THE TREATMENT OF FEVERS : WITH SPECIAL REFERENCE TO VENTILATION.

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RATIONAL TREATMENT OF FEVER.

AND now what seems to be the most rational general treatment of fever remains to be treated of. I do not wish to disconnect this form of treatment from some points of practice which commonly obtain, and to which allusion has already been made; but I place it first, and maintain in face of all opposition, that pending its omission, other treatment is *nil*, sometimes, indeed, worse than useless.

The points of practice which I would lay down are two in number; 1st, that a supply of food and drink to the patient should be supplied from pure sources; 2ndly, that he should be subjected constantly, by night and by day, in summer and in winter alike, to a stream or volume of renewed and fresh air.

PURE FOOD AND DRINK.

In previous days, the air has been considered the chief medium for the conveyance of poisons; but the important labours of Dr. Snow on the propagation of cholera by the medium of water have recently thrown an entirely new light on the subject. That his views on the propagation of cholera through water are supported by overwhelming testimony, is a fact to my mind perfectly clear and unmistakable; nor is it a vague hypothesis, that some other spreading diseases, such as typhus and yellow fevers, may be transmitted in the same manner as he suggests. This question is a wide one, and time and observation can alone settle it. If Dr. Snow himself, or some other observer equally indefatigable, could, in relation to epidemics of fever, carry out the same line of inquiry as that which has characterised the researches on water supply and cholera, the result, whether negative or positive, would amply repay the investigation, and benefit his race. In the mean time, it is sufficient to merely insist briefly on the importance of having the supply of food and drink to the fever patient derived from pure sources.

AUTHORITIES IN SUPPORT OF VENTILATION.

In regard to ventilation, I would not be understood as laying down anything original on my part; even Hippocrates had some clear notions on this point, as had also Aretæus, Celsus, Cœlius Aurelianus, and others of the old writers, and our own Sydenham. The distinguished Bateman, in his account of the contagious fever of this country, thus writes:

"A free ventilation is not only requisite to prevent the accumulation of infection; but contributes, in fact, to support the powers of life, and lessen the febrile depression. I have been sometimes surprised by the vivifying effects of pure air on a poor patient, whom I have had occasion to see at home, in my duties at the Dispensary, previous to his admission into the House of Recovery. Having seen him in the afternoon in his own close and dirty apartment, in a state of low muttering delirium, with every appearance of great debility, I have found him on the following morning, scarcely to be recognised as the same individual, with clear intellect, a fuller pulse, and every indication of increased strength, the simple effect of having passed a night in an airy room and a clean bed, without the administration of any medicine whatever. I have had reason to infer indeed, as I shall state more at large presently, that the invigorating influence of fresh air, with coolness and cleanliness, is sufficiently great to modify both the character of the disease, and the treatment which it may require or bear. The full benefits of this important adjunct in the

management of fever, cannot always be obtained in private houses. The popular terror of 'catching cold,' and the habitual closeness of beds and bed-rooms, too common in this country, are considerable bars to the practice of free ventilation. But a conviction of its importance, and of the futility of these terrors, should induce us to urge the full adoption of so important a measure.

"In warm or temperate weather, one or more windows should be kept constantly open during the day, and occasionally in the night, to refresh the atmosphere of the room; guarding the patient, of course, especially in the latter case, from strong or partial currents. In cold weather, the door of the room should be kept open, and a window partially opened from time to time, the temperature of the room being equalised by means of a small fire, which also contributes to the more thorough ventilation of the chamber, which is the object of the free admission of air; coolness, and not actual coldness, being the most desirable in such an apartment. The same end is also materially promoted by having no curtains round the bed, and by the lightness of its covering. The bed-clothes used by a person in health are generally much too heavy for those under a state of fever, as they retain and accumulate the preternatural heat generated by the disease, the excess of which would be dissipated by a more free access of the cool air to the heated body through a lighter covering; and the relief experienced upon such a change is often speedy and manifest. The bed-clothes should be reduced as much as possible, consistent with the feelings of the patient, which are commonly the best guide in regulating the matter, although a sensation of chilliness is occasionally complained of, when both the hand of the attendant and the thermometer indicate a temperature rather above the natural standard, and even a warm perspiration is present: in which case the load of bed-clothes may be advantageously lightened."*

Heberden writes thus: "No cordial is so reviving as fresh air; and many persons have been stifled in their own putrid atmosphere by the injudicious, though well meant care of their attendants. The English seem to have a very extraordinary dread of a person's catching cold in fevers, and almost all other illnesses; the reason of which I could never rightly comprehend. The sick do not appear to me to be particularly liable to catching cold; nor do I know that a cold would be so detrimental, as not to make it worth while to run the risk of it for the sake of enjoying fresh air."†

In the same strain, too, Dr. Burne remarks: "I have seen, over and over again, patients begin to improve, without the aid of medicine, the moment they have escaped the foul atmosphere of their own dwellings. And this is not to be wondered at, on the belief that the adynamic fever results from a certain condition of the blood produced by the continued breathing a contaminated or poisoned atmosphere; for then the legitimate inference is, that the unhealthy condition being no longer kept up, but, on the contrary, diminished by the substitution of a pure for an impure air, the effects of that unhealthy condition diminish also, and thus the adynamic signs subside.

"The impracticability of good ventilation is the reason why it is difficult to cure the poor at their own homes; where a whole family, perhaps, is cooped up in a small room filled with dirty, musty furniture, and in which all their little domestic operations are carried on. The adynamic fever, under these circumstances, is always protracted; the efforts of the physician are baffled, and all the remedies which he can administer, are barely sufficient to prevent the patient losing ground: much less to conduct him to a safe and speedy convalescence. These are truths which plead in favour of those noble institutions—hospitals, and declare how necessary they are to the very salvation of the poor afflicted with the adynamic fever.

* A Succinct Account of the Contagious Fever of this Country. By Thomas Bateman, M.D., F.R.S.

† Commentaries on the History and Cure of Diseases. By William Heberden, M.D.

"Be the patient poor or rich, the first thing to be done is to secure him a good supply of pure air.

"If he is poor, and confined to one room, let all curtains and bed hangings, foul linen, and furniture, that can be dispensed with, be cleared away; let the floor be swept, and all evacuations removed without delay, and fumigate the room with nitric acid, in the way recommended by Dr. Bateman.

"If the patient is in better circumstances of life, he should pass the day in one room, and the night in another; and let his apartments also be stripped of carpets, bed hangings, and curtains; for these retain the fever odour, and contaminate the air. When patients have been confined to the same chamber for several days, the comfort and relief they experience on being removed into another is inexpressible. If they are irritable and watchful, it promotes sleep; if lethargic or comatose, it clears the intellect; if delirious and restless, it procures tranquillity."*

In the same manner, a distinguished member of the profession in the town where we are now congregated, our hospitable associate Mr. Pye Chavasse, thus expresses himself in regard to scarlet fever:

"The system I adopt, in a case of scarlet fever, is to keep the bed-room cool—I may say cold—and to have a thorough ventilation through it: I, therefore, throw open the windows, be it winter or summer, and have the curtains and valances of the bed removed. If it be winter time, I allow the patient to have one blanket and a sheet: if it be summer time, a sheet only to cover him . . .

"I look upon scarlet fever as a specific poison of the blood, which will be eliminated from the system, not by bleeding, not by purgatives, not by emetics, but by a constant supply of pure cool air, by the acid treatment, by cold water as a beverage, and for the first few days by strict antiphlogistic diet.

"Sydenham says, that scarlet fever is oftentimes fatal through the officiousness of the doctor. I conscientiously believe that a truer remark was never made; and that, under a different system to the usual one adopted, scarlet fever would not be so much dreaded."†

Lastly, a leading German surgeon, L. Stromeyer, in his late work on the *Influence of Ventilation in Typhus*, thus expresses himself:

"It is especially necessary that each patient suffering from a severe attack of typhus should be placed alone; that is, that he should not be in the same room with others who are suffering more severely. For it is ascertained by experiment, that even the effluvia of the sick, especially when many are placed together, lead to the development of an intense miasma or contagion, and thus give cause to mutual and repeated infection. This is true not only of typhus, but also of small-pox, scarlatina, granular ophthalmia, cholera, and other diseases.

"It was a great advance in German medicine, when typhus patients were no longer collected in special hospitals, but spread among other patients; but, in order to make still greater advances, and to count on the best results, isolation has been found necessary, for the amount of ventilation which typhus patients require cannot be employed for all other patients.

"It is further a fact, that typhus, however little contagiousness it may have manifested, develops an intense contagion as soon as many severe cases are grouped together.

"In the chamber of the typhus patient, care must be taken to provide for the greatest cleanliness, and a constant current of fresh air must be obtained by artificial ventilation. This is best effected when the sick occupy several small rooms, by having a hole in the lower part of the door, and several small holes capable of being opened or closed in the upper panes of the window. When, in accordance with the weather, either the door and window,

or a window and the hole in the door, or the latter and the holes in the window are opened, the necessary degree of ventilation can be produced. I hope to see the day when physicians will send rather for the carpenter than to the druggist, and so have much more frequently the gratification of not seeing the former ominous artizan introduced at the end of the treatment, to make another apparatus which does not exactly serve for ventilation.

"The operation of a continuous current of fresh air on typhus patients is very remarkable. Very frequently, even within twenty-four hours after the patient has been laid in a well ventilated room, the pulse becomes slower, the heat and dyspnoea diminished, the nights more quiet, the delirium less, and on no occasion have we met with a case in which the patient has desired to escape from his bed or room. As this is a phenomenon often observed in typhus, I have no doubt that the confined air has been the cause of it.

"It seems to me very worthy of notice that the good effects of ventilation do not consist in a diminution of temperature. Ventilation has acted as well in summer, when it has rather made the room warmer, as in winter; and could be spared as little in winter. The utility of it clearly depends on its carrying away the exhalations from the patient.

"There is no objection to warming the room in cold weather, as a chimney is a powerful ventilator; which, however, only acts while the fire is burning, and does not remove the necessity for the other ventilatory apparatus. In each large hospital, we know of some small rooms for typhus patients, but not so many in any one hospital as to permit their remaining in them until recovery. Happily, even this is not necessary; most of our typhus patients lie isolated from fourteen to twenty-one days only, and are placed in another room as soon as, with or without the critical sweat, an evident remission of all the symptoms has occurred. Most of our patients had critical sweats, although they lay constantly in a draught of air, and took neither diaphoretics nor warm drinks—which, in my experience, only prevent perspiration. During the crisis by sweat the ventilation was continued, without any harm being produced even in one single instance, or any interruption being produced to the perspiration, which often continued several days. Only let care be taken not to carry convalescents suddenly into a strongly heated room. We have seen in one case fatal hypostatic pulmonary congestion produced thereby, the patient being previously quite free from fever. It might be thought that the isolation of typhus patients would so much increase the trouble of attending on them, that it could not be carried out in large hospitals. But this is by no means the case. The course of the typhus is by this temporary isolation rendered so much milder, and the coma and involuntary evacuations are either so completely prevented, or cut so remarkably short, that the treatment gives far less trouble."*

Many other writers might be cited who have dwelt upon the good effects of ventilation, but I would particularly refer to Lind, Pringle, Haygarth, Clutterbuck, Edward Percival, Prichard, Tweedie, M'Cormac, and Roupell.

Since this paper was read, an excellent article on Air and Ventilation has appeared in the October number of the *Journal of Public Health*. I would recommend the reader to give it a careful perusal.

The above passages have been quoted to show that, both in past and in modern times, the treatment of fever by pure air has met with direct support from various writers; and my own wonder is how such important passages should have passed so long neglected, and how the principles they inculcate should have received so little application in practice. Speaking individually and from experience, I can and do affirm their absolute truth and utility; nay, I have learned from the steady pursuit of the principles thus verified for not less a period than fifteen years, in upwards

* A Practical Treatise on the Typhus or Adynamic Fever. By John Burne, M.D.

† The Treatment of Scarlatina Anginosa. By P. H. Chavasse, Esq., F.R.C.S. (ASSOCIATION JOURNAL, March 16th, 1856.)

* Ueber den Verlauf des Typhus unter dem Einflusse einer Methodischen Ventilation. Von Dr. L. Stromeyer. 1855.

of four hundred cases of typhoid fever, that in the absence of these principles the treatment of fever is no treatment at all.

CHARACTERISTICS OF FEVER CASES.

That I may not be misunderstood in reference to the class of cases here alluded to, I would draw out a brief outline of the more prominent symptoms by which they are characterised. The cases have most frequently set in slowly and insidiously; sometimes, however, the onset has been sudden and acute. There has been drooping for many days and general languor; a creamy and loaded tongue; an irregular condition of the bowels; a deficient appetite; drowsiness, and a disturbed sleep, ending in the morning without conveying that peculiar restoration of strength incident to a night of healthy rest.

When the attack has come on suddenly, the symptoms have been those of shivering, sickness, headache, pains in the back and limbs, general depression, amounting sometimes to syncope, and loaded tongue.

In either circumstance, the case having set in, the marked diagnostic symptoms of the disease have appeared, the skin has been hot, the pulse quick, the respirations quick and feeble, the tongue tremulous and inclined to become dry; there have been great prostration, flying pains, restlessness, irregular state of the bowels, scanty urine, and sometimes delirium.

In some cases during this period, eruption has showed itself, either in the form of lenticular, slightly elevated rose coloured papulæ, or in less elevated and irregularly shaped maculæ spread over the chest and abdomen. Some of these cases have terminated at an early stage, others have gone on to between the seventh and tenth day, at which time all the peculiar symptoms of fever, which I have already sketched out in my physiological arguments, have become fully developed, have continued from two to even three weeks, and have ended either fatally or by recovery, often in a critical flux from the skin or bowels, though I have seen the kidneys take on a rapid excreting process, which was as marked as the flux from the bowels in other cases.

Of course, in many of these cases very marked affections of a local kind, as they were called, have presented themselves; and I have observed that the same epidemic has often been characterised by the same local complications. The brain has sometimes been the suffering organ; there has always been more or less congestion of the lungs; gastric symptoms have not unfrequently offered themselves; and five cases have ended fatally from intestinal perforation.

EFFECTS OF VENTILATION.

It is, then, from experience in cases of this description, that the practice I now urge so strongly is deduced. My plan has been, first and foremost, to secure free ventilation; and I have thought no sacrifice too great to attain this object. In cases where from the construction of the patient's room—as too often occurs in the bed-rooms of the poor—free ventilation is impossible, where the incubus of the window tax still lingers, and where one wretched hole, perhaps on the staircase, is the only communication through which the occupant can hold converse with the life and light of the universe—in these cases I have insisted either on the removal of the patient himself to a proper hospital, or, if that were impossible, I have had the patient removed to another room below stairs, or even to an out-house, which has been considered none the less advantageous for a few gaps in its walls and roof.

I speak positively, too, in saying that I have never seen anything but good result from these measures; and this sometimes so markedly that the most common-place observer could not but have detected it. If the patient is in the first stage of the disorder, the efficiency of the pure air wards off the second stage; if he is in the second or third stage, the relief is occasionally magical, and can only be

compared to what occurs when, during an experiment, an animal is taken out of a chamber containing some narcotic vapour, and is allowed to breathe the pure elements by which life is supported.

I observe that some authors, who advocate that the room should be light and airy, state that the air should be so admitted as not to be felt by the patient, lest he suffer from a chill. There is no old wives' story more puerile, to my mind, than this hypothesis. It exists only in the minds of men; it breaks down at once when the *experimentum crucis* is made. The point of treatment, says General Inspector Baudens, in speaking of the Crimean fever was, "above all, plenty of fresh air, renewed without cessation."*

My friend Dr. Thomas Dixon, who has recently returned from the hospital at Renkioi, where he saw numerous cases of the Crimean fever, also bears unequivocal testimony to the value of free ventilation as both a preventive and a curative agent.

MEDICINAL TREATMENT.

As I have before intimated, a rational point of treatment, directed to the symptoms, may now and then be of service. Bleeding, blistering, mercury pushed to pyalism, cupping, leeching, sinapisms, antimony, I especially repudiate, and I do not think that any complication occurring during the fever ever calls for them; but I see an occasional indication for a purge at the commencement. I give a refreshing saline drink if the thirst is urgent; and in the lower stages of the disease, provided the patient has plenty of fresh air, there can be no doubt that cinchona possesses a supporting power, and acts in a way which I do not pretend to explain, as a corrector of the secretions, so that wholesome nourishment in the shape of beef tea, milk and water, and wine, which are necessary from an early period, are accepted by the stomach. In addition to these measures, tepid sponging of the body, and strict cleanliness, are valuable.

This, in a few words, is the line of treatment which I have successfully pursued. In one village near Bedford, named Cotton End, during a period of fifteen months, not fewer than sixty cases of the fever I have described were under my care. By strict attention to ventilation, in some cases under disadvantageous circumstances, with the other principles sketched out, but one out of the sixty died—that death being attributable to perforation of the intestine. I make this remark in no spirit of exultation. It is the bare fact, and it is my duty to record it.

If the argument should be used against me—and it is a fair one—that the medical treatment pursued was the cause of the success, I reply, that I have put the medical treatment into force in the absence of free ventilation, and the results have not been the same; that I have tried other plans of treatment in the absence of ventilation (of course before my mind was impressed with the facts now before me) and the results have been so disastrous, that I look back at them with regret. One instance of this kind occurs forcibly to my mind, where, in pursuing the purgative system of treatment, which was then popular and which I had been taught, four cases in one village died, I will not say absolutely from the effects of the purgation, but certainly in such a manner as assures me, after longer observation, that the medicinal plan accelerated the fatal result.

In short, were I ever sick with fever, and allowed to choose between pure air, with nourishing and suitable diet, and all the medicaments of the *Pharmacopœia*, I should choose the pure air and plenty of it, and throw physic to the dogs.

[To be continued.]

* "Avant tout, de l'air pur sans cesse renouvelé." (Journ. de Méd. et de Chirurg., Juillet 1856.)