

that it exerts a very considerable influence on the nerves, both cerebro-spinal and sympathetic, and there is evidence that this influence is of the same kind as that of the remedies just mentioned—viz., that it increases or rouses the contractility of the bloodvessels, and diminishes morbid hyperæmia or flux, if it exist. The paroxysm of ague seems to be essentially a disordered innervation of the vessels, those supplying the internal organs being first affected, and afterwards those of the surface. The poison in this case fixes itself on the sympathetic tracts, while in neuralgia it torments the cerebro-spinal. The same remedies are efficient in both cases for the cure of the disordered action. In cases of neuralgia, one may sometimes observe a transference of the morbid action from the external (sensory) nerves, to the internal, (sympathetic or organic.) Thus, a lady who has had repeated attacks of neuralgia, on two occasions, while under my care, has been suddenly affected with nausea, flatulent distension of the stomach and intestines, accompanied, in one attack, with palpitation and irregular action of the heart. There seem to be all grades of diversity, from pure neuralgia—i. e., mere pain of sensitive nerves—to hyperæmia, and disorder of secretion or nutrition. Sometimes the pain is the sole phenomenon, sometimes the derangement of the circulation and secretion; more often, the pathological state is a complex one, approximating to one or other type. It may be well to cite some examples.

Dr. Vernon has mentioned a case to me which fell under his notice, where, during attacks of pain of neuralgic character, the eye and cheek became the seat of extravasation. The patient was affected with syphilis. The pain would last very severely for forty-eight hours, then begin to remit, and at the same time a blush would appear in the part, which increased up to actual extravasation. Black and blue discoloration subsequently occurred. In this case, which has some resemblance to Dr. Graves's, there was hyperæmia of such intensity as to cause actual hæmorrhage. Minor degrees of hyperæmia are common in frontal neuralgia; the eye becomes red from injection of conjunctival vessels. Hyperæmia sometimes occurs in one part as the result of altered innervation of another at a distance. This is exemplified in the flushing of the face which so often occurs in persons of weak digestive power after meals. The following instance of this state is interesting, from its association with other indications of disordered nervous action:—

Mrs. C—, of rather large, lax habit, about mid-age, mother of five children, daughter of a lady who has had repeated attacks of severe neuralgia, had chorea herself at the age of fourteen. She has much exertion with domestic cares, and her energies are overtasked; she feels that she could sleep much longer than she allows herself to do. Lately her face has begun to twitch, the mouth being frequently drawn awry, so much so that she is observed sometimes to hold it with her hand to steady it. Immediately on eating, her face and neck become quite suffused with blood—crimson—so that she does not venture to dine out. She is wonderfully better in frosty weather. At times she has sensations as if the top of her head were held by tense cords. In this case, there is evidence of disorder of the whole nervous system, the cerebral centre, the sensory, motor, and sympathetic nerves being all affected. The pathological state is one of defective nervous power, with undue excitability, and the tonic influence of cold weather seems to be the most effective remedy.

(To be concluded.)

ON THE USE OF SALT-WATER BATHS IN CHOLERA.

By THOS. HENRY STARR, M.D. EDIN.

HAVING observed some interesting remarks in THE LANCET respecting the virtues of salt as a prophylactic to epidemic cholera, and as the views there published in connexion with that important subject coincide, in a great measure, with my own, I am induced to carry on the argument by furnishing the results of my recent experience thereon, as being indicative of the power and property possessed by salt, not only of warding off the assaults of the pestilence, but likewise, when properly applied, of preventing the fatal effects after it has seized upon the human body.

I should have tendered this communication for publication at an earlier period had I not been led to transmit my statements to the General Board of Health in October last, in compliance with the requisition which was individually addressed to the profession a short time before, urging them to furnish special

information on the disease wherever it was in their power so to do.

I have no doubt it will be allowed that I had reason to feel surprise when, upon examining the Report of the Treatment Committee of the Medical Council, and the classification of the 2749 cases therein contained, I could find no reference whatever made to my contribution, or to any therapeutic method bearing the least resemblance to that which I had adopted with such signal advantage. I did not fail to remonstrate in the proper quarter; but hitherto the omission remains without any satisfactory explanation. Granting that my whole course of reasoning on the matter might emanate from too humble a source to be deemed worthy of official consideration, still I might claim a fair representation of the *facts* as they occurred to me, with a concise statement of the principles which guided me in the employment of a *remedy which proved so eminently successful*.

As it is generally admitted that the treatment of Asiatic cholera in the stage of collapse is a *questio vexata*, still open to inquiry, any practical information which tends to bring that fearful malady under subjection must needs be regarded amongst the most important and valuable contributions to medical science.

As long since as the year 1849 I had reasons for entertaining the opinion, which I made known at the time, that the systematic and persevering use of the strong salt-water bath, at a specific temperature, ranging from 106° Fahr. to 112° Fahr., (the latter being the degree which comes under the denomination of fever heat,) would be found an expedient of uniform and great practical value in the worst forms of collapse, and more especially so when, from our earliest attendance, we find we have to deal with the disease after it has reached the point at which the intolerance of the stomach to the normal action of internal remedies renders their administration futile or even worse than useless. The course of reasoning which drew me to this conviction was founded, to say nothing of the laws of endosmose, on the vital property residing in the skin, of permitting the absorption of fluids into the circulating vessels, as proved by physiological experiments of admitted authenticity, as well as by the many familiar examples of the endemic transmission of therapeutic agents when partially applied. It has been ascertained, moreover, that nutriment may be conveyed through the same channel; and Mr. Erasmus Wilson, in his valuable work on the Skin, says, at page 45, that "instances are on record, in which bathing in warm milk has been successfully employed as a means of supporting life, when the communication between the mouth and stomach was impervious."

The remedial measure which I have tested and found so practically efficacious has the advantage of not requiring internal administration. Indeed I am convinced that those practitioners who exclusively or chiefly rely upon internal treatment in the collapse of cholera will ever be doomed to disappointment in the great majority of such cases, for this obvious reason, that the stomach rejects them *in limine*; and as the blood, from the impetus of the disease, has already parted with the greater portion of its saline and watery constituents, whilst the residue has become cold and stagnant in the heart and vascular system, it stands to reason that our best chance for reaction and recovery depends upon a prompt, vigorous, and well-sustained restoration of its heat, its saline impregnation, and its fluidity. Without further comment I will adduce the evidence which has confirmed my belief, that a favourable result may be almost uniformly accomplished under the worst symptoms of collapse by the comparatively simple and easy process which I have tried and recommend. The proportion of salt I use is about half a pound to each gallon of water.

The sectional outbreak of the pestilence which supplied me with material for this communication occurred here on Sunday, the 30th September, 1854. Its invasion and phenomena were characterized by a peculiar intensity and virulence; its distribution was circumscribed, whilst its existence was transient in the locality where it took place. The houses in which it appeared—viz., Nos. 2, 3, and 21—were crowded with inmates, and probably the least cleanly in the whole street, which is a comparatively obscure one, intersected by the boundary which separates the two parishes of Brighton and Hove.

Two children living on the first floor of 21, Cross-street, respectively named Wm. Moses Glover, aged nine, and John Glover, aged four, were suddenly seized with the epidemic about one o'clock P.M. on Saturday, Sept. 30th, 1854. They both died shortly after midnight, little or no medical aid having been obtained for them.

The next case happened the following day—viz., Sunday, Oct. 1st. The name of the victim was Eliza Stevenson, aged

fourteen. She was attacked, her mother told me, shortly before seven A.M., and, although she received the assiduous attention of the medical officer of the district, she died the same evening, after twelve hours of great suffering.

The fourth case in this neighbourhood was the first which came under my control. The patient's name was Sophia Pyrke, aged twenty-two, a servant out of place, lodging with her sister at No. 2, Cross-street. I was called in to this person on Monday, October 2nd, 1854, near midnight. She had been suddenly attacked with symptoms of the disease less than two hours before. When I saw her the cramps were very severe in the abdomen and lower limbs; the countenance was sunk and anxious; there was a remarkable coldness of the body, including the tongue and fauces, with frequent paroxysms of vomiting and purging of fluids, closely resembling rice-water; the pulse was scarcely perceptible. Other remedies, inclusive of calomel and cordial antispasmodics failing, I had recourse to immersion in hot salt-water at 100° Fahr. Under its influence the action of the heart and pulse speedily rallied, and with the return of animal heat, the other dangerous symptoms gradually abated. The fever of reaction was slight, and this patient recovered rapidly.

The second case I attended was that of Thos. Buckwell, aged forty-three, living on the ground-floor of 21, Cross-street, being the same house where the children named Glover died three days previously. He was attacked with the worst symptoms of the disease on the forenoon of Tuesday, Oct. 3rd, 1854. I gave calomel freely, combined with opiate confection; I likewise gave cordials of various kinds: nevertheless, the characteristic vomiting and purging, with cramps, increased in severity until the evening, when he was completely exhausted, collapsed, cold, livid, and pulseless. Under these apparently hopeless circumstances, I resorted to prolonged immersion of the whole body in the hot salt-water bath, at 110° Fahr., with immediate, signal, and triumphant success. The pulse rose gradually under its influence; both sight and hearing, which had been much impaired, were simultaneously restored; the vomiting and purging became less frequent; the cramps left him, and the dejections soon presented a bilious tinge. The consecutive fever was considerable, and accompanied with a brownish tongue, and slight delirium. In a few days, however, under careful management, this patient became convalescent.

The third case on my list, from its extreme virulence and obstinacy, afforded, if possible, still more conclusive evidence as to the specific value of my mode of treatment. The sufferer's name was Ann Shearing, aged twenty-nine; married, and living in the top story of the house inhabited by the Glovers, and Buckwell—viz., 21, Cross-street. She was seized with general prostration, vomiting, and purging, with violent cramps, on Tuesday evening, October 3rd, 1854. She was attended throughout the night by the medical officer of the district, who sent for me between six and seven o'clock the following morning, when I found the patient in a state of perfect collapse. Her countenance was shrunk, and death-like in the last degree; she was livid, and without the least perceptible pulse; the heart, limbs, and abdomen were tormented by cramps, which came on in paroxysms, as did the retchings, accompanied with copious rice-water evacuations. She complained in a marked manner, but feeble, whining voice, of inability to see or hear distinctly. In this case calomel had been administered in one large, and subsequent small doses, without any palpable benefit. In this unpromising condition she was plunged, with all possible dispatch, in a strong salt-water bath, which I steadily maintained at 110° Fahr. Under its influence the cramps almost instantly vanished. The heart's action became gradually excited, and the pulse at the wrist returned. I watched the rise and progress of the returning circulation and functions with intense interest and satisfaction; and with a succession of facts like those I have recounted staring me in the face, I could draw no other conclusion than that the brine bath, approaching fever heat, is a practical remedy which more effectually mitigates the sufferings, and approaches more nearly to the character of a specific, in the collapse of cholera, than any other with which I am acquainted; and I believe I have investigated the merits of them all. After being in the bath for half an hour, the patient was lifted out, and laid between hot blankets. The vomiting and purging had sensibly diminished in violence and frequency, whilst the dejections soon showed a bilious discoloration. The arterial action and general warmth of the frame seemed to be well established. This improvement, with slight fluctuations, continued till the following morning, when the patient showed signs of relapsing into the worst stage of the disease. Without hesitation I again had recourse to immersion in the hot salt-water bath, the curative effects of which were even more conspicuous and decisive than at first, inas-

much that the symptoms and danger were effectually and permanently subdued by it. The febrile reaction which ensued, though protracted for several days, was of a moderate kind, and by the expiration of a week this patient was quite convalescent.

I might add to the foregoing cases that of Elizabeth Glover, aged twenty-six, mother of the two children who first died. She was affected with the worst symptoms of the epidemic, and became my patient. She suffered very severely, and her recovery was mainly due to the hot salt-water treatment.

During the same week there were two elderly people, named Martin, carried off by the Asiatic cholera, which ran its course very rapidly. They occupied the top floor of one of the infected houses—namely, No. 3, Cross-street. I was not concerned in the management of those cases, and I only adduce them as additional and undeniable proof of the malignant nature of the disease as it appeared in that locality.

I might strengthen the testimony in favour of my remedy, by adducing the case of an elderly woman, named Richardson, whom I attended a fortnight before in Upper North-street, Brighton; suffice it to say, at my first visit I found her rapidly advancing in the collapse of cholera. Her cure was brought about principally by the external agency of strong salt water at a very high temperature.

The internal remedy (if so it may be called) that I found most useful in the collapse, was Wenham-lake ice. My patients said it materially assuaged their sufferings, and strange to relate, "warmed" them. Its *modus operandi* seems to me to depend upon the astringent, or constrictive property of cold, by reason of which it restrains the morbid elimination of serum from the gastro-intestinal mucous surfaces. I then used it simultaneously with the hot salt bath, the good effects of which it appeared to promote.

With regard to treatment in the premonitory stage, that is, anterior to collapse, I may observe that I arrested the disease at its onset in three, if not four, cases which occurred in the infected quarter, by the administration, not of tartar emetic or ipecacuanha, but by stimulant emetics, consisting of salt and mustard, in equal proportions, followed by an active dose of calomel.

Lastly, it is worthy of notice, that the ravages of the pestilence were confined to three houses in Cross-street. Whether this interesting result depended on the disinfecting measures that were adopted, I cannot positively determine, but I am inclined to believe it was so, as I effectually fumigated them from the basement to the roof with chlorine gas, copious volumes of which I obtained by pouring one part of strong vitriol on a mixture of two parts of black oxide of manganese, four of salt, and one of water.

Montpelier-road, Brighton, 1855.

SECONDARY FRACTURE AND REUNION OF THE FEMUR, SHORTENED TO THE EXTENT OF FOUR INCHES;

COMPLETE RESTORATION OF THE LIMB TO ITS NORMAL CONDITION.

By JOHN WIBLIN, Esq., F.R.C.S.

IF we cast our eyes over the shelves and corners of our old museums, abundant are the specimens of bones bearing evidence of the imperfect surgery of the past century. Broken femora, overlapping to the extent of three or four inches, or ununited at angles more or less obtuse; tibiae twisted from the straight line, which have been content to seek a partial but permanent union with their companion bone, the fibula; and other examples in which the two bones are jammed together, to the entire obliteration of the interosseous space; fractured radius and ulna, in which union has set at defiance all power of recognition of Nature's outline, and in which the fullest limit of the surgeon's boast could be that he had saved the patient's limb from amputation. But the surgery of fracture is improved, and except in cases of peculiar difficulty, arising from comminution of bone, or from severe injury to soft parts, and equally great interruption of the curative process; the nearly perfect restoration of bones is now the prevailing issue, not the exception.

I think it will not be denied that the farther we examine into the machinery of Nature, as exhibited in the construction of the human body, the deeper we penetrate in our study and observation of its machinery, which the employment of the improved microscope of recent days has afforded us the means of doing, at the same time that its great powers have stimulated