled to no small share of credit for the soundness of the practical views entertained by him, even before his mind was freed from the trammels of prejudice and error in relation to contagion. Although, when he wrote the above, he still believed in the existence of contagion, he did not permit such belief to warp his judgment or to influence his indications. What confirmation do these views not derive from the reality of the supposition advanced by him to enforce the necessity of the practical measures which he recommends with so much eloquence! He has here virtually anticipated his subsequent rejection of contagion as a power influencing the symptoms of typhus fever.

have done incalculable mischief; and they clearly show how necessary it is for future authors to avoid those sweeping conclusions, which have been so often and so confidently drawn from a few solitary facts, usually contemplated through the medium of some favourite hypothesis.

It has already been shown, that there can be little or no certainty in the treatment of the simple and inflammatory typhus, without marking their various stages; and the same may be affirmed, with perhaps still greater force, of the worst forms of the congestive typhus, in which the first stage of oppression is often exceedingly short; and as it affords the only period in which medical assistance is likely to be available, it is to the last degree important to distinguish it from the stage of universal collapse. Acute fevers, of whatever kind, may be practically considered, in their commencement, as merely disordered states of the circulation generally and locally, which may be most frequently corrected by the opportune application of proper means; but if in the more urgent examples those disordered states be permitted to exist for a short time, they produce both derangement of function and structure, which no human power can repair. These remarks are especially illustrative of the worst forms of congestive fever, in which the stage of oppression, as it is not followed by an intermediate one of excitement, passes directly into that of collapse,—disordered action being most commonly succeeded by organic derangement.

It is in the first stage only of the highly congestive typhus, that general blood-letting is admissible with a view of relieving the local congestions, and of restoring the natural balance of the circulation. The practitioner must not fix upon a determinate quantity of blood to be drawn, but rather be guided by the effects produced. Sometimes a few ounces will be quite sufficient, and at other times, ten, sixteen, twenty, or even more at one time may be requisite to relieve the topical engorgements, and put the general circulation into proper play. The action of the heart is often so much overpowered in the first instance, that the blood merely trickles, or rather oozes from the punctured vessel for a considerable time, be-



ing much darker and thicker than natural. Yet when a few ounces have been drawn, it usually flows with freedom, and becomes finally of a brighter colour. Occasionally, I have stood over a patient nearly half an hour before a stream of blood could be obtained from a vein, but at last it gushed out in a full current, and was not so easily restrained as in ordinary cases. Many a life might be lost by binding up the arm too hastily, and therefore the operator should persevere, until he knows whether enough blood can be obtained. As the engorgements are in a great measure venous in the congestive typhus, my common practice for a long time was, to order the jugular or brachial veins to be opened, conceiving that blood abstracted from one of them would sooner relieve the system than from an artery. But finding in some cases that a sufficiency of blood could not be obtained from the veins, I was induced to order the opening of the temporal artery; and where the operation was skilfully done not only enough blood was procured, but a more immediate change appeared to be effected in the whole vascular system, than by venesection simply. The circulation of the blood, it is well known, is partly carried on by the *vis à tergo*, especially that of the venous system. Now in the highly congestive typhus, the energy of the heart and arteries is greatly oppressed from the beginning; and the *vis à tergo*, being thereby diminished, the blood must necessarily flow much more languidly in the veins, and of course be less easily abstracted from them than under ordinary circumstances; while it must be equally evident, that it may at first be more readily procured from the arteries, where a comparatively freer current is still maintained. Whenever therefore blood cannot be obtained from the veins with a freedom or celerity commensurate to the urgency of the symptoms, the temporal artery should be opened. And though my experience has not yet enabled me to determine whether arteriotomy be generally more efficacious than venesection in congestive cases, yet whenever the head is greatly affected, which often happens, the vessel just mentioned should always be punctured, as by so doing I have frequently seen patients rescued from impending death.

In great congestions, the pulse generally rises under or immediately after blood-letting, but sometimes it continues oppressed, and even weaker than before, and then bleeding ought not to be further employed; for as the rising of the pulse under bleeding in congestive fever is a certain indication of its propriety, so its sinking is as certain an indication of its impropriety, and therefore we have a criterion to guide us in the operation. When both the pulse and the general circulation become manifestly freer, with a warm moist skin, tepid diluents should be the only beverage recommended; yet when it still remains oppressed, and the tide of the circulation does not return to the surface, and more especially if blood has been freely drawn, some wine with warm water should be occasionally exhibited, and the patient speedily immersed in a bath, strongly impregnated with salt, and at least about the temperature of 100°. of Fahrenheit's scale. He should remain in the bath till his skin become warm, and on being removed, it should be well rubbed all over with hot flannels, and he ought then to be laid in an aired bed, with bottles of warm water at his feet. This plan, together with tepid wine and water occasionally, will often promote a flow of blood towards the skin, and considerably relieve the viscera from congestion.

Indeed if the bath can be prepared sufficiently soon, it is far best to immerse the patient in it first, and either to bleed him while he remains in it, or immediately after he leaves it. In some very severe cases, I have found it impossible to get enough blood until a warm bath had been premised, so oppressed was the general circulation before its employment. But where the bath cannot be obtained in time, warm stimulating unctions must be used instead, warm blankets applied to the surface, and warm drinks administered. The ancients, as the writings of Hippocrates and Celsus testify, paid considerably more attention than the moderns to the use of the bath and friction of the skin in febrile disorders, though a recent author of ingenuity has justly dwelt upon their importance.\* It has often struck me, that the vapour bath would

\* See Reflections on Fever. By Robert Calvert, M. D. London; printed for J. Callow, 1815. Though the principal part of my essay on typhus had



be an excellent remedy in such cases, combined with the friction of some warm or stimulating liquid, to promote perspiration. It is much to be regretted, that in common practice a great deal of valuable time is often lost before the common bath can be made ready, but a steam one might be soon obtained by a very simple apparatus, which ought to be kept in every house. In all congestive diseases, the deficiency or irregularity of heat on the surface is among the primary and most important phenomena, and if the skin can be restored every where to its natural warmth, and an universal perspiration be excited, recovery will most frequently succeed. In the first stage of the most violent attacks of febrile affections, there are strong indications of internal accumulations of venous blood, which may often be removed or mitigated by restoring a due proportion of caloric to the surface. Upon this principle is to be explained, the repeated success of the method proposed by Mr. Baldwin in the plague: for immediately after persons were perceived to be affected, and consequently while there was yet no arterial excitement, they were subjected to frictions by warm oil, in a close room and over a brazier of hot coals, until free perspiration took place; and if a similar treatment were adopted on the first signs of indisposition, in many of the fevers of this climate, probably it would often be highly advantageous, but particularly in those strongly marked by characters of venous congestion.

Though bleeding and the warm bath are means of the first efficacy, they should be followed by others with as little loss

been written long before the publication of the above work, I did not like to pass it unnoticed; because, independently of all theory, it contains some most judicious remarks on the treatment of fevers, and especially on the utility of restoring the natural functions of the skin. The author's pathological views of fever will be found in many respects different from mine, even his principal one, which relates to the loss of balance in the circulation. He considers that this loss of balance may be occasional in two different ways, viz. on the side of depletion, when the egress exceeds the ingress; or on the side of fulness, when the ingress exceeds the egress; whereas I have simply placed the loss of balance either in a morbid fulness of the veins or arteries locally, or in a general change of capacity, relatively, between the venous and arterial systems.

of time as possible. The bowels ought immediately to be evacuated by very large stimulating enemata, and then by full doses of calomel and jalap, whilst a large blister should be applied over the region of the stomach or liver. Well knowing that the bowels are commonly very torpid, and that every moment is inestimably valuable in such rapid cases, I have generally given a scruple of calomel at first, repeating much smaller doses three or four times on the first day of the attack, with the medicines above named; and when the bowels have resisted their united influence, saline purgatives have been added, that no time might be lost. The great advantages of this vigorous practice are, first, that you commonly obtain free evacuations in a short time, which could hardly be obtained at all under the ordinary mode, or at least but with considerable delay; and, secondly, that you most frequently obtain the alterative operation of the calomel within the first or second day, which is a circumstance highly to be desired. For a long time I overlooked one of the principal effects of calomel in congestive fevers; and at last it was only forced upon me, by patients almost invariably recovering with rapidity, when ptyalism was excited\* (27). The power which calomel has in equalizing the circulation is no where more conspicuously displayed than in diseases of a congestive character. Before its exhibition the skin will be cold, wan, and shrunk, the pulse feeble or oppressed, and the whole system apparently relaxed: but as soon as the mouth is made sore from its influence, the skin becomes warm, reddish, and distended with the vigorous circulation, while the pulse is full, soft, and strong, and the general energy in a great measure

\* In what has been called the malignant pestilential fever at Grenada, Dr. Chisholm gave mercury many years ago; and from an able paper which he recently published, in No. 51 of the Edinburgh Medical Journal, he now appears to think, that it was of a decidedly congestive character, such as I have described.

(27) Calomel was first given in fevers with a view to its alterative effects, by American physicians, in the early part of the last century. See an interesting account of the practice in a paper written by Dr. Hollyoke of Boston, in the 1st volume of the New-York Medical Repository.



restored. Anxious to procure the purgative, as well as the specific operation of calomel on the very first attack of the congestive typhus, I have seldom combined opium with it until an action has been established on the intestines, after which small doses of opium, antimony, and camphor, may be added with very considerable benefit. The liver is intimately concerned in the pathology of congestive fevers, and for the first day or two the alvine evacuations will commonly be found either as dark as tar, or whitish and slimy; but they speedily become natural when ptialism takes place, and a copious secretion of bile almost invariably augurs a favourable issue. When the tenderness of the gums and the peculiar fetor of the breath mark the developement of the mercurial action, the calomel should be either entirely omitted, or only given in such small quantities, as to ensure the moderate continuance of the ptialism. For though the experience of every succeeding year tends more firmly to establish my faith in the efficacy of large doses of calomel in highly congestive diseases, yet having once fairly made the desired impression, they ought not to be repeated, such an extraordinary practice only being requisite, or even justifiable, during the urgency of extraordinary cases.

From what has been advanced, it will be evident, that bleeding, the tepid bath, frictions of the skin, calomel with purgatives and blisters, are the chief expedients in the highly congestive typhus; and even these must not be expected to succeed, unless very early and decisively employed. Indeed if a very powerful impression be not made within the first twenty-four hours, little good in general can afterwards be effected; so rapidly does the stage of collapse supervene, when the visceral congestions are not diminished soon after the attack. It is perhaps to practitioners having so frequently lost or neglected the first brief stage, that the extreme fatality of the highly congestive typhus ought to be attributed rather than to its irremediable nature; although, as before hinted, it will sometimes baffle the best measures, however promptly and judiciously employed. For the most part venesection can only be beneficial at the very commencement

of the most severe examples of this description; yet I lately attended a case in which it was twice had recourse to with great advantage, on the fifth day of the attack. The young man had laboured under a load of his head from the first seizure, and was stupid as if half asleep with a cool skin, and a slow, impeded, and irregular pulse, which became quicker, free, and regular after the first operation; and the second so much alleviated the symptoms, that only two or three brisk purgatives of calomel were afterwards necessary. It will sometimes happen, on account of the extreme oppression of the circulation, that only two, three, or four ounces can be procured at the first bleeding: and although this small quantity may now and then relieve the congestions, and bring about the re-action, yet it will most frequently produce little benefit; and therefore a second operation may be required, which should generally be performed at no great distance of time from the first. A moderate and early abstraction of blood is exceedingly well suited for such examples of fever, but in most cases large repeated venesections would only defeat the purpose in view, by sinking the powers of the general system so far, as to render them incapable of producing that degree of re-action requisite to restore the natural balance of the circulation. Venesection should be rarely carried to syncope, since that state not unfrequently prevents the developement of arterial re-action in cases of this nature, and thus contributes to sustain the venous congestions. When a proper portion of the vital fluid has been abstracted, so as to relieve the immediate pressure of the congestions on the vital organs, the remainder of the cure must be accomplished by the measures already recommended. There are, however, some cases in which venesection must be used with great care, as, for instance, when aged or infirm subjects are attacked with the congestive typhus: in them brisk purgatives, the rapid saturation of the system with calomel, the warm bath, and blisters will sometimes be found the best remedies; yet when the head and the liver are at the same time seriously affected, it may be requisite to draw blood, in order to give the patient a chance for life. The following cases may perhaps suffice to illustrate these observations.