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HYDRO-THERAPEUTICS

OR THE

WATER CURE,

CONSIDERED AS A BRANCH OF MEDICAL TREATMENT;

BY

DR. WILLIAM MACLEOD,

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH; PHYSICIAN

TO BEN-RHYDDING.

"To some it may appear that the method which I adopt is based upon insecure foundations. I am, however, on my own part, fully convinced, and I truly affirm, that it is altogether proved by a manifold experience." SYDENHAM.

LONDON:

HAMILTON, ADAMS & Co.

BRADFORD: J. DALE & CO.

1855.

"As truly as the physician may collect points of diagnosis from the minutest circumstances of the disease, so truly may he also elicit indications, in the way of therapeutics. By this ladder, and by this scaffold, did Hippocrates ascend his lofty sphere—the Romulus of medicine, whose heaven was the empyrean of his art. He it is whom we can never duly praise. He it was who then laid the solid and immoveable foundation for the whole superstructure of medicine, when he taught that 'OUR NATURES ARE THE PHYSICIANS OF OUR DISEASES.' Now, as this theory was neither more nor less than an exquisite picture of Nature, it was natural that the practice should coincide with it. This aimed at one point only—it strove to help Nature in its struggles, as it best could. With this view, it limited the province of medical art to the support of Nature when she was enfeebled, and to the coercion of her when she was outrageous. The great sagacity of this man had discovered that Nature by herself 'DETERMINES DISEASES, AND IS OF HERSELF SUFFICIENT IN ALL THINGS AGAINST ALL OF THEM.' This she is, being aided by the fewest and the simplest forms of medicine. At times she is independent of even these." *Vol. 1st, page 16 of the Works of Sydenham, published by the Sydenham Society.*

NOTE.

The following letter was not written for publication, and it is only now printed at the express desire of the gentleman to whom it was first addressed; hence the incompleteness of it, and the condensed form in which my views are stated. In the few sentences upon the pathology of disease I fear some may object that the views there expressed are too limited to include all diseased phenomena, and that I have not sufficiently distinguished between the chemical and the molecular forces. There is some ground for the objection. But to have entered into these subjects in detail would have required, not a page or two of a letter, but a book.

The number and the length of the quotations I have given also requires explanation. To have stated in my own words, as I might very

easily have done, the views which are expressed in those quotations would not have suited my purpose. For my main object throughout this letter is, to show that the system of treatment which I have adopted is based upon pathological views which are held by acknowledged authorities in the profession, and not upon any fanciful hypothesis of my own.

BEN-RHYDDING,

September, 1855.

BEN RHYDDING, OTLEY, YORKSHIRE,

27th June, 1855.

DEAR SIR,

After about twelve years cessation of friendship, your letter received this morning renews our acquaintance. The associations which your well-known handwriting brings to my mind are strong and varied. Do you remember the last time we conversed together? It was in Professor Munroe's dissecting room where my beloved Master, Friend and Teacher, the late Professor John Reid, held and watched the Hemodynamometer fixed in the femoral artery of a large mastiff, and I at the same time held the stopcock in the animal's windpipe turning his breath on and off as I pleased—for no idle purpose certainly, but to discover how far the functions of a part regulated the circulation of blood through that part. You looked on as did also many others; but we were the operators. How many changes have occurred to both of us since that time. You now hold a high position in orthodox practice; whilst I am associated in the minds of the majority of our profession with the equivocal. And yet you can testify that I loved the dissecting room more than many did, and studied diseased structures in the morbid anatomical theatre with a devotedness which attracted the notice of some to whom we both looked up. But I was born to doubt. I could not be satis-

fied without a better reason for any opinions which I adopted, than merely that they were generally held and taught in our schools. Hence the views which I now hold, and which have separated me from some with whom I was once associated and whom I still regard. But I am full of hope. Friends may differ, and doubt for a while may enter our soul in regard to the sincerity of a friend's purpose; but let each be true to himself, and, as the wheel of time passes round, those who have been estranged for a while begin again to know each other better, and to love each other with a deeper and a holier, though, perhaps, a sadder feeling than before. And I confess that it was gratifying to me to read in your letter, after our long separation, so kind a sentiment regarding myself as this—"I always entertained the opinion that you would disperse the cloud of doubt which surrounded your professional position."

In your letter you ask me to give you my opinion of Hydrotherapeutics, and to state what position I expect it will take in medicine. I shall endeavour to do so as faithfully as the present state of the subject will permit. But before doing so, it will be necessary for me to give you, in a sentence or two, an outline of my views on Pathology.

The vital force regulates, guides, and forms into a unity the various parts of the living organism; while chemical affinity produces the local changes. These two forces are antagonistic to each other; the one supporting vigour in the frame, the other leading to decay. A proper balance between them is health. We have thus two powers in the living organism—the molecular power and the vital force. The vital force is regenerated out of the molecular, through the process of nutrition, and this process is kept up in its efficiency by

means of a regulated supply of healthy nourishment, a suitable amount of external natural stimuli, and a well-regulated performance of function. The consequence of a diminution of the vital force and the additional freedom of molecular action thereby permitted is a diseased state. Under this general term I include, over-increased waste of tissue, diminution of the nutritive force, degeneration of structure, and all specific diseases. It is by means of the vital force that health is retained, and it is this same force which restrains and subdues diseased action. All diseased actions commence in weakness, the seat of which is in the molecules of the living fluids and tissues. Remove this weakness and at the same time give to the part its proper vigour, and restoration to health is the result. To effect these objects is the duty of the physician; and how this is to be done is the problem given him to solve.

In the earliest condition of the human race, before the organism became tainted, a properly regulated application of the natural stimuli would be sufficient to overcome diseased actions. But from the artificial state in which society has long lived and still continues to live, man's constitution has become so affected as not in all cases to permit of an application of the natural stimuli to a degree sufficient to produce health. For when the molecular force is strong, and the vital force comparatively weak, to endeavour to remove disease by natural Therapeutics alone would occasion over waste of structure—the result of too great action—and so, instead of strengthening the nutritive force, would only tend to weaken it still more. The employment of the natural stimuli alone is therefore not sufficient in all instances to restore healthy action; nevertheless, they ought always to be employed in every disease as at least a therapeutic adjunct.

HYDROTHERAPEUTICS was first discovered (and a great discovery it was) by a remarkable but an ignorant person, Priesnitz. His immediate followers were equally ignorant, and they did not possess his powers of observation. The natural consequence of this was, that when they saw how frequently health was restored, by the application of water, to persons considered incurable, they asserted and believed that "Hydrotherapy" would overcome and remove every diseased state. When I became Physician to Ben Rhydding nine years ago, this opinion was so strongly entertained, that when I refused to confine my treatment to the water cure alone, and resolved instead to employ, as I should find necessary, any of the therapeutic agents in the *Materia Medica*, the downfall of Ben Rhydding was prophesied, and I was then looked upon as ignorant of the merits of "Hydrotherapy." Indeed, eleven years ago, that system of cure was in a sadly crude state; and I fear that even still it is too much so among the majority of its Professors. Had I not possessed the pathological views which I have just sketched, I should most certainly have shunned "Hydrotherapy" in all its forms, with the same disgust with which you once did. Hydrotherapy, as practised by the immediate followers of Priesnitz, we shall denominate the empirical, because it was employed for the purpose of removing diseased symptoms without a due regard to the powers of the organism, and therefore, necessarily, irrespective of ulterior consequences. But the application of water, regulated by physiological and pathological laws, we shall denominate HYDROTHERAPEUTICS. Scientific Hydrotherapeutics has for its aim to remove diseased actions through a nutritive restitution when this can be done. But it never on any occasion so employs natural stimulation as, even for a few hours, to increase waste beyond the constitutional powers of the

organism. Hydrotherapeutics, guided by this conception, retards decay, while it generates the portion of animal heat dependent upon vigorous nerve power; for I entertain the opinion, that the existence of animal heat in the frame depends upon two distinct causes,—nerve force and chemical action. Writers on Hydropathy explain their mode of treatment by over-increased waste of tissue, and sufficient supply of nourishment. This opinion I conceive to be erroneous, as quantitative experiments made upon the amount of matter excreted by patients while under treatment, show that it is usually not more than what takes place during active exercise in health. The water treatment seems rather to bind the molecules more firmly together, and in this way develops heat, while at the same time it does not prevent the amount of waste necessary to the sufficient development of vital force.

DISEASED ACTIONS may be classed, for practical purposes, under the following heads:—

First,—Those diseased actions in which the skilful application of the natural stimuli is sufficient to remove all morbid symptoms. Under this head I include all diseases in which the nutritive force is capable of elevating the vital force sufficiently to subdue morbid action. These are affections in which the vital force is too weak sufficiently to control and retard the chemical;—that is, there is a tendency to a more easy decomposition of the living structures than is consistent with their vigorous action. We have this state illustrated by weakness of the mental faculties through over-use of the brain; by the physical results consequent upon great anxiety, and upon too lengthened bodily exertion. It is also illustrated by diseased actions which are the result of medicinal substances retained in the system, and of morbid matters

generated there; by severe irritation of one or more of the organs of the frame; and by fever.

Secondly,—Those diseased actions in which, in addition to the employment of the natural stimuli, the assistance of highly reparative agents is needed for the restoration of health. Under this head I include all those diseases in which the nutritive power is weak, and the molecular is but feebly controlled by the vital force. These are consumption, scrofula, chronic gout, rheumatic gout, and the results of too close intermarriage, &c.

Thirdly,—Those diseased actions for the removal of which, in addition to the application of the natural stimuli, the special therapeutic actions of medicines are required. Under this head I include all specific diseases of structure, or of the nutritive fluids; such as gout, inflammation of the brain, lungs, liver, &c. For although these last organs may be merely inflamed, yet the character of the inflammation in each is different, and depends as much upon the nature and function of the parts affected, as upon the causes by which it is produced.

Fourthly,—Those diseased actions which call for the direct application of natural and artificial stimulants to structures and parts within reach.

This classification of diseased actions gives us the following classification of treatment.

First,—The Hydro-therapeutic, or the “Water Cure.”

Secondly,—The Analeptic, or Reparative.

Thirdly,—The special Therapeutic.

Fourthly.—The Local.

I shall briefly consider each of these kinds of treatment in the order in which I have mentioned them. And

First, of the HYDRO-THERAPEUTIC. By this mode of treatment I understand the suitable application of water in various ways at different temperatures, and with different degrees of force, to the surface of the body, together with the internal use of water. With this I associate gymnastics, dietetics, regulation of habits. This section of treatment is second to none in its importance, or in the knowledge required for its safe use. Its aim, as I have already stated, is to give strength to the nutritive force; to give vigour to the nervous power; to regulate the circulation of the blood over the entire surface of, and within, the organism; to prevent, or to stop when it has commenced, the formation of lower structures in the place of higher ones; and to hasten the removal of extraneous and effete matters from the system, either through boils on the surface, or by insensible perspiration, or by means of diarrhœa, or through the urinary organs. The following cases will illustrate these different points.

Mr. G., aged 36, and of vascular temperament, was able, up to the period of ill health, to go easily through a good deal of labour. His spirits were at the same time cheerful. For six months, about two years ago, he had a great deal of anxiety and grief. From that time he felt himself becoming gradually weaker, and more nervous. He felt giddy when he had anything important to do, or when he remained for a length of time in the same position. He had a general tremulousness over the body, and the muscles of the legs twitched and vibrated. He had at all times a degree of agitation over the frame. He awoke with a fluttering at the region of the heart. He was unable to take much exercise. After even half an hour's walk he felt much exhausted, and this exhaustion continued sometimes for a couple of days.

All the organs of the body acted healthily but with small power. The heart's beat was feeble and quick. The pulse small. This patient had tonics of various kinds given him, but they excited him too much.

This case is an example of deficient nutritive power, with debility of the nervous system, and a loose holding together of the elementary components of tissue. By means of gentle tonic and soothing hydrotherapeutic treatment, I was enabled gradually to restore this patient to complete and vigorous health. In his case the vital force was only latent, and therefore, it was capable of being sufficiently developed to overcome the molecular tendency to disintegration. The irritated state of the nerves which regulate function, prevented his taking tonic medicines; but he could be subjected to natural stimulation because the nerves were at once soothed and toned by it—a result which artificial stimulants could not effect.

Mrs. N. aged 58, nervous temperament, had been ill from palpitation of the heart for six years; could rarely sleep for any length of time, in consequence of the palpitations, and often, when walking, was obliged to stand still, and lay hold of something, or lay herself down; or else, in her own words, "I feel as if my heart would stop beating." She was unable to walk many yards, even on a level surface, without suffering from palpitation. The beatings of the heart were rapid, weak, and soft; and the sensation given to the ear by the contraction of the heart was that of a sort of flabby sound. This case was diagnosed by two Physicians in London, and by one Physician in Edinburgh, to be a fatty degeneration of the heart; and I am certain that the diagnosis was correct. The profession generally, I believe, consider these cases incurable; but I am led to entertain a more hopeful opinion. Indeed

I am certain that I have cured, at least, seven well marked cases of this complaint.*

* Since this sentence was written I have found the same opinion given by Mons. G. B. Duchenne de Boulogne, in his work, "*De l'électrisation Localisée, et de son application à la Physiologie, à la Pathologie, et à la Thérapeutique.*" p. 138. 1855.

"L'atrophie musculaire graisseuse progressive se généralise-t-elle toujours et se termine-t-elle fatalement par la destruction, comme semble l'indiquer la dénomination qui lui a été donnée par M. Aran? Existe-t-il, au contraire, un agent thérapeutique capable de l'arrêter dans sa marche?"

C'est par des faits seulement que je veux répondre à ces deux questions, choisissant les plus graves parmi ceux que j'ai recueillis, ceux, en un mot, qui me paraissent les plus propres à résoudre ce problème.

Quand on a vu mourir un à un, pour ainsi dire, les muscles de ce pauvre saltimbanque dont j'ai rapporté la triste histoire, pages 480 et 556, obs. LXII, et chez qui les organes essentiels à la vie étaient restés dans la plus parfaite intégrité, et cela malgré les médications les plus diverses, on accepte dans toute sa rigueur le sens de la dénomination fatale *d'atrophie musculaire progressive*, dénomination qui veut dire; maladie qui, une fois déclarée, marche toujours, quand même, vers la destruction.

Telle était, je dois l'avouer, l'opinion que je formulai en 1849, dans mon mémoire sur l'atrophie. Cet affligeant pronostic avait été porté par moi principalement sous l'influence de l'impression que me fit l'histoire de ce capitaine au long cours, dont j'avais recueilli alors l'observation, et dont il a été question dans ce livre, (p. 459). Cet homme avait aussi la conviction que sa maladie devait le conduire au tombeau, et il faisait entendre ces tristes paroles, qui se sont gravées dans ma mémoire: 'Le jour où j'ai vu, me disait-il un commencement d'amaigrissement dans une partie de mon corps, j'ai compris que j'étais perdu; car trois membres de ma famille, (un frère et deux oncles maternels) avaient succombés à une maladie qui a commencée et marchée comme la mienne. J'ai encore deux frères qui s'attendent au même sort. C'est une maladie de famille!' Ses pressentiments n'étaient que trop fondés; puisque quelques jours plus tard, il mourait asphyxié comme le saltimbanque, faute de muscles respirateurs. A côté de ce fait, j'en pourrais placer quelques autres tout aussi tristes, que j'ai observés depuis lors, et qui justifieraient encore mieux la gravité de mon pronostic.

The treatment I pursued in the above case was as follows. (I only give a summary of it here, and not a detailed account of it as it was prescribed from day to day.) *First*, friction over the region of the heart with the hand and cold water for twelve minutes, morning, noon, and night. To wear a wet handkerchief covered with a dry one over the region of the heart for two hours, twice a day. To have a wash down with water at 60° once a day; to take a foot-

Mais si je n'avais que des histoires aussi lugubres à rapporter, je ne viendrais pas aujourd'hui proclamer l'impuissance de la thérapeutique; j'attendrais de nouveaux essais, des tentatives plus nombreuses, avant de faire un aven aussi désespérant.

Le lecteur doit comprendre par ces dernière lignes que jusqu'à présent, je ne lui ai fait voir que le côté le plus sombre du tableau; il prévoit déjà sans doute, que les recherches électro-thérapeutiques auxquelles je me suis livré sans relâche depuis 1849, ont heureusement modifiés le pronostic que je portais à cette époque sur l'atrophie musculaire progressive.

Je crois, en effet, pouvoir affirmer aujourd'hui que cette maladie, quoique déjà généralisée, peut être arrêtée dans sa marche, alors même que les malades sont placés dans des conditions où elle peut se développer; que non-seulement on l'arrête mais encore qu'il est quelquefois possible de rappeler la nutrition dans des muscles arrivés à un degré très-avancé d'atrophie, pourvu toutefois que le muscle ne soit pas altéré dans sa texture.

Or, il résulte des faits exposés précédemment, (3^e Partie, Chap. V.): 1^o Que, dans cette affection, la transformation graisseuse commence à se produire seulement dans la période ultime, qu'on peut appeler période de transformation. 2^o Que la période qui la précède, (période d'atrophie), qui est caractérisée par des contractions fibrillaires et par la conservation de l'irritabilité, à une très-longue durée.

En conséquence, aussi longtemps que les muscles conserveront les contractions fibrillaires et leur contractilité électrique, et aussi longtemps que durera la période d'atrophie, il sera permis d'espérer de les sauver d'une destruction complète, et peut-être même de les développer plus ou moins en y rappelant la nutrition, et cela par la faradisation localisée."

bath noon and afternoon, at 63° for eight minutes. To drink the fourth part of a tumbler-full of water after each rubbing and bath, and also every third hour during the day. To have the heart percussed, and to have the milder therapeutic movements for twelve minutes once a day. To be out a good deal, and to take short drives in an open carriage. To sleep upon a mattress and hair pillow. Breakfast, new milk and bread. Dinner, one moderate helping of roast beef or mutton, a little gravy, brown bread, and the fourth part of a tumbler-full of water. Evening meal, new milk and bread. *Secondly*, spouting of the back three minutes at noon; sitz bath ten minutes in the afternoon; morning, dripping sheet and shallow bath alternately. To walk a good deal, but still to be careful to avoid fatigue. To ride at a slow pace on horseback over the moors. To increase the quantity of food. To take a short ramble every morning before breakfast. *Thirdly*, morning, shallow bath, cold, from two to three minutes. Noon, every second day, rain bath half a minute; intervening noons, sitz bath for twelve minutes. The rubbing and wet compress over the region of the heart continued. Plenty of nourishing food. To be lightly clad. To be almost always on the moors, either on foot or on horseback. This patient was restored to health.

By this plan of treatment I was enabled to elevate the assimilative force, to retard the progressive degeneration of the tissues, to give a new and increased impulse to the vital force, and so, by gradually ascending steps, ultimately to replace the fatty degeneration with a healthy muscular structure. No artificial stimulus could effect this. It could only excite; it could not develop. Indeed it could only make the affected part capable of being more readily changed by the action of the natural stimuli.

Miss T. aged 25, of light complexion, and very feeble, had been suffering for two and a half years from retention of the monthly periods which previously had been regular though scanty. Body much emaciated. Face and head puffed. The eyes very yellow. Skin constantly covered with moisture. Pulse 125 beats in the minute. Severe palpitation of the heart. No appetite. Bowels never moved without medicine, and what was passed always of a white clayey colour. A great deal of leucorrhæa. Feet swelled. Not able to walk more than a few yards at a time.

Treatment. *First*, dripping sheet noon and afternoon. To have the stomach rubbed with the hand and cold water for fifteen minutes morning and night. To wear a wet compress covered with mackintosh round the stomach during the day. To drink five tumblers-full of water during the day. To take no warm drinks. Food to be plain and nourishing. To eat only three times a day. *Second*. Morning, shallow bath one minute; to be well rubbed while in the bath. Noon, towel envelope thirty minutes, and dripping sheet. Afternoon, sitz bath ten minutes. To take out-door exercise. To have therapeutic movements of the inferior extremities for ten minutes, twice a day. Otherwise as before. *Third*. Morning, at six, shallow bath ten minutes. To walk out for an hour afterwards, and to drink two tumblers-full of water before breakfast. Noon, every alternate day, envelope thirty-five minutes and shallow bath afterwards; intervening days, sitz bath twenty minutes. Every afternoon, sitz bath twenty minutes. To take horseback exercise daily.

This patient, in three months' time, became quite well. The monthly discharge returned freely, and the bowels operated daily, the excretion being of a natural colour and consistency. Her appetite became excellent, and she gained two stones in

weight. The puffiness of the face, the pallidity of the skin, and the swollen state of the feet, entirely disappeared. I need make no remarks upon this case, as it speaks so plainly for itself.

A. B. aged 40, of slim make and nervous temperament. When a young man, went out to India as a cadet. Soon after his landing there he had a very severe attack of dysentery. To stop the progress of the disease large doses of mercury were prescribed in rapid succession. He recovered; but in a few months afterwards had an attack of yellow fever. Again mercury was prescribed frequently and in large doses. He recovered from this attack of fever, but was left so shattered in his constitution, that he was no longer capable of performing his duties, and in consequence was obliged to return to England. For twenty-two years he had been an invalid, and was so liable to take cold, that he dared not go out except in the mildest weather, and then only when encased in flannel. So susceptible was he of cold, that unless his room was kept at a high temperature, he became ill. He suffered miserably at times from depression of spirits, and then even the presence of his wife occasioned increased sadness. His intellect was good. Had taken iodide of potash, and other remedies, but mercury not once these twenty years. He took a simple aperient pill every second night. Before leaving this country for India he was in robust health.

This gentleman came under my care in the month of July, 1848, and I placed him under a mild course of hydrotherapeutic treatment. Under this mode of treatment he began gradually to improve; he became stronger, and was able to walk about almost every day at noon; his appetite returned, and his bowels were moved naturally, although only slightly every third day. He continued to improve for about six

weeks. On the evening of the seventh week I was called to see him as he did not feel at all well. He continued to get worse for two days: his spirits became much depressed; he wept like a child, and all hope of cure seemed to be extinguished within him. On the evening of the second day of this attack, a slight odour was perceived to come from his person. On the following morning the odour had become offensive. It was unmistakably the odour of salivation, and as offensive as I had ever before perceived in any patient. Saliva began to pour from his mouth, and jug after jug was filled with it. He continued in this state for three days, when the salivation began gradually to decrease; and in a week it entirely disappeared. After the termination of this attack, he had for a while those joyful spirits which belong more to childhood than to mature age. Such unalloyed sensations he had not once felt since his return from India. His bowels now acted more freely. He was able to throw off a great deal of his flannel coverings. He was able to sleep without a fire in his bedroom. He continued in this state for about three weeks, undergoing treatment all the while. His spirits then began to flag; he became restless and irritable, his bowels were constipated, and his appetite failed. He was unwilling to go out, and he wished again to put on his flannels. In a few days after these symptoms had come on, a red, itchy, papular eruption appeared under the compress, and gradually extended over the entire body. The same sort of odour was again perceived to arise from the person; the salivation again showed itself; the spirits became saddened; and from the severity of the heat and irritation over the whole skin, occasioned by the acute eruption, he was unable to remain one moment at rest. So severe was the itchiness of the skin, that I was obliged to give him an envelope for forty minutes four times

a day. This treatment soothed the eruption, and the patient felt stronger after each pack. The attack gradually passed off as before, and he was left, (to use his own expressive words,) a "new man."

This gentleman remained under treatment for eight months. During that period he had three more attacks, but each one was milder than that which preceded it; and before he left me, he had thrown off all his flannels, had no fire either in his sitting room or bed room, took all his baths cold, was able to go out in all weathers, mounted the hills as early as six in the morning, and wandered over them for hours together. He gained three stones in weight; and he slept so soundly, that he never turned round once from the time he went to bed until he rose in the morning at half-past five. This gentleman still continues well.

A. E. aged 43, married; vasculo-nervous temperament. Had, when young, a good constitution. Took high honours at Oxford. Had been a severe student while there, and for two years after he left it used to study fifteen hours a day. At length he became nervous and his bowels very much constipated. For this latter complaint he took a compound colocynth pill, —at first once a week, then twice a week, then every other night, and at length every night. His stomach became deranged, and his physician prescribed for him tonics, and blue pill with a purgative in the morning. "My memory," he said, "now became very bad, my head confused; a misty veil seemed to extend over the front of my brain. I went and travelled in the East, but with no benefit. I then tried several of the baths on the continent, but with just as little advantage. In Naples I was recommended by an English lady to take some patent pills, which she stated had done her so much good. I took them, and at first I derived benefit from their use.

Indeed, I fancied I was to be well in no time. My head felt clearer, my strength was better, and my spirits lighter. I continued taking these pills every night for about two months, when they began to lose their effect. I increased the dose, and once more I felt myself improving. I continued to increase the dose, until I took thirty every night. At last it became so troublesome to swallow the pills, that I had them dissolved in about the fourth part of a breakfast cup-full of water, and in this way I took my dose every night. I persevered in this treatment for fully two years, during which time I took fifteen thousand pills. I gradually became worse, and now I am miserable and useless."

This gentlemen came under my care in August, 1852. He looked then careworn; his features were pale, wrinkled, and haggard. He appeared as if he had shrunk into himself. Had a deep, settled pain on the top of his head, and a thick, misty haziness over the front portion of the brain. He had frightful and horrible thoughts. To use his own words again, "I dare not read my bible, or hear it read, my thoughts are so bad. I dare not tell them to you. I do not sleep above two hours at night, and then my sleep is restless, and my dreams frightful. My life is a misery to me. All good seems to have left my soul. I have no memory. I cannot grasp my ideas. My thoughts pour through my brain like water through a hole in a barrel—I have no power over them." Tongue, pale, soft, swelled, and covered with a thickish white fur. He had a bad taste in his mouth in the morning. Appetite, variable; sometimes voracious, and at other times he had none at all. Had great flatulency and acidity of stomach. Bowels never opened without medicine. Enemas had no effect upon them.

This gentleman underwent a course of hydrotherapeutic

treatment for a lengthened period. During the first three months, he scarcely improved at all. But at the end of them he had a severe diarrhœa for four days. It commenced suddenly, and stopped as suddenly. The odour from the matter evacuated was horribly offensive. After the diarrhœa he felt a great deal better in bowels and stomach; but the head symptoms were in no way improved. Four weeks afterwards, an eruption came out under his abdominal compress. The odour from this eruption was exactly similar to that of the vapour of aloes and scammony; and his compress became filled with a substance having a similar smell. So great was the quantity of matter eliminated, and so strong the odour, that the patient was obliged to rinse out his compress every hour; and every time he did so, a dark brown substance, like lightish-coloured finely ground clay, remained at the bottom of the basin. At the end of the fourth day, the secretion had very much diminished; and on the seventh day, it had entirely disappeared. This fœtid matter was eliminated by the abdominal compress about every five weeks, for several months. After that time, large boils began to break out on different parts of the body, and they continued to appear for about three months. The pus of these boils had an offensive odour, was thick, and of a darkish green colour. The patient now felt himself well. His appetite was good. The dyspeptic symptoms had disappeared; the bowels operated of themselves daily. The head symptoms were greatly improved. He could now read his Bible with comfort. This gentleman, fearful of a relapse, remained under my care for months after he was apparently cured. Before he left Ben Rhydding, the head symptoms, and the uncomfortable ideas, had entirely disappeared. His memory became gradually stronger and stronger. And at present he holds a living in the Church of England, and

performs his arduous duties vigorously, and with comfort to himself.

The two cases just described illustrate the fact, that medicinal remedies continuously taken for some time remain in greater or less quantity, and for various periods, in the system, and that their presence either occasions diseased actions, or prevents their removal when present. The baneful effects of medicines, in this point of view, have not been sufficiently considered by the profession. Medicines may, I believe, be given in pretty large quantities for a short time without producing any very mischievous consequences; but when they are continued for a lengthened period, the results produced are serious. In the one case, the vital force has power of itself, without any applied stimulation, to eliminate the medicinal substances. But in the other it is not so; for when the medicines are continued for a lengthened period, the organism loses that power, or perhaps it becomes habituated to the drug; and then the drug being no longer entirely thrown off, portions of it remain deposited in one or other of the tissues or organs, where it does not necessarily exert any medicinal influence, but merely by its presence deranges the system, or modifies or lowers the functions of the organs in which it is deposited.

In the first of the two cases which I have last described, we see the continued influence of the drug present, though not always necessarily in action. We see it making the individual worse than a hothouse plant, wretched in himself, and to his household a disagreeable and testy companion.

The second case is so far important, that it indisputably proves that vegetable medicinal substances may be retained within the system, and while there, may produce, even long

after the patient has ceased to take them, serious and baneful effects upon the functions of the organs on which they specially act, and ultimately upon the whole organism itself. It is thus that the long continued use of opiates affects the brain and heart for years after they have been given up. Mercury has a similarly injurious effect upon the liver, and so also have purgatives upon the action of the bowels. It is not merely that these medicines so derange the tissues of the organs as to prevent them from acting in a healthy manner after their use has been given up, but it is likewise, I believe, in consequence of these substances remaining in the organs that their functions are so modified.

A lady who had taken tincture of opium and hyoscyamus in large quantities for about twenty years, voluntarily placed herself under my care, in order to be able, if possible, to overcome this habit. After six months residence with me, the habit was completely mastered, and the lady returned cured to the bosom of her family. She still continued, however, to complain of many of the symptoms she had experienced when in the habit of taking opiates. One symptom was, that she had no consciousness of moral right or wrong. She did what was right more from an artistic than from a moral sense; and she disliked doing what was wrong, because there was a sort of unfitness about it, and not from a consciousness of anything being morally wrong in the act itself. Another symptom was extreme suspicion of every one and every thing; and although she strove to overcome this disagreeable feeling, still it mastered her. There was also constantly a disagreeable sensation in the region of the heart, sometimes as though it were about to burst its barriers, at other times as though the heart were about to refuse to act;

and again the sensation was such as to make it appear to her that the blood in the heart, and the heart itself would be pushed into and out of the mouth. Now and then a peculiar nervous tremor came over the whole frame, and then there was at times a feeling as if sunlight were too great a stimulant for even the nerves of common sensation. This lady had none of these symptoms until the habit of taking opiates had lasted for nearly ten years. I recommended her to place herself under treatment and to remain until a crisis was produced. She did so; and after a while a crisis was produced in the shape of boils, which came out and continued for nine weeks. After this all the uncomfortable and disagreeable head symptoms became fainter, and those of the heart were likewise diminished, although none of them had entirely disappeared. All the symptoms and disagreeable sensations, however, continued gradually to become weaker and weaker; and I have learned, only lately, that with the exception of a little palpitation now and then, the lady is now quite restored to health.

A gentleman, about 38 years of age, came under my care for great debility, faintness about the heart, and unhealthy state of the fœces. He was much emaciated. His eyes and skin were tinged with bilious matter. The heart was feeble and sluggish, and its contraction gave to the ear a sensation as if its muscles were flaccid. His bowels were torpid, and his stools of a clay colour. He had taken blue-pill, taraxacum, and nux vomica to stimulate the liver to act, and different preparations of iron in order to give tone to his frame; but none of these medicines had any effect either upon his liver or upon his constitution. When this gentleman came under my care I gave him no medicine, but put him under a mild course of hydrotherapeutic treatment. For about five weeks he made but little improvement. After that time he

began to gain some strength. His skin became a little clearer; his appetite less variable. His stools, however, presented the same clayey appearance. When he had been under the treatment three months, the compress began to give out a foetid odour, and boils began to appear on different parts of the body. When they had ceased, all the symptoms began to improve rapidly, except that the stools still retained their clayey colour. After this, the patient had at different times several crops of boils. At length the skin over the region of the liver became of an intensely dark brown colour, and a boil, the basis of which was nearly four inches in diameter, appeared in the centre of it. When this boil burst, an immense amount of matter, having an offensive odour, escaped from it. Four days after this, the patient had a severe diarrhœa, which lasted for thirty hours. The substance which passed felt extremely hot to the patient, and excoriated the anus. It was liquid, and of a dark colour. The bowels remained constipated for four days after the attack of diarrhœa; but when they acted again, the fœces were of the natural colour, and they have continued so, I believe, ever since. Although all the functions now acted naturally, and the patient took a sufficient quantity of nourishment, still he remained weak. I prescribed for him the syrup of quinine and iron, and it was remarkable with what rapidity he gained strength. Indeed a marked improvement in his physical powers was distinctly discernible from day to day. After a few days, I prescribed cod liver oil; and in less than three weeks the patient was in full vigorous health. I may mention, that this gentleman was unwilling, at first, to take the iron, as he had taken it formerly, for a long time, without any beneficial result.

A married lady, 56 years of age, had taken a pill every

night from the time that she was 26 years old. For 18 years she had suffered the most intense headaches. They were so severe as quite to overcome her. "I am unable," she said, "to raise my head for days from the pillow, and I feel on the top of my head such a pressure as if it would force me down into the bed. The excruciating pain over my eyebrows and temples is such as almost to prevent me, from opening my eyes; and I dare not speak a word, as the mere opening of my mouth increases the pain. Towards the end of the third day I vomit, and then my headache begins gradually to disappear. I have such a headache about every three weeks, so that I have scarcely recovered from one attack before another comes on. The consequence is, that I am often very much weakened, my spirits depressed, and I am scarcely ever able to do anything in my family. No treatment hitherto has done me any good. I have taken carriage and horseback exercise. I have resided in the bracing atmosphere of the North, and in the milder climate of the South." This lady, when I first saw her, presented an appearance slightly bilious, and as if the circulation of the venous blood through the abdominal viscera were sluggish. The abdomen felt flaccid and doughy. She had no appetite, and the bowels were never moved except by means of medicine.

I placed this lady under a mild course of hydro-therapeutic treatment and she continued to take an aperient every second night, for a fortnight. Then I stopped all medicines, but I ordered an enema of the half of a tumbler-full of water every day, an hour after breakfast and after dinner. The bowels were not moved for eight days. Then there was a small natural motion. A week afterwards, the compress became coloured, gave out a most offensive odour, and required to be renewed every hour. After a fortnight, the whole body

began to emit a similar odour, and so offensive was it, that she was obliged to keep her sitting room. The baths became impregnated with it, and the smell of the sheet after the envelope was quite sickening. Even the sheet with which the patient was rubbed dry retained it. The smell was distinctly that of the vapour of aloes. The lady herself remarked this; and a physician who was here under treatment at the same time, said to me, "Doctor, one would think you dealt wholesale in drugs, there is such a strong smell of aloes in No. 9 sitting room." At first the bowels did not act above once a week, and then only sluggishly. But when this elimination of matter had nearly ceased, they began to act every day; the head aches entirely disappeared; the appetite returned; the lady became strong; and she went home, as she herself said, "made over again."

In these cases we have, I think, sufficient proof that diseases or derangements of function, are kept up by the mere presence of medicine within the system, and not altogether from injury produced by these substances upon the tissues; for we have seen that the morbid symptoms continued after all physic had been given up, and that they disappeared only when the medicinal substances had been eliminated from the system. The second last case which I have mentioned shows, I think, that the organism retains within itself, in certain states, an increased amount of effete matter which it has itself generated, and which produces and continues diseased actions. Moreover, observations have led me to entertain the opinion, that the organism has, under certain abnormal conditions, the power of forming and retaining within itself morbid matters not natural to the system; and which, after certain periods of incubation, burst out in some malignant

disease. For example, I have several times had under my care patients labouring under no local ailment, but simply suffering from general ill health. Their appearance was that of persons apparently about to be attacked by some malignant disease, and it is only after their systems have been thoroughly purified by a lengthened course of hydrotherapeutic treatment, that they are restored to health.

In making these remarks, the case of our late friend, Professor John Reid, has come forcibly before me. When I saw him last in St. Andrew's, which was about a year and a half or two years before he was attacked by cancer, his appearance struck me as that of unhealthy robustness. All the vessels of his body appeared surcharged with matter, just as if his machinery were clogged. Had I known then what I know now, and had he been sufficiently liberal to have followed my advice, I might, perhaps, have warded off the fatal disease under which he sank.

I shall now proceed to consider another class of diseases, namely, those which depend primarily upon mere DERANGEMENT OF THE FUNCTIONS OF THE STOMACH, but which at length more deeply affect the organism in consequence of an IMPURE STATE OF THE VITAL FLUIDS. And in describing those diseases I shall quote from the chapter on "Heartburn and Indigestion from Debility," in Dr. Hunt's last work.

"Simple debility of this organ (the stomach) rarely falls under the cognizance of the physician, except when it has resulted from previous disorder, either local, or of the whole system. In the former case the weakness will be, in a great measure, limited to the stomach; in the latter, that organ will only participate in the general weakness; but a stomach of the average strength will in reality be weak, though only

relatively so, if a greater quantity of food be eaten than it can perfectly digest.

“Simple weakness of the stomach is indicated rather by the absence than by the presence of symptoms. When it is extreme, there is neither inclination for food, nor power of digestion. The tongue will be found moist and flabby, and its substance pale with a sodden appearance, indicating a similar condition of the lining membrane of the stomach, which, according to Dr. Beaumont, ‘instead of being as in health of a light pink colour, and of a soft velvet-like appearance, is *pale and moist*, with the follicles flat and flabby.’

“There is often in such instances a sensation of emptiness and sinking without appetite, though there may be no disgust at the thoughts of food. If any be taken without an appropriate stimulus, it will not be digested, because, from want of the necessary nervous energy, a sufficient quantity of gastric juice will not be secreted. It will cause a feeling of weight, oppression, and great local discomfort from its contact with the stomach. It will also soon create irritation and disorder, which will be quickly manifested by certain symptoms; but some, which may be considered indications of disease, will be modified by others, arising from the decomposition of the imperfectly digested food.

“In the first place, gas will be disengaged; the muscular fibres of the stomach being weak, through the absence of nervous energy, readily yield to its expanding force, consequently the stomach becomes greatly distended.

“Although distension often exists in a greater degree in this, than in other forms of indigestion, it occasions less discomfort, because the gastric nerves are as abnormally insensible to impressions, as they are otherwise torpid. Acid may also be generated; which, however it may aggravate the

sensation of weight and discomfort, will not, for the same reason, immediately occasion heartburn.

“The surface of the body is generally shrunk, cold, and moist from a clammy cutaneous exudation; the urine plentiful and pale, consisting of little else than water; the bowels sluggish; the movement of the heart slow and feeble; the pulse soft and languid; the eyes clear but without lustre. The intellectual faculties also share in the physical weakness; the mind is slow in apprehension, thinking, and expression, and the spirits depressed. In short, the whole system, as well as its several parts, exhibits an air of languor, a want of energy and tone, and all the vital actions are carried on feebly, and with difficulty.

“But the stomach seldom continues long in this torpid or insensible condition, for, being irritated by the contact of the undigested food, it at length endeavours to relieve itself from the distension by spasmodic contractions and eructations, and its nerves now becoming more sensitive, the presence of acid will produce heartburn. Most of these symptoms at this juncture arise, however, from the decomposition of the food; but the consequence of the imperfect digestion will, sooner or later, assuredly be disorder of that organ. According to the observation of Dr. Beaumont, the presence of irritative matter in the stomach produces disease precisely in the same manner as the introduction of foreign substances between the eye and eyelid causes inflammation of the conjunctiva.

“When the stomach is excited by food, its natural stimulus, its nervous and vascular actions are increased, which gradually subside when digestion is completed. But when *irritated* either by eating to excess or voraciously, or by swallowing food imperfectly masticated, or by the acid or acrid

matters generated by the fermentation or decomposition of food, or by being over excited by stimulating drinks, the vascularity of its villous coat, like that of the conjunctiva under the irritating influence of extraneous substances, will be inordinately and permanently augmented, and a state of congestion will be established. In debilitated persons this congestion will be of a sluggish or passive character, yet sufficient to impede the digestive functions; indeed the stomach will soon become so disordered, as to be incapable of perfectly digesting even a moderate quantity of the most simple food.

“Its action will also be perverted, and instead of converting the aliment into chyle, it will be allowed to decompose, and to generate various unnatural products, which, by the additional irritation they create both in the stomach and in their passage through the intestines, will greatly add to the discomfort of the patient, and increase the disorder in which they originated. In the progress of the disease, the lining membrane, according to the same authority, may be disordered in various ways, ‘It loses its healthy appearance, it becomes red and dry, and the secretions vitiated, greatly diminished, or entirely suppressed,’ or they may be morbidly increased. In general, disorders of the stomach in persons of feeble powers of life, assume a low or chronic form from the commencement, without any sign of inflammation, excepting the fulness of its vessels. This is the atonic form of indigestion now to be considered.

“If carefully examined, the symptoms, although obscure, are generally sufficiently well marked, even at an early stage, to indicate the altered condition of the stomach; the change from simple debility to disorder. The previous signs of a feeble and imperfect digestion will be augmented in severity, and others superadded. In addition to flatulent distension,

and the previous oppression and weight after taking food, there will be heartburn and uneasiness almost amounting to pain, showing that the gastric nerves are no longer insensible to impressions. Indifference now will, perhaps, be turned into a distaste for food. The sensation of emptiness will be changed for that of sinking. The tongue, instead of being clean and moist, will be coated with a brown or yellowish fur, accompanied by a clammy and disagreeable condition of the mouth and fauces. As the disorder advances the secretions of the mouth will be more and more vitiated. Nausea, giddiness, headache, dim or confused vision will occasionally be felt; but the symptoms will vary with every change in the gastric affection, and with the peculiarity of each patient's habits and constitution. As abstinence and a little aperient medicine will, in an otherwise healthy stomach, generally mitigate, if not entirely remove, these symptoms, and as the general health is not much disturbed, the patient, after having been relieved of a fit of indigestion, too often disregards advice, and soon returns to his former careless or pernicious habits, which will rarely fail to re-excite the disorder. At each recurrence, a longer time and more frequent and powerful doses of medicine, will be required; but at length the stomach, although partially relieved, will not be restored to the same tone as before; slighter irregularities will then produce derangement and discomfort; the wine that was previously enjoyed will now be found too strong, too much brandied, and the wine merchant will be blamed instead of the stomach. The gastric nerves, previously torpid and insensible, become so acutely sensitive and irritable, that secretions slightly acid, or otherwise only a little vitiated, will immediately excite pain. Thirst is sometimes experienced; headache, and a confusion of ideas become more frequent and severe; sleep is disturbed by perplexing dreams, and when

heavy, it is not refreshing; the face, pallid from local and general debility, has an anxious and haggard appearance; the conjunctiva, like the complexion, assumes a dull dingy look, best described by the term want of clearness, although this is not invariable; the urine, instead of being pale and plentiful, is scanty, and occasionally red and turbid; the perspiration partial and sour; coldness of the extremities still bespeaks the languid circulation; the patient becomes desponding, and being alarmed and deluded by his sensations, resorts to all kinds of stimulating medicines, increasing the disease by the indiscriminate manner in which he employs them: for example, if he feels weak and sinking at the stomach, though the weakness arises from disorder, or perhaps from congestion, he is tempted to drink more wine than usual, or to have recourse to bitters and tonics; or if his bowels are confined, he resorts to strong purgatives, the use of which, as in the case of stimulants affording transient relief, encourages him to repeat them frequently. Allured by these fallacious results he gradually increases the strength of both, until the disease is rendered almost unbearable by the additional irritation they occasion.

“When the disorder has reached this height, every structure of the stomach, as of the eye, under similar circumstances, seems to be implicated in the disease. There will be vascular congestion, though of an atonic character, and perhaps an excessive nervous sensibility; a loaded state of the secreting apparatus, which will either perform its functions in excess, or the reverse, or the secretions will be of an abnormal character; but in the majority of cases the symptoms are so blended, as to render it nearly impossible to discover which part of the organisation is specially affected; whilst in some, the morbid action will fall most heavily on

the vascular, the nervous, or the secreting structures, in each case the symptoms will be so modified as to afford clear indications for the particular treatment required: for example, when congestion predominates, the appetite will be impaired, the tongue covered with a thick, yellowish-brown fur, and the secretions of the mouth, as well as of the stomach, vitiated; producing the well-known unnatural sensations in the mouth and fauces; there will, however, be little pain and distress from the presence of food in the stomach, but should any exist, it will be felt more under the sternum than in the stomach itself. Darkness and sallowness of the complexion are almost always associated with congestion of the mucous membrane; the general strength is prostrated; the headache, confusion, and dullness of the intellectual faculties are great and constant; the bowels confined; the urine either dark and turbid, or very pale; and the sleep heavy and unrefreshing.

“When irritation of the gastric nerves preponderates, the tongue will be clean, the taste natural; there will be a greater desire, amounting in some cases to craving for food, yet eating will be quickly followed by pain and uneasiness, which will then be chiefly confined to the region of the stomach. The secretions will sometimes pour out large quantities of limpid water, whilst at others the secretions will be scanty; but, on the whole, the gastric fluids will be more plentiful than otherwise.

“The gastric nerves are sometimes so exquisitely sensitive, that a slight quantity of acid or acrid matter will produce intense suffering, suffering out of all proportion to the amount of disease,—and so much irritability that the stomach will not retain either food or medicine of any kind.

“In protracted cases, wasting and debility of the whole body make rapid progress; it cannot well be otherwise, for

the converting power of the stomach being almost arrested, nutrition must necessarily be much impeded.

"To these painful and distressing symptoms arising from disease, those that have been already described as caused by the decomposition of food may be added, and will greatly augment the patient's misery."

I am so anxious to prove to you, from the pathological views of orthodox medical writers, the propriety of employing hydrotherapeutics for the removal of chronic ailments, that I shall offer no apology for the length either of this extract, or for others that I shall afterwards make. According to Dr. Hunt's views as here stated, dyspepsia is at first only a weakness of the stomach. This is then followed by a congestion of the principal abdominal viscera, and a sluggishness in the performance of their functions, together with obstinate constipation. Afterwards there are head symptoms more or less severe. And there is a perverted secretion of the glands of the stomach. The food is not so well digested, nor is the chyle sufficiently elaborated, while the blood is wanting in vitality and contains effete matters.

In the first stage of dyspepsia, medicinal treatment, combined with strict attention to diet, will generally be sufficient to remove all the symptoms. For as yet merely to relieve the abdominal viscera by an alterative medicine will enable the organs, through their own energy, to perform their functions efficiently. It is different, however, when the disease is chronic and has existed for a long time. Mere medicinal treatment or artificial stimulation will not now be sufficient. For not only is the energy of the organs greatly depressed, but they have also become habituated to a congested state and to a sluggish performance of their functions. It is therefore necessary to elevate their tone and to keep them in

that state until their tendency to relapse be overcome. And this, I believe, can be effectually and permanently accomplished only by a skilful application of hydrotherapeutics. But should there be deeply deranged glandular action in addition to slow vitality and severe chronic congestion, with hydrotherapeutics we must associate a special therapeutic treatment.

The following case illustrates the efficacy of the water treatment in this kind of dyspepsia.

Mrs. D., aged 44, had been a severe dyspeptic for about 14 years. She had been under the care of most of our leading physicians in London. And she had visited a large number of the watering places on the continent and in England; but with no permanent benefit.

When she came to Ben Rhydding her skin was pale and sallow, and the muscles were soft and flabby. She was unable, from weakness, to walk more than two dozen yards at a time. Was subject to severe nervous headaches, and depression of spirits. Tongue red, split, and swollen. Had frequently small ulcers on the sides of the tongue and of the mouth. Had spasmodic contractions over the region of the stomach after taking food, and a continuous and incessant sensation of burning in it. Immediately after eating had fluid-risings and acidity. A glass of water rose acid soon after it had been taken. Appetite variable. Had a severe pain in the right shoulder blade, and between the shoulders. Abdomen distended with flatus. Bowels never moved without medicines or enema, and the latter always occasioned great pain. The monthly periods were irregular and variable, and occasioned very severe pains during the first two days. The feet were cold, and required to be kept warm at night by means of hot bottles. This was a most miserable case. Indeed,

language is unable to describe her state, and the misery she underwent. But this lady, after six months' treatment, was completely restored to health.

The course of treatment I pursued was as follows:—Rubbing of the stomach with the hand and cold water for fifteen minutes, morning and afternoon. Fomentation of the stomach for half an hour every second night. Wash down with cold water every morning and afternoon. To wear a compress covered with mackintosh round the stomach day and night. This mild treatment was pursued for a fortnight. The fomentations were then given up; but the rubbings continued. Dripping sheets were substituted for the wash downs, and a sitz bath for eight minutes noon and afternoon. The patient was now ordered to drink four tumblers-full of water (the fourth of a tumbler-full at a time,) during the day. Breakfast:—Half a cup of weak tea with the same quantity of boiled milk cooled. Bread and the yoke of a lightly boiled egg. Lunch:—Dry bread and the fourth of a tumbler-full of water. Dinner:—One moderate helping of roast beef or mutton without gravy, with bread, one potato, and the fourth of a tumbler-full of water. Evening meal:—Boiled milk and bread. To be as much out in the open air as possible, and to take daily a drive for one hour over the moors. Two or three weeks after this, the treatment was changed as follows:—Alternate mornings, shallow bath one minute. Intervening mornings, dripping sheet. Three days in the week, at noon, towel envelope for thirty minutes and shallow bath afterwards. Every afternoon, sitz bath for fifteen minutes. The bath maid to rub the shoulders and back while the patient is in the sitz bath, the patient herself keeping up at the same time a continuous rubbing over the stomach and liver. After a time the towel envelope was exchanged for the entire envelope, and

the patient was requested to take a good deal of walking exercise in the pleasure grounds and on the moors, and to go through the drill exercise for half an hour every day. Under such treatment as this, modified according to the symptoms and the strength, the patient, as I before stated, was completely restored to health.

This lady continues to visit Ben Rhydding now and then, but more as a visitor than as a patient. The periods are natural and there is now no pain. The bowels act daily. The abdominal distension has disappeared, and the intestines are firmer. Her headaches, the depressed state of her feelings, and the spasms of the stomach, have likewise disappeared. Indeed, she is now in as perfect health as she remembers to have ever enjoyed.

I shall now consider a still more advanced stage of Dyspepsia and which is entirely the result of a MORBID CONDITION OF THE BLOOD. The connection between severe chronic dyspepsia and the state of the blood, is closer and more frequent than has been generally believed; and, in my opinion, a hydro-therapeutic treatment is essential to the permanent removal of this pathological condition. In the following extract from the same work by Dr. Hunt, from which I have already quoted, the relation between dyspepsia and a contaminated state of the blood is well brought out. And for the reason which I have already stated, I think it better to bring out this connection in the words of another rather than in my own.

“The forms of indigestion to be considered next, are those which arise from the contamination of the blood, caused by the retention in it of those particles of the body of which its various tissues and structures are composed; which having

fulfilled their office in the animal economy, should, with the excrementitious portions of the food, be ejected from the system through the emunctories. If this process be interrupted, the general health will be deranged, in which derangement the stomach and digestive organs will most assuredly participate. That such is the result of their retention no doubt can be entertained, for they possess deleterious properties; indeed it has been clearly demonstrated that some of these effete matters are as prejudicial to health, and destructive to life, as many of the well-known animal or vegetable poisons.

“As it is impossible to attain a correct knowledge of the nature of these disorders of the digestive organs, and the treatment required for their cure, without a clear understanding of the modes by which the blood may be contaminated, I will devote this chapter to the investigation of that part of the subject.

“In the first place, it is necessary that the various structures and tissues of the body should be disintegrated, and that the disintegrated particles should undergo certain preparatory, perhaps chemical, changes before their removal can be effected. The perfection in which the disintegration of the several structures of the body is performed, depends principally on the habits of the individual; it is promoted by an active, and is impeded by an indolent and apathetic mode of living. The former ensures expenditure of the old materials of the body, and their replacement by new; but the latter allows the structures to remain almost unchanged, and the body to become bloated and unhealthy.

“The changes wrought in the disintegrated particles to fit them for ejection, will be influenced, we may presume, by their own chemical properties, and by the quality of the food, the non-nutritious more especially, on which the individual lives.

“Lastly, their complete removal from the system will depend on the soundness and activity of the organs of secretion and excretion, and many other circumstances that are to be considered in detail.

“It rarely happens that any great or *permanent* accumulation of these effete matters takes place before the age of 40; many things combine to prevent it; amongst the most frequent is an occasional and spontaneous increase of the several secretions, especially of the liver (bilious attacks) which often return periodically; but at the age just mentioned they generally cease to recur, and to this and other causes may be attributed the failure of the general health and the severe indigestion which commence about that time. The intimate relationship which exists between these bilious attacks and temporary restorations to perfect health, have long been noticed; but the more permanent derangements of the body, on their cessation, have almost entirely escaped observation.

“The immediate cause of the retention of effete matters is defective excretion; and the causes of defective excretion are of infinite variety. They arise from two distinct sources, one of a moral, the other of a physical nature. The moral act injuriously on the body, by first disordering the nervous system, and depressing its energies; the physical operate more directly in interrupting the functions of the several viscera.

“Among the former, or moral, may be included all emotions of the mind of a painful kind, such as long-continued anxiety, care, grief, and disappointments; sudden transitions from habits of mental and bodily activity to ease and indolence, as we find in persons who have realized fortunes in trades or professions; the listlessness, lack of energy, and absence of interest in any pursuit, which we too often observe

in persons in easy or affluent circumstances; residence in a damp, relaxing, or malarious atmosphere. All these act as the moral,—they depress the nervous system; whilst intense and unremitting application of the intellectual faculties, immoderate labour without mental excitement, indulgence in vicious or licentious habits, and loss of rest, exhaust it. In either case one result is certain, the vital functions are all impeded; for there is no doubt, that as pleasurable excitement conduces to health, and increases secretion by imparting a certain amount of stimulus; a state of nervous depression or exhaustion, on the contrary, impairs the one and interrupts the other.

“I need not adduce cases in proof of the correctness of these assertions. Every medical practitioner must have observed the general wasting and pining away of blooming girls, from disappointed and blighted affections. They must have been often told by anxious or ruined dyspeptic merchants and men of business, that the derangement of their health corresponded with the decline of their fortunes, and the commencement of anxiety. Many other examples might be given, but these will suffice to establish my proposition.

“It may further be observed that, although the emotions of the mind may be transitory, if they are intense, the various organs do not always readily recover from the shock. I have met with many cases, in which the decay of the general health could be clearly traced to this cause, though the anxiety was removed as quickly as it had been produced.

“Among the physical causes of impeded secretion, may be included cold, especially when suddenly applied; alterations in the structure of the organs of secretions themselves; lastly, certain abnormal conditions of the blood, whether caused by an undue accumulation of its normal ingredients,

as in plethora ; by any material deviation in their relative proportions, as in Asiatic cholera ; or by the presence of extraneous or noxious matters, introduced from without, or generated within the system. In either case, it may prove an impediment to secretion, and therefore to its own purification. This, at first, may appear paradoxical, yet if the researches and experiments of Drs. John Reid and Johnson be correct, little doubt can be entertained of the fact.

“The experiments of Dr. Reid seem to prove, that before the blood can be transmitted through the finer structures of the lungs, it is necessary that the chemical changes produced by the influence of atmospheric air on it, especially the removal of carbon, should take place ; for he found that when this process was interrupted by the exclusion of air, the black unoxygenated blood was arrested in the pulmonary capillaries ; it then accumulated in the vessels in a retrograde direction towards the right side of the heart, and when air was again admitted, the flow of blood through the lungs immediately recommenced, and the congestion was removed. Dr. Johnson has also demonstrated that a similar impediment to the circulation through the capillaries of the kidneys occurs, when the blood is loaded with certain extraneous matters ; for example, he observed, that many of the uriniferous tubes were completely ‘filled, by their accumulated contents, the epithelial scales,’ when the elimination of the poison of scarlatina by the skin had been interrupted, or checked by exposure to cold. This condition of the tubes obviously impeded the secretory process, for it only allowed the watery portion and serum of the blood, coagulable urine, to pass ; consequently the blood was imperfectly purified.

“If then it be true that the functions of the lungs and kidneys can thus be obstructed by the presence of two kinds

of morbid matter of different but peculiar qualities, we may fairly presume, that when the blood is loaded with abnormal ingredients possessing other properties, or when the normal have not undergone the necessary changes, similar obstructions may occur in other organs, which will equally impede their functions, and conduce to its further deterioration. For example, a GREAT accumulation of the elements of *one* secretion from defective action of *one* organ, may so interfere with the functions of *others*, as at length to derange them; for it is unreasonable to suppose that the kidneys can long eliminate bile or other matters foreign to their duty, as they are often called on to do, when the liver is obstructed, without embarrassing their functions, and perhaps endangering the integrity of their structure; or that the mucous membranes can long perform the functions of the skin, in addition to their own, without injury, as they endeavour to do when perspiration is checked. Neither can we avoid the inference that such a deviation from the normal action of organs so important to life, and the depravity of the blood, consequent thereon, can at length fail to engender a delicacy or infirmity of constitution, and a derangement of the whole system.

“This hypothesis is so simple, that it seems to bear the stamp of truth, and it is not less simple than important; indeed, its importance is so great in its application to the relief of disorder, and prevention of disease, that I am unwilling to proceed further without offering a few additional remarks in confirmation of it.

“All practical physicians are well aware that diuretic and diaphoretic medicines are most uncertain and capricious in their operation; but the cause of their uncertainty remains to be discovered; neither do we know why one should prove of service, when another of the same class does not; nor why

medicines that do not possess any direct influence on the kidneys or skin, should readily excite their secretions, after all kinds of diuretics and diaphoretics have failed. It appears to me, however, that the hypothesis before us seems capable of removing some of the obscurity in which this subject is enveloped. All physicians must have observed that when the urine is *scanty* and loaded with bile, from obstruction of the liver, 'mercury will often render great service, and prove the best diuretic; indeed the urine will not in many cases flow freely until the breath has become tainted, or the gums affected with that mineral.'—(*Dr. Blackall.*) In milder cases, where there is torpor of the liver, with less hepatic obstruction, a few doses of calomel and of brisk cathartics, or a spontaneous increase of the secretion of bile, will prove equally effective in removing the impediments to the secretion of urine and perspiration, both of which will begin to be poured forth plentifully as soon as the liver has been unloaded.

"As this can scarcely be owing to sympathy between the kidneys and the liver, is it not more reasonable to attribute the increased quantity of urine to an alteration in the condition of the blood? Is it not probable that after the bile and other matters having been removed, the oxygen, being set free, acts on the uric acid, and converts it into urea and other substances of great solubility, which readily pass out of the body; their speedy ejection being at the same time insured by a most beautiful arrangement, in which may be traced the clearest evidence of design, viz., that in their new forms, they acquire the property of stimulating to increased activity the organs destined to remove them.

"The removal of the constituents of bile and other effete matters may also facilitate secretion by rendering the blood more fluid, and thus enabling it to permeate the minute tubes

and capillaries of the secreting organs, which in a denser state it was unable to enter. Although this theory may appear too mechanical, I am strongly disposed, for the reasons already cited, to look upon it as a correct one. By its aid we can clearly understand the mode by which simple dilution affords such valuable assistance to the operation of diuretic and diaphoretic remedies, and how it may itself become a means of cure; for it is evident, that the dilution of a thick fluid will have the same effect as the removal of a portion of the material that thickened it. I do not, however, mean to assert that an alteration in the consistence of the blood is ever the sole hindrance to secretion, for its chemical qualities will also seriously affect it; but I think it may at least be considered one impeding cause.

“An interesting case in point has been related to me by a medical friend of great distinction. He was consulted by a lady who had long suffered from pain and irritation of the kidneys, with a paucity of urine, which was of a deep red colour. She had been for several months under the care of the late Dr. Prout without relief. As she had had the benefit of that distinguished physician's advice, my friend told her that doubtless everything had been done that science could suggest; he would therefore advise her to try the effect of simple dilution, with the assistance of moderate doses of the spirits *ætheris nitrici*. The result was almost magical; the flow of urine was immediately increased, and all irritation of the urinary organs subsided in the course of a few days, and with it all her general ailments.

“Now, we can scarcely imagine that the restoration of the secretion of urine in this case was accidental; it is certainly much more reasonable to ascribe it to the increased dilution, especially when we recollect the immense proportion

of water necessary for the solution of some of the abnormal constituents of urine in disease—pure lithic acid for example.

“I have dwelt at this length on these points for another reason, viz., the prevailing habit of attributing changes in the urine to an erroneous action of the kidneys; whereas the fault more frequently lies in the material (the blood) to be distilled, than in the kidneys, the apparatus of distillation.

“Should these explanations be correct, and much more evidence could be adduced in their favour, they would certainly tend to confirm the hypothesis I have advanced, viz., that a morbid condition of the blood may prove an impediment to secretion, and consequently to its own purification. They will at the same time indicate the cause of much of the uncertainty of our practice, and the mode by which it may be rectified.

“The probable correctness of the foregoing explanation will be apparent, when the order is remembered in which the the several variations in the urine frequently succeed each other, under the circumstances of the system referred to.

“In the first place, when the nervous system has received a shock, or is depressed by anxiety, the converting function of the kidneys is as much arrested as any other of the vital actions; therefore the urine first passed is generally pale, limpid, and almost entirely devoid of its normal ingredients.

“2dly. If the functions of the liver have also been and continue impeded, the urine gradually becomes high coloured, and perhaps loaded with bile and various other abnormal matters.

“3dly. If this abnormal condition of the blood be much augmented, the perspiration will be arrested, the secretions of the mucous membranes diminished, and the quantity

of urine much decreased, and the latter will be then found more loaded with extraneous matters, and to be of a higher specific gravity than before.

“4thly. At length, as the blood becomes still more highly charged by the progressive accumulations of morbid matters, and the uriniferous tubes being obstructed by them, the quality of the urine gradually changes; it will be found to contain less and less of the normal, as well as of the abnormal ingredients, until at length little else than simple water is passed, as in the first instance.

“If the blood, at this period of the disorder, be purified by a copious discharge of bile, the urine will, in the course of a few days, sometimes in a few hours, again become high coloured and turbid, and continue so until the liver and other excretories have removed from the blood all the abnormal materials; it will then gradually resume its former clearness, until it is restored to its normal condition.”

This lengthened extract from Dr. Hunt's last work on dyspepsia, clearly establishes the important fact, that, certain kinds of severe chronic dyspepsia depend upon a diseased condition of the vital fluids. And the following case illustrates the efficacy of hydro-therapeutic treatment in the removal of that very stubborn ailment.

Mrs. M. aged 36, had been ill many years. About ten years ago was exposed, for about six months, to great anxiety and distress of mind, which brought on slight palpitation of the heart and a sensation of heaviness in the head, as if from too much blood. The menstrual functions became irregular and of a darker hue than natural, the bowels were constipated, and the skin began to feel harsh and dry.

State. Severe headaches, they are so severe that for a day almost every fortnight she is confined to her room. There

is heat on the top of the head, weight and a sense of fulness over the eyes and in the forehead, with a dull heavy sensation in the back of the head and top of the neck. Feelings a good deal depressed; has a total want of buoyancy of spirits. Sleep troubled by disagreeable dreams. "I dream sometimes as if I were about falling over a precipice, and at other times as if I were being crushed between the jaws of an alligator." Skin harsh and dry. She has not perspired once for years. Beat of heart sluggish and laboured. Pulse soft and rather small. The vessels ramifying on the conjunctiva are venous and turgid. No appetite. Feeling of weight over the region of the liver. Bowels feel doughy, are much distended and very much constipated. Has large dark hæmorrhoids, about the size of the small finger. Tongue dullish red. The fauces streaked with veins. A disagreeable taste in the mouth in the morning, and the mouth feels clammy. Has severe pain over the cartilages of the fourth and fifth ribs. This pain is increased by whatever excites, such as pepper, wine, &c. The urine turbid, and small in quantity. Menstruates once every five weeks, the discharge is profuse, lasts for six days, and is of a dark modena colour. This lady had, during the last ten years, been under the care of about twelve physicians, but with no lasting benefit.

This lady came to Ben Rhydding in despair, and with much prejudice, her husband being one of our principal chemists. She was under treatment for ten weeks, and, after a large quantity of morbid matter had been removed from the system, she returned home quite well. I believe, you will agree with me when I state, that dyspepsia dependent upon a diseased condition of the blood is rarely, if ever, permanently cured by medicinal remedies. But under the method of treatment pursued here, such cases, should sufficient time be

allowed, are almost always permanently cured. When this lady left me, the headaches had entirely ceased, the appetite had returned, the bowels acted daily of themselves, and the hæmorrhoids had disappeared. The aim of my treatment in this case was, to remove the venous congestion of the liver and of the other abdominal viscera, to purify the blood, and to invigorate the vital force. These objects were effected; first, by increasing the action of the glands of the skin, and the free circulation of blood through it: and secondly, by stimulating the functions of the liver and kidneys.

As the skin began to act, the internal organs became less loaded with venous blood and acted with more vigour, the blood circulated more freely through them, and after several "crises" had appeared on the surface of the body, the nutritive fluids became healthier, the vital force more energetic, and the entire organism was restored to health.

That you may not think I over-rate the importance of the action of the skin, as a means of removing internal congestion, and effete matters from the blood, I give you the following extract from Professor Todd's work on Rheumatism and Gout.

"The importance of careful attention to the state of the skin, may be best understood by explaining the nature of the secretions which are poured out by it. The skin is a great emunctory of water, of carbon in the shape of carbonic acid, of lactic acid, of fatty matter in the shape of sebaceous substance. In gout and rheumatic fever the superabundant lactic acid escapes from the system most freely through the cutaneous system, and therefore in these diseases, the practitioner should be careful to keep that vent open. As long as the skin secretes freely, it must aid the stomach in carrying off free acid, the liver in excreting carbon, the kidneys in

separating water; and as it is the natural source for the escape of free acid, it diverts that acid from the kidneys, where it might interfere with the elimination of lithic acid in a soluble shape. The quantity of water which the skin ought to secrete in health, during twenty-four hours, amounts to from one pint and a half to two pints, and this is very nearly equivalent to that which is separated by the kidneys. It is not difficult, then, to understand how derangement of internal organs may readily follow upon derangement of the skin.

“The cutaneous surface is vastly more extensive than appears from a superficial examination of it; for besides that portion of it which forms the outer surface, it exhibits to the examination of the minute anatomist innumerable involutions of variable extent, by which its glandular apparatus is formed. This apparatus consists of glands of two kinds; one, whose office is to secrete the sweat, sudoriferous glands; the other, which secretes a peculiar fatty or sebaceous matter, the sebaceous glands. The former are composed of convoluted tubes which open upon the surface of the skin by minute pores. These orifices are easily visible by the aid of a magnifying glass on the tips of the fingers and palm of the hand, and whilst perspiration is free, minute drops of fluid may be seen to ooze out from them. The sweat-glands are found all over the cutaneous surface in immense numbers, varying, however, in size; they are large in the palm and sole, and are very highly developed in the arm-pit. So numerous and convoluted are these tubes, that although each gland is of small size, yet if all the tubes were laid open and spread out, it cannot be doubted that they would together form a surface not inferior in extent to that of the rest of the skin.

“The sebaceous glands are not so numerous; they are most abundant in the vicinity of hairs. Their form is

that of small vesicular bags, which open by minute orifices into a hair follicle, or quite close to one. When sebaceous matter is suffered to accumulate in these glands, a peculiar disease of the skin is induced called *acne*, which often shows itself on the face, nose, or forehead, and very frequently on the back. In a simple form the accumulations are denoted by numerous black points, produced by particles of dust being entangled in the sebaceous matter which chokes the orifices of the glands. The skin around these will often inflame, and angry pustules result.

“Nothing favours the excretion of this sebaceous matter so much as cleanliness and friction. If any additional argument were wanting to enforce the propriety of adopting means for these purposes, it is derived from the curious, and in some measure humiliating fact lately discovered by Dr. Simon of Berlin, that these glands are the habitat of a parasitic insect, which has been called the *entozoon folliculorum*. This creature is of considerable size, and may exist alone, or in clusters of several, in a single gland. In the perfectly healthy state they are few in number; but when sebaceous matter, their proper food, is suffered to accumulate, they abound. Through the kindness of my friend, Mr. Erasmus Wilson, who has lately read a paper to the Royal Society on their structure and habits, I have been enabled to see the insect alive, and had a favourable opportunity of watching its movements, as well as carefully observing its form and structure. Cleanliness and friction remove sebaceous matter, and, therefore, oppose the accumulation of those insects; and the local application of a solution of corrosive sublimate is often very beneficial in removing the points of *acne* which result from the retention of the sebaceous secretion.

“Besides these secretions, the skin is continually throwing

off from its surface a considerable quantity of albuminous matter, in the shape of epidermic scales. The excretion of animal matter in this way, must evidently be promoted by frequent ablutions and by friction."

I shall next advert to RHEUMATISM AND RHEUMATIC GOUT. My views of these I shall state in very few words. Rheumatism and rheumatic gout I consider to be only different degrees of the same disease. The difference in their symptoms depends upon the extent of derangement of the nutritive fluids, and upon the amount of vital force in the system. They are strictly diseases of the blood, accompanied with more or less derangement of the fibrous tissue of the joints and muscles. In rheumatism the morbid state of the blood and the derangement of tissue are less than in rheumatic gout, while the vital force is much greater, and the process of nutrition takes place in a healthier manner. In the treatment of chronic rheumatism the employment of hydro-therapeutics alone is sufficient, but in rheumatic gout, (especially when severe,) additional treatment is needed. In this case the analeptic treatment must be added to the hydro-therapeutic.

These views are fully supported by the following extracts from Dr. W. Fuller's able work.

RHEUMATISM.—"If certain substances are introduced into the circulation, fever is set up, rigors often occur, and inflammatory symptoms very shortly supervene in various parts of the body; symptoms which vary in intensity and locality, according to the amount and character of the poison. And if the blood be altered in character, it is practically the same, whether it contain matters foreign to the system, and altogether morbid in kind, or whether it contain an excess only of some material, a certain amount of which is compatible with

health. In either case, it is unhealthy and poisonous in its nature; in either case it contains a 'materies morbi,' which may not only produce fever, or the symptoms of general derangement, but, if irritating in its nature, may give rise to local inflammatory symptoms. Assuming, then, that an abnormal condition of the blood may account for the pain, inflammation, and the curious train of symptoms which constitute an attack of acute rheumatism, I shall endeavour to show that such a condition does actually exist in this disease, and that it is mostly, if not wholly, referable to constitutional causes.

"Many of the most remarkable features of rheumatism are quite characteristic of a disease dependent on a vitiated condition of the circulating fluid. Its attacks are ushered in by premonitory fever; its local symptoms are erratic, and yet remarkably symmetrical in their arrangements: the heart, the lungs, and other internal organs are affected; and when metastasis occurs, the constitutional symptoms are such as are met with under similar circumstances in diseases known to be connected with a vitiated blood.

"In some cases, the fever is at first so slight, as hardly to attract attention; and then, as in instances occasionally met with among the eruptive fevers, the appearance of the local symptoms affords the first noticed indication of existing disease. But more commonly the patient has been 'out of sorts' for some time prior to the full development of the attack; he has probably felt languid, chilly, and uncomfortable; his appetite has been capricious; he has had a sour or bitter taste in his mouth, and has experienced dull, aching pains in his limbs;—symptoms which indicate constitutional derangement, and together mark the onset of fever. And it will be observed, that in many important respects, this rheumatic fever differs from that which results from local mischief.

The fever which accompanies local affections is invariably developed *after* the commencement of local mischief, is commensurate with its intensity, and decreases or increases in exact proportion to the extent and intensity of the local mischief; whereas in rheumatism, as in other diseases known to be dependent on a poisoned blood, it generally *precedes*, for a considerable time, the full development of the local symptoms, not unfrequently decreases directly local inflammation is set up, and is invariably aggravated by its sudden or premature subsidence.

“So also in regard to the erratic nature of the articular inflammation. When inflammatory action is excited by a truly local cause, as, for instance, by a blow, nobody ever imagines that it can possibly subside in the spot first affected, and re-appear in some distant part of the body. On the contrary, it is an admitted fact, that when any mischief is really local, the inflammation is also local and stationary. On the other hand, whenever the blood is poisoned, as when pus, for instance, has been taken into the circulation, we are never surprised at the occurrence of symptoms in any part, however distant from the original seat of mischief, inasmuch as the poison circulates with the blood to every tissue of the body, and may irritate and ultimately excite inflammation in several parts successively. Thus the joints, the heart, the lungs, and the nervous centres, may be affected simultaneously or in succession, whilst the functions of the skin, the liver, and the kidneys, may be also more or less interfered with. Such, also, is the case in regard to rheumatism.

“On the same ground the symmetry of the local symptoms of the disease affords additional evidence of the poisoned condition of the circulating fluid. For if the blood itself be at fault, it is but consistent with reason to suppose that, per-

meeting as it does every tissue of the body, it should ultimately give rise to similar changes in parts corresponding in function and organisation, whereas, under any other supposition, the proneness of the disease to affect similar parts on either side of the body is utterly inexplicable. The peculiarity in question has been shown by Dr. W. Budd to obtain in all disorders connected with a vitiated condition of the circulation, and why take exception to rheumatism; why exclude a disease presenting such curious illustrations of the fact?

“Again, that inflammation of the heart is liable to arise, and forms one of the most frequent as it is one of the most formidable complications of rheumatism, is a fact most painfully verified by experience; and it is equally certain that it sometimes occurs prior to the setting up of any articular or other external symptom of disease. In cases where it is preceded by pain, redness, and swelling of the joints, it has been ascribed to a transference or morbid action consequent on the subsidence of articular inflammation. The advocates of this doctrine have never attempted to explain in what way such translation takes place, and have failed in showing that it does occur in any disorder known to be truly local, yet they have not hesitated to urge this view in explanation of the phenomenon in question. But even if admitted to its fullest extent, it utterly fails in elucidating the symptoms. For in the majority of instances where *pericarditis* or *endocarditis* is met with, there is not the slightest, even temporary, subsidence of the external or articular inflammation; and since inflammatory action about the heart is occasionally the *earliest*, and for some time the *only local* symptom of rheumatism, metastasis, however vaguely understood and applied, must obviously fail in clearing up the mystery. Indeed the only explanation appears to be that the heart is affected through

the agency of the blood, which from some cause has become unhealthy and irritating in its character.

“ On the other hand, the symptoms usually observed when metastasis does in reality take place, when the external inflammation suddenly subsides, and cardiac inflammation simultaneously or shortly afterwards commences, afford most striking confirmation of this view, for they correspond precisely with those observed under similar circumstances in cases where the blood is known to be affected. Rigors almost invariably occur, followed by increase in the febrile symptoms; there is generally much anxiety of countenance, and evidence throughout of constitutional irritation; the breathing is hurried, the heart's action accelerated and sometimes irregular, and before the symptoms are again locally fixed, it not unfrequently becomes intermittent. In the meantime pains of a spasmodic character occur in various parts of the body; hiccup ensues, or vomiting, or perhaps diarrhœa supervenes, which, though usually but little under the control of medicine, subsides together with the other phenomena on the re-establishment of local symptoms.

“ The fact is, the doctrine of a poisoned blood in rheumatism, though seldom fully recognised in theory, is tacitly allowed full weight in determining some points in practice. When a person is suffering from the irritation of a diseased joint, the result of local injury, amputation by removing the part affected gets rid of the disease, and the accompanying fever: and if rheumatic inflammation were in like manner a purely local affection, the knife would in that case also effect a radical or permanent cure. But no one would propose the adoption of such a remedy in the case of an inflamed rheumatic joint. The fruitlessness of such an attempt to get rid of the disease is at once acknowledged and acted on: the

blood itself being the source of irritation, the mere removal of one of the local effects of that irritation would obviously be ineffectual in eradicating the complaint; the inflamed part might be removed by the scalpel, but there would be nothing in its removal to prevent the immediate occurrence of inflammation in any other part of the body."

"From these general facts alone it might be inferred, that the *materies morbi* on which the symptoms of rheumatism depend, is generated under certain circumstances in the system, and is so generated as a result of some obscure constitutional peculiarity, some particular form of mal-assimilation.

"But there are other facts which tend directly to the same conclusion. The disease generally makes its appearance in those subject to its invasion, whenever the system is lowered or deranged. It is so frequent an attendant on disordered condition of the uterine system, that its intimate connection with retained uterine secretions has been suggested by Dr. Todd and other observers. M. Chomel has been struck by the frequency of its occurrence after excessive lactation, after inordinate indulgence of the sexual desires, and tedious recoveries from fever; and all who have carefully studied the disease in the vast field of observation afforded by the wards of our public hospitals, must have remarked how constantly its attacks have been preceded by functional derangement."

"As, then, it appears impossible to avoid the conclusion that the *materies morbi* is generated in the system as a product of mal-assimilation, or faulty metamorphic action, the next points for consideration are those which serve to indicate its nature.

"A suggestion was thrown out by Dr. Prout, and has been adopted and enlarged upon by Dr. Todd in his Croonian

Lectures, that all the phenomena of the disease are referable to the presence of lactic acid, which is developed too freely in the system in consequence of imperfect assimilation, and accumulates in the blood by reason of defective cutaneous action. 'It is no wonder,' says Dr. Todd, 'that as lactic acid is imperfectly excreted through its natural channels, in consequence of the influence of cold in checking perspiration, and is too freely developed in the alimentary canal, it should accumulate in the blood and become eliminated at every point. Moreover, the long continuance of the causes which produce the defective cutaneous secretions and the deranged gastric one, will give rise to the development of lactic acid in the secondary processes of assimilation, thus infecting the blood from every source, and tending to perpetuate the diathesis.'

"Now, although the poison which gives rise to rheumatism has not hitherto received actual demonstration, yet many facts conduce to a belief in its identity with some natural excretion of the skin. In advanced life, when from want of energy in the system, the skin's action is readily interfered with, pain or stiffness is so constantly produced by a draught of cold air, and subsides so soon after reaction has taken place, that we are bound to admit its intimate connection with temporary suspension of cutaneous action. Moreover, rheumatism is so common among persons suffering from renal disease, and other complaints accompanied by a harsh inactive condition of the skin, that it is impossible not to connect its appearance under such circumstances, with the cessation of free cutaneous transpiration."

"Dr. Todd has suggested that disordered uterine secretions may be an occasional cause of rheumatism. He conceives, 'that the secretions of the uterus, if of an unhealthy character, and not duly thrown off, may be absorbed into the

circulation and contaminate the blood, producing symptoms of greater or less urgency, according to the nature and quantity of the morbid secretion which may have been absorbed.'"

RHEUMATIC GOUT.—"When the disease assumes a chronic form, it admits of much more ready diagnosis. Occurring sometimes after the subsidence or partial disappearance of an acute paroxysm of the disorder, but more commonly without any previous acute attack, it may commence without any remarkable febrile disturbance, while the pulse is quiet, the tongue almost clean, and the urine abundant, pale coloured, and of low specific gravity. The patient's chief complaint is of languor and loss of appetite, with occasional chilliness and pain, and stiffness in the joints, which soon become swollen from effusion into their synovial cavities. The principal evidence of mischief is furnished by the sallowness of his complexion, the yellowness of the conjunctiva, the constipation of the bowels, the pale and unhealthy character of the dejections, the low specific gravity of the urine, the feebleness of the pulse, and the slow yet steady enlargement of the joints—an enlargement which in many cases is unaccompanied by any perceptible increase of local action, and appears to depend upon a process allied to slow perversion of nutrition, rather than to ordinary active inflammation. Yet so obstinate does it generally prove in its continuance, and such thickening does it produce in the *periosteum* covering the extremities of the bones, in the ligamentous structures, in the synovial membrane, and in the bursæ and sheaths of tendons immediately surrounding the joints, that more or less permanent stiffness and enlargement remain long after all active disease has passed away. A second or third attack brings out in relief this distinctive feature. The irritation of a poison which has been attracted

to the joint for a sufficient length of time to cause effusion into the synovial membrane, and thickening of the sub-synovial areolar tissue, very seldom fails to excite more deep-seated and more serious mischief. The cartilages with which the structures in question are intimately connected, are generally implicated sooner or later. Their nutrition becomes affected, and gradual absorption of their structure takes place; and thus, after a time, the articular surfaces of the bone are left bare and unprotected. But more than this. While the ligaments which keep the extremities of the bone in apposition are being stretched by the fluid effused within the joints, and the cartilages are at the same time gradually wasting, the extremities of the bones themselves become irregularly enlarged by expansion of their osseous tissue, and the deposit of osseous matter around the joint. A material alteration is thus produced in the form, and oftentimes in the direction of the joint. The fingers, for instance, which are very prone to be affected, are drawn towards the ulnar or outer side of the hand, and take a permanently oblique direction; whilst the enlarged, and partly dislocated extremities of the bones, more especially of the metacarpal bones, project in every variety of form, and constitute the 'nodosities' which have been described by Dr. Haygarth, in his 'Clinical History of Disease.' Strange as it may seem, these changes in the form and direction of the joints are strikingly similar on either side of the body, each knobby enlargement on the one side, having its counterpart in the corresponding joint on the other, so that an extraordinary symmetry of arrangement is exhibited in the local manifestations of the disease.

"In connection with this enlargement of the joint, there seldom exists any deposit resembling the chalky deposit of gout. The first series of changes are usually con-

fined to an alteration in the nutrition of the parts affected, which causes them to lose their natural brilliancy and elasticity, and to become thickened, opaque, and altered in colour. After a longer period of exposure to the irritation of the rheumatic element, a further alteration of structure takes place; processes of thickened synovial membrane are seen dipping down into depressions existing around the head and neck of bones; or a dense ligamentous substance, resulting probably from some peculiar alteration in the synovial membrane, is seen interposed between the articulating surfaces; or small irregularly-shaped cartilaginous bodies are found existing, either loose within the joint, or attached to it by pedicles formed of thickened synovial membrane; or the opposed surfaces of the bones denuded by chronic wasting of the cartilages, and rendered smooth by attrition upon each other, are found white, glistening, and ivory-like in appearance.

“But in some cases, which differ materially from true gout, and present all the characteristics of the hybrid disorder I am describing, there exists a deposit more or less extensive of a white pulverulent matter. Sometimes this matter is deposited over the whole extent of the articulating surfaces, so that the cartilages appear smoothly incrustated by it; at others, it is sparingly sprinkled over their surface in the form of a fine white powder; at others, it is limited to a few parts only; and at others again, it not only covers their entire surface, but pervades their structure, and fills the cancelli of the subjacent bone. That this deposit, which analysis has shown to consist of lithate of soda, mixed occasionally with some lithate of potash, ammonia and lime, as also with chloride of sodium, and with phosphate and carbonate of lime, is identical, or nearly identical in composition with the deposit which exists in gout; and that it occurs in those cases only

of rheumatic gout which approximate most closely to genuine gout, is susceptible of easy proof; but I cannot therefore admit the conclusion, that the existence of such deposit is of itself sufficient to mark such cases as examples of true gout. For it usually takes place in spare persons of temperate habits, whose symptoms have in many respects resembled rheumatism more nearly than gout; it differs greatly in its form and situation from that which is met with in well-marked gout; it often occurs in persons who, in their younger days, have been martyrs to rheumatism; and sometimes co-exists with those structural changes in the joints which every body admits to be dependent upon rheumatism. Thus, amongst cases differing in no respect from each other in their external character, there are found, in some, extensive structural alterations in the joints, but no traces, however slight, of earthy deposit; in others, the same altered condition of the articulations is accompanied by an evident, though scanty and irregular earthy deposit; whilst in others, again, the deposit is extensive, and the structural changes first alluded to, comparatively small. In the more extreme examples of the disease, it is not difficult to predict with tolerable accuracy whether any deposit will or will not be discovered in the joints after death; but in many instances the symptoms are of such an hybrid character, as to preclude the possibility of arriving at any certain conclusion. Even dissection fails in some instances to disclose any strongly-marked difference between those cases which are, and those which are not, accompanied by such deposit; for occasionally one joint may be found smeared over with earthy matter, whilst another in the same patient, equally enlarged, presents no appreciable amount of deposit. Of this I have seen two instances; and as it is quite possible for a gouty tendency to be engrafted on an

old rheumatic disposition, or for a rheumatic tendency to arise in a gouty habit, I have come to the conclusion that the disease is in part rheumatic, in part gouty in its nature, and that the difference in the result observed after death, arises from the greater prevalence of the gouty element during the time the first-named joint was affected, and of the rheumatic element during the affection of the latter."

From these extracts we learn that rheumatism is a disease dependent upon a *materies morbi* contained in the blood; and that this morbid substance is occasioned by low nutritive power, which if removed from the system merely by artificial means is again produced there. Should, however, the nutritive power become more healthy and the vital force stronger, then the reproduction of morbid matter in the system ceases—a result which, I believe, can be *completely* attained only through the proper employment of natural stimuli; for artificial stimuli do not of themselves develop the vital force, they only place the structures of the organism in a more suitable relation to the natural stimuli, whose office it is to develop the latent energy of that force. On the one hand, the *internal* use of pure spring water with the oxygen it contains aids in removing the effete and other morbid particles of matter contained in the blood. Professor R. B. Todd, writing on rheumatism says, "The best diluent is pure water." And on the other hand, the skilful *external* applications of that fluid improve the process of digestion, invigorate the nutritive force, and rouse into full play the vital energy. By these means the *materies morbi* is removed from the system. Thus those conditions are gained, which are considered essential not merely for the removal of the complaint, but also to prevent the danger of its return. We have the blood purified, the nu-

tritive force strengthened, and the morbid matters excreted from the system through the energy of the vital force. Continue these conditions until the habit of forming the *materies morbi* in the system is removed, and the patient will be restored to permanent health. It is a great error to suppose that the mere elimination of morbid matters from the system by means of sudorifics, hot air, and vapour baths, is sufficient to restore permanent health. On the contrary, before health can be permanently restored, not only must these matters be removed through the agency of the vital force; but that force must be kept in sufficiently vigorous play by the suitable employment of natural stimuli even for some time after the diseased symptoms have disappeared. These views are confirmed by the following case.

Mr. S., aged 43, was affected with rheumatism for eight years. The disease had kept gradually extending over the whole frame, but affecting principally the loins, hips, knees, shoulders, and elbows. When I saw him first he was much emaciated and unable to walk. Had been confined to his bed and to his chair for three years. Face sallow. Conjunctiva yellow. Was usually very drowsy. The heart had a quick, jerking impulse, but there was no disease of the valves. The affected joints were not much swollen but were very hot. Had great pain in the joints on being moved. Was unable to make a long inspiratory murmur from the pain produced in the muscles of the trunk. Urine dark, and only moderate in quantity. Bowels moved naturally only twice a week. To ease the excruciating torture which he felt during night he was accustomed to take an opiate at bed time. The strength of this opiate had been gradually increased from twenty drops to half an ounce each night.

I found that until I could get the patient to give up

his accustomed opiate I was unable to benefit his complaint. After a month's perseverance, and a mild varied hydro-therapeutic treatment, I was enabled to conquer the desire for opium. Then I began more vigorous treatment. I packed the hips and lower extremities for three hours twice a day. I had the joints constantly enveloped in compresses; and the patient was ordered a shallow bath at 60° for two minutes twice a day. In six weeks' time after the opiate had been given up the patient was able to walk on crutches. The full envelope was now prescribed. The back and hips were spouted for three minutes daily, and I also ordered a rain bath for one minute every second day. About three weeks after this, the patient had a severe diarrhoea for four days. When this ceased the action of the kidneys was also much increased for a few days. After these crises had passed over, the patient felt himself very much improved, and three months afterwards he returned home in sound and vigorous health.

But while natural stimuli are thus proved to be capable of removing simple rheumatism, the application of those stimuli alone is not sufficient to cure cases of severe RHEUMATIC GOUT. In this disease the system is so poisoned by the morbid matters which have been generated in it, that reparative agents must be associated with hydro-therapeutics before the vital force can be sufficiently developed to effect a cure. The following case will sufficiently illustrate this point.

Miss H., aged 40, had suffered from rheumatic gout for about fifteen years. When this lady came under my care she was bent almost double, and could only hobble for a few yards with the help of crutches. Her finger joints were much enlarged and her hands were bent to one side. The

knees were enlarged and stiff. She had most excruciating pains in the lumbar and sacral regions, and her ankles too were enlarged and tumified. She had been subjected to several kinds of treatment from which she apparently received no benefit. For three months before I saw her she had taken large quantities of cod liver oil, and had this substance also rubbed daily over her back, sacrum, and joints. But notwithstanding this treatment she was gradually becoming worse, and when I first saw her the disease was decidedly taking a rapid downward course.

Under hydro-therapeutic treatment, however, this downward course was soon arrested, and then the lady began gradually to improve and went on doing well for the space of three months. But at the end of that time, the treatment seemed to be producing only little benefit. I now prescribed cod liver oil, bitter beer, and the tincture of muriate of iron. Improvement immediately recommenced. And by means of these remedies, associated with hydro-therapeutic treatment, the patient was restored to fair health, although the pains had not entirely left the loins and sacrum. In this state the lady left Ben Rhydding; but she persevered with the treatment at home under my direction for some months, when at length all the pains gave way, and she is now as nimble as she was before she was attacked by the disease. During the progress of the treatment this lady had four mild crises, and after each of them she felt herself greatly improved.

In this case we have another illustration of the important truth on which I have so much insisted in this letter: that while effete matters remain in the system to any extent, the action of medicinal remedies is always greatly, and sometimes entirely, obstructed. Before this lady came under my care, cod liver oil and iron had been prescribed, with no ap-

parent benefit. But after a certain amount of effete matter had been removed from the system by means of crises produced under hydro-therapeutic treatment, those same remedies, which were before so powerless, enabled me to carry the patient forward into complete health.

I should like now to call your particular attention to the merits of hydro-therapeutics in the treatment of FEVER. And following out the plan on which I have hitherto proceeded, let me in the first instance, quote the views of a distinguished orthodox German writer on the Pathology of this species of disease.

“Jedes Fieber, nicht bloss das hektische, hat den charakter schneller consumption neben mangelhafter regulation und Alles deutet darauf hin, dass gerade die letztere es ist, welche die Gefahr der vermehrten consumption mit sich bringt.

“Jede beliebige Krankheit kann fieberhaft werden, jede störung kaun sich zu einem Fieber gestalten, wenn sie sich auf die regulatorischen centren des Stoffverbrauches verbreitet und die regelmässige moderation des Stoffwechsels aufgehoben wird. Sind diese centren im nervensystem zu suehen, so wird es sich um ein abnormes spannungs-verhältniss handeln, welches durch die Fieber erregende Ursache hervorgerufen ist und in den natürlichen Bahnen keine Lösung findet. In dem Maasse, als die Kraft der moderationscentren gebunden ist, wird der Stoffverbrauch sich steigern und demgmäss die Eigenwärme des Körpers zunehmen, womit daun der eigentliche Punkt des Fieberanfangs gegeben ist. Vorher (in dem Stadium der Vorläufer) sehen wir nur die abschwächung der körperlichen und geistigen Thäligkeiten, welche aus dem Spannungs-verhältniss unmittelbar folgt.”—Professor Virchow, article Fever in the “*Handbuch der Speciellen Pathologie und Therapie.*”

Fever, according to Professor Virchow, consists essentially in an elevation of the temperature arising from increased change of tissue; and having its immediate cause in a change of the nervous system, which constitutes paralysis of the spinal nerves and of the sympathetic system. Until lately, fever was considered to be merely a blood disease; but now it is looked upon as something more. It is regarded as an affection more or less severe of all the organs of the body; as under it every one of them becomes more rapidly changed than usual and is less perfectly repaired. Such is the harmony which exists between the different parts of the body that this result is indeed inevitable. The rapid interchanges between the blood and the organs of the frame render it impossible that any febrile disease can remain limited to one structure or fluid, since for the proper working of one organ, the correct performance of function by all the others is necessary. Disease of the blood alone, then, as a thing separate and distinct in itself is evidently impossible. From the blood microscopic torrents pass with inconceivable rapidity into all the organs of the frame, and the worn out particles are as rapidly taken up by it. What was solid is now fluid, and what is fluid will speedily form part of a living structure. Into that structure the altered fluid carries its own imperfect constitution and thus modifies its condition and functions. In all specific diseases, in smallpox, scarletina, measles, typhus, &c., an element enters the blood which produces the fever, and has also the power to reproduce itself there. After a time the blood becomes secondarily contaminated by the rapid disintegration of tissue which occurs in fever. This depravity of the blood is produced more rapidly and in greater amount the more exalted the febrile heat becomes; special tissues are then affected, and the patient is at last felled to the

earth by an ever increasing poison. If, however, the febrile heat be kept within limits, less morbid matter is formed, and what is formed is more easily removed from the system.

Along with the derangement of the blood we have paralysis, more or less deep, of certain portions of the nervous system. In fever the most marked phenomena are the increased metamorphosis and the exalted heat. Now, experiments have proved that these conditions are regulated and guided in health by the nervous system. Helmholtz has shown the influence of the nerves on the heat produced during muscular action; Ludwig, their regulating power over secretion; and Axmann, their power over the nutritive process. From the experiments of these gentlemen we have full right to draw the conclusion, that certain portions of the nervous system are affected when the metamorphosis of tissue and the animal heat become deranged. We learn from Brenard's experiments that artificial disease of the nerves interferes seriously with the change of tissue and the normal heat; and, that the tissue is then more rapidly oxydized than in health, showing clearly that in health the waste of tissue is regulated by the nervous power. It has also been proved by experiment that when the sympathetic nerve is removed from the neck, increased circulation of blood and local development of heat are the consequence. We have, moreover, indirect proof of the paralysis of the nervous system in the shivering, and in the contractions of the superficial capillary vessels of the skin, which are among the first symptoms of fever. During this period the change of tissue is increasing, for the heat of the blood is gradually ascending, although the subjective sensation of cold and rigors exists. Another proof that certain of the nervous centres are more or less paralysed, arises from the rapidity of the heart's action, and the

relaxation of the blood vessels. The increased action of the heart cannot be fairly referred to deranged nutrition of the muscular fibres, as it occurs too rarely to warrant such an explanation of it, but must be ascribed rather to the reflex action of the vagus, the nerve which regulates the cardiac movements. The experiments of Weber show that section of the vagus immediately quickens the heart's action, whilst by the transmission of a galvanic current through the nerve, the action of the heart is immediately diminished. The experiments of Professor Volkmann, which prove that section of the vagus increases the lateral pressure in the blood vessels, suggest the view that the nerves which regulate nutrition and organic action are more or less paralysed in fever. And the experiments of both these gentlemen together shew that by interfering with the nervous currents, we can at will produce two of the most striking phenomena of fever, viz.: increased frequency of the beats of the heart, and relaxation of the blood vessels. Moreover, we know that when the nervous influence is interrupted either by extirpation, section, or chemical destruction of one or more of the sympathetic ganglia, augmented circulation, perverted nutrition, and abnormal heat are produced in those parts which they supply with nerve fibres; while on the other hand, stimulation of their nerves by a galvanic current produces the opposite results. With paralysis there is associated irritation of the affected nervous centres. This condition is proved from the circumstance that all living structures, whose functions become debilitated, are affected more or less seriously by irritation; thus supporting the opinion of Henle, that in fever there always exists irritation of the nerves. The paralysis of the nerves in fever is limited to the sympathetic and the excitomotory nerves. For, if we make a section of the fifth nerve, *before* it enters the

gasserian ganglion, the sensation and the motive power of the nerve are abolished, while nutrition takes place as usual in the parts which the nerve supplies. If, however, we divide the nerve *after* it has passed through the ganglion, and been largely supplied with ganglionic fibres, a rapid destruction of the tissue supplied by those fibres will take place. This affection of the nerves in fever arises from the specific action of morbid matter upon them, so that as far as regards their function of nutrition, they are affected just as if they had been divided.

The following appear to be the different influences, as far as we at present know, which produce the different symptoms that occur in fever. First, there enters into the blood a poisonous agent which produces a change in that fluid; then the nerves and nervous centres connected with nutrition and organic contractility begin to be paralysed and irritated. When this occurs the stage of incubation disappears, and that of invasion takes its place. The beats of the heart are accelerated, the walls of the blood vessels are relaxed, and the various organic structures begin rapidly to disintegrate, occasioning increased heat. After a while the contamination of the blood advances, through the self-generating power possessed by the infecting matter, through the rapidly disintegrated tissues being poured into the blood, and through the gradually increasing elevation of temperature.

I have entered thus far into the pathology of fever that I might be able more fully to point out the importance of hydro-therapeutics in the treatment of all fevers. What are the pathological states the physician has to combat in fever? They are, a diseased condition of the blood, paralysis and irritation of certain nerves and nerve centres, increased dis-

integration of tissues, exaltation of temperature, and diminished action of the excretory organs. These morbid states influence each other in the following order. The diseased blood affects the nerves, and the morbid state of the nerves permits an increased disintegration of tissue, which produces increased heat. This exaltation of temperature develops the generative power of the poisonous matter in the blood, and so increases that poison with an ever ascending rapidity. Deeper and deeper paralysis of the nerves, and still further disintegration of tissue follow. And the action of the excretory organs is thus more and more obstructed, until at length life is extinguished. The first problem, therefore, which the physician has to solve is, how to keep the febrile heat within due limits, and how to enable the excretory organs to perform their functions so efficiently, that during the natural progress of the disease the amount of morbid matter in the system may not at any time be able to affect life. Gain these two objects, and you retard the waste of tissue, you prevent the increase of morbid matter in the blood, and you prevent the nutritive and excitomotory nerves from being too deeply paralyzed. Now both these objects, I have no hesitation in saying, (and I do so as the result of experience,) can be secured by the proper employment of hydrotherapeutics. In this system of treatment, the wet sheet envelope is our main reliance. It diminishes the heat, keeps down the pulse, retards greatly the too rapid waste of tissue, soothes the irritation of the nerves and of their centres, increases the excretory action of the glands of the skin, and produces a moisture there; whilst the bath, by which it is always followed, invigorates the system generally. The free internal use of pure water stimulates the kidneys to act, increases the function of the glands of the mucous membrane of the stomach, and lessens the internal heat. The wet compress

round the stomach remarkably soothes the irritation of the liver and of the other abdominal viscera, and so aids in removing the congestion of these organs; and the compress round the throat, carefully covered, prevents the inflammation of that part from increasing to a dangerous extent. So remarkable is the effect of these different applications of water in soothing the system, that it is rarely required to apply wet cloths to the head to keep it cool—an application to be avoided if possible, as from the frequency with which the wet cloth requires to be changed in order to produce its proper effect, more harm is usually done by employing it without sufficient attention to the absolute necessity of having it frequently changed, than would result from not using it at all. I believe my own life was saved through the proper application of wet cloths to the head. When attending fever patients in the Edinburgh Infirmary, I was seized with typhus. Professor Alison had given me up. I was in a high raging fever, and my head in particular was burning hot. To assuage this burning heat of the head, my father and brother never left my bedside for fifteen hours, but kept changing wet cloths wrung out of iced water as fast as they could, whilst the nurse was engaged in renewing the iced water in the basin. To this assiduity and to the agency of water, humanly speaking, I owe my life.

The same distinguished writer, whose views on the pathology of fever has been already noticed, has also expressed himself upon the merits of hydro-therapeutics in its treatment, and I shall quote his words.

“Die Behandlung des Fiebers hat nach dem Gesagten ein einfaches Object: die Abkühlung, und sie besitzt dazu sehr natürliche wege: die Benutzung der Krisen und kritischen Tage. Allein dabie darf man nicht vergessen, dass

nicht die Ausleerung, als solche die Krise ist und dass nicht die Abkühlung als solche das Fieber aufhebt. Die wissenschaftliche Hydrotherapie, (Currie, Hallmann) hat durch Wärmeentziehung die Hauptsache zu leisten gesucht und sie hat gewiss viel genutzt, aber es begreift sich von selbst, dass die Wärmeentziehung nur dann nützlich wirken kann, wenn sie die Quelle der abnormen Wärmebildung vernichtet und das Spannungsverhältniss im regulatorischen Nervensystem zur Lösung bringt. Man muss wohl unterscheiden zwischen der bloss abkühlenden, wärmeentziehenden und der eigentlich antifebrilen, die Wärmebildung moderirenden Methode; jene ist symptomatisch und daher indirect, diese kritisch und direct. Diese beseitigt das Fieber, jene hefte eine Reihe secundärer Störungen, welche durch die Fieberhitze in dem Körper zu Stande gekommen sind. Beide sind daher äusserst werthvoll und in vielen Fällen wird die indirecte Methode sogar die einzige anwendbare sein."

Professor Verchow is partly correct in these remarks; yet he does not give the importance to this section of treatment which it deserves, or which, with his usual candour and clear perception, he would have given had he had any experience in the treatment of fever by hydro-therapeutics, systematised as it now is. Dr. Currie and Dr. Hallmann's mode of employing water does not deserve that name. The treatment of fever as recommended by Dr. Currie is very partial and often dangerous, while that mentioned by Dr. Hallmann is incomplete. The hydro-therapeutics which I advocate, is at once systematic, efficient, and safe.

Experience has led me to divide the treatment of fever into three sections. The first embraces the stage of incubation, in which the hydro-therapeutic treatment, when employed as I recommend it, and provided the patient was in health

previous to the attack, is always successful. This statement, I grant, is a bold one; nevertheless I believe that it is not exaggerated. The second section embraces the stage of invasion and the greater part of the course of the fever. Here too the hydro-therapeutic treatment is successful, though not so invariably as in the first stage. Aconite in small repeated doses is also beneficial now in assisting to keep down the increased heat, and the remedy which is specially fitted for the kind of fever under treatment should likewise be used. The third stage is that in which the poison in the blood is so great, and the structure so affected, that the vital force is almost swallowed up in death. I believe that in this stage hydro-therapeutics have little or no power over the disease—the patient must die. I shall illustrate these statements by the following cases of scarlet fever taken out from a large number which I have attended during the last eleven years.

I was called to visit a boy seriously ill of scarlet fever, about forty miles distant from Ben Rhydding. He was but five years of age, and had been ill for four days. The skin was hot, dry, and burning. Pulse 130. The eruption had only very slightly appeared upon the chest, and between the thighs, and on a few other parts of the body, and the little that had come out was of a darkish hue. He was in a high delirium, and the throat a good deal affected. He had not slept at all for two days and nights. Was continually tossing about his head and arms. I immediately ordered a wet sheet envelope for half an hour. The sheet was scarcely an instant on his body when it felt warm to my hand. In half an hour it was removed and the boy again enveloped in a second. This was repeated a third time. When the last sheet was removed, the entire surface of the body was covered with a fine scarlet eruption. The dry, burning heat of the skin was diminished.

The pulse came down to 105. The delirium had very nearly passed away, and the boy fell into a calm peaceable slumber, and after a sleep of four and a half hours awoke refreshed, with a slight moisture bedewing the surface of the body. While in the envelope he was permitted to drink, as well as whenever he desired, as much cold water as he pleased, but that was not a great deal, in consequence of the severe pain occasioned by swallowing. The fever again reappeared at night. He was enveloped twice and the fever subsided, and the little patient slept quietly during the greater part of the night. On the third day after the beginning of my treatment, the fever and restlessness had entirely disappeared, and the eruption had also very much faded. On the sixth day the boy was quite well.

It was remarkable to see the effect of the wet sheet envelope in reducing all the febrile and head symptoms in this severe and dangerous case. Even the first envelope appeared to soothe the irritation and quiet the young patient's feelings. The second increased the eruption upon the skin, and still more lessened the febrile state. But the third one at once brought out a brilliant scarlet eruption, although when I first saw the patient it was of a somewhat livid hue. Three of the other children of the family were attacked by the same disease. I had each of them packed the instant the first symptoms of the disease showed themselves. They all passed through the complaint without any dangerous symptoms, and were, each of them, able to be down in the nursery five days after the beginning of the attack. I may mention, that *the hydro-therapeutic treatment has a remarkable effect in diminishing the duration of fevers: not in checking them, but in shortening their different stages.*

One circumstance which especially prevents medical

men from using the wet sheet envelope in fever is, their fear that it may throw the eruption in. No one is more conscious than I am of the great danger that would attend such a result. But I feel warranted in saying that the wet sheet envelope never has a tendency to throw in the eruption, but that on the contrary, it is the best means we possess of developing it upon the skin. We have the patient, while in a state of high febrile excitement, laid in a well wrung out wet sheet, which is quickly brought tightly over him and followed immediately by a blanket. These having been made tight, particularly at the neck and feet, a few other blankets, or a light bed are then carefully and closely packed over the patient. Thus hermetically sealed, as it were, for a period regulated by the feelings of the patient, the febrile symptoms become lowered and the pulse beats less frequently. At first the patient feels cool, then comfortable, afterwards warm, and subsequently he generally falls into a quiet slumber. The water in the sheet becomes tepid, but cannot evaporate from the close packing of the blankets, so that only a limited quantity of heat can be drawn from the body. In these conditions we have, I think, a full explanation of the fact, that the wet sheet, so far from being dangerous in fevers, is, on the contrary, decidedly beneficial. It controls the violence of the symptoms, alleviates the heat, renders the skin moist, diminishes the quickness and strength of the pulse, and we find that, instead of the restlessness and anxiety so general in these cases, the patient is tranquil, comfortable, and disposed to sleep. The entire organism is thus in the best possible state to allow of the complete development of the eruption. Besides, the heat within and the great desire for drinks are alleviated by the free internal use of cold water, and the free circulation of fresh air in the sick room.

The following case at once illustrates the danger of the non-development of the eruption, and the power of the wet sheet envelope to remove the evil consequences resulting from its not coming out.

C. R., aged 39, when a child, had a severe eruptive fever, but the eruption never came fully out, and for a while life was despaired of. On recovering from this illness, he became subject to attacks of chronic bronchitis, which at first was confined to a portion of each lung, but it gradually extended until at length almost the whole of both lungs was affected. Besides these attacks he was liable, on the least exposure to damp, to severe fits of asthma. During eight years his asthma became worse and worse. Often for days and nights together he was unable to lie down. To obtain relief, he used to burn in his bedroom quantities of paper which had been steeped in a strong solution of salt-petre. When I examined him I found bronchitis râles, and whistling chirping sounds extending over the whole chest, but I could scarce anywhere hear the fine respiratory murmur. He always slept half raised in bed, and was unable to ascend the slightest acclivity from the shortness of his breathing.

Suspecting that the state of the lungs had been occasioned by the non-development of the eruption in the fever he had when a child, I resolved to act powerfully upon his skin. With this object, I ordered a wet sheet envelope, which was continued twice every day, except Sundays, for some weeks. After each envelope he felt lighter and stronger, and breathed more freely. When he had been enveloped about thirty times, a slightly elevated eruption, somewhat similar to that in measles, appeared over the entire surface of the body, and was particularly dense upon the face, chest, and arms. This eruption lasted for about a week and then gradually

disappeared. It was accompanied by no increased heat of skin, no acceleration of the pulse, no affection of the brain, and no restlessness. When it had come fully out the bronchitic signs and symptoms began to disappear, and the asthmatic fits became less frequent and less trying until the lungs became healthy, and to the best of my knowledge they have ever since continued in a healthy state.

In those LOCAL DISEASES OF WOMEN which more especially come under the medical care of yourself, Professor J. Y. Simpson, and Dr. R. H. Bennett, the hydro-therapeutic treatment is of immense service. For example, a lady has been treated for ulceration of the uterus. The ulcer is cured, but still great weakness, and pain in the back remain. She is scarce able, from severe bearing down pressure, to take any exercise, and yet there is no local disease present. Under these circumstances you recommend complete rest, and artificial stimulating or soothing injections. These are continued for perhaps several months, and yet generally, even after the lapse of that period, the irritation is not greatly diminished. This irritation depends, I believe, upon a weakened and slightly congested state of the organ. Irritation of the organic nerves is produced by such a state, and is reflected along them to their roots. In support of this opinion I think you will have generally found that after severe cauterisation, although the ulceration, tumefaction, enlargement, or induration has been removed, yet the capability to walk is less than it was before the operation. The only means by which the parts may be permanently strengthened in these cases is, I believe, a course of hydro-therapeutic treatment. This treatment gives strength to the organ, and thereby lessens its congestion, and removes the irritation of the organic nerves. For these

two last states are a necessary pathological consequence of the first. I have had now under my care a large number of ladies labouring under these symptoms, who had been previously under the skilful and judicious treatment of yourself, Professor Simpson, Dr. R. H. Bennett, Dr. Whitehead, and others. The local disease had been removed and yet they were in the state I have described. Most of them had been advised by their physicians to recline entirely upon a couch for from two to eight months; and yet after they had been under my care for six or eight weeks they were able to walk, and that without any discomfort, up and down hill as well as along the level road, for two, three, or four miles at a time. I shall give you two cases in illustration of what I have stated. I could give you many more if necessary.

Mrs. M. was under the care of Dr. ———, for four months, and all local disease was removed, but yet, from the severe pain and irritation in the back, loins, and hips, together with an uncomfortable bearing down sensation, she was unable to take any exercise. For these symptoms the lady was recommended to recline upon a couch for from four to six months. "I have done so for about three months," she said, "and yet I feel myself no better." I put this lady partly under local, and partly under general hydro-therapeutic treatment, and within six weeks she was able to climb up some of the steepest of our hills without any discomfort.

An elderly lady was under my treatment for severe chronic constipation. She had learned from some of my patients who were suffering from the complaint under consideration, the great benefit they were deriving from hydro-therapeutic treatment. This lady had a daughter at that time under the care of one of our first physicians for this ailment. She at once wrote to her daughter, but without my knowledge,

recommending her to come to Ben Rhydding. Before consenting to do so, the young lady wished to have the opinion of the physician attending her, as to how long it would take before she was quite well, if she remained under his treatment. Her intention was not to leave if a cure could be effected under his care within the period of two months. The physician's words were, "The local disease is removed, but there is still great weakness of the organ, and so long as that remains a relapse is very liable to occur. I should recommend you to remain at rest for at least three months." She came to Ben Rhydding the following week, and before she had been under my treatment two months all the disagreeable symptoms had disappeared. She could take moderately long walks on foot, and she was able to ride on horseback, without any bad results, a distance of eight miles.

The reason why you are unable to perform such cures as these is, that local cauterising, artificial, stimulating, and soothing injections, along with rest, while they can remove the local disease, and quiet irritation for a short time, cannot give permanent strength to the organ, and tonicity to the neighbouring parts. Such beneficial results can, I believe, be effected only through the proper employment of natural therapeutics. The system of treatment pursued by yourself and others would, I believe, be complete, did you employ the hydro-therapeutic along with it. Indeed after you have cured the local disease you ought to send your patients for a few weeks to an establishment such as this, in order that the local parts may be invigorated and their general health strengthened.

The length of this letter has so greatly exceeded the limits I anticipated, that I must condense as much as possible what I have to say on the two next heads. I shall, therefore,

only illustrate by two or three cases the second class of diseases, viz.—those in which, in addition to the natural therapeutic treatment, THE ANALEPTIC is required. SCROFULA and CONSUMPTION belong to this division. Both of these possess the same character, and the only difference between them is, that in the former the vital force is stronger, and the disintegrating tendency less than in the latter. These circumstances are proved not merely by the symptoms present in each, but likewise by microscopic observation. In scrofula, the vitalising cellular power is greater than in phthisis. For in the latter, the tubercular matter when placed under the microscope presents a number of irregular bodies which are almost of a round, oval, or triangular form, with distinct walls, containing generally three or more granules without any distinct nucleus, and are mixed with numerous granules and molicules (miliary tubercules); or else (as in yellow tubercule) it contains few corpuscles but great numbers of granules and molicules—signs of a very low power of vitalisation. In scrofula it is somewhat different, for here we have more of a cell development, (although it has not the vigour of the cell formation in healthy acute exudation or even in healthy pus) and there are few granules and scarcely any molecules present. Indeed scrofula lies about midway between healthy nutrition, and tubercular deposit, and I believe it will generally be found that a healthy constitution becomes scrofulous before it becomes phthisical.

The healthy offspring of healthy parents, under exposure to cold and damp, with insufficient food, deprived of pure air, and without healthful exercise, present first the characteristic symptoms of scrofula, and if those circumstances are prolonged, the still lower vitalising process of Phthisis follows. I think that the experiments on inferior animals by Drs.

Jenner, Baron and others, support this view. In scrofula, therefore, we can employ natural therapeutic treatment alone, in most cases, with much greater advantage than in even milder cases of Phthisis, because the powers of life are stronger. Yet to effect a complete cure, it must be associated with the analeptic treatment, and with general artificial stimulants.

A. N. aged 25, lymphatic temperament and scrofulous diathesis, came under my care about six years ago. He had ulcers in the neck, and several of the cervical glands were enlarged and painful. There was ulceration of the head, of the right humerus, of the bones of the right wrist, and of those of the right ancle. He could not walk, but was wheeled about in a chair. He was in a sad state. This gentleman had taken a great deal of cod liver oil and of iron mixtures, but they seemed now to have lost all their effects, and he was growing rapidly worse. I put him under hydro-therapeutic treatment, and the improvement that he made was remarkable. He gained in strength and in flesh, and all the sores in the neck had nearly healed. The cervical glands had also greatly diminished, and were now not at all painful. The ulceration of the bones had ceased, and the sinuses put on a healthy appearance. After three months' treatment, the progress of cure seemed to stop, and no improvement was perceived to go on in any of the diseased parts. I then prescribed cod liver oil, iodide of iron, and light bitter beer, when the patient seemed to leap at once into health. All the sinuses healed up. He was able to walk, although obliged to do so, from the previous extensive ulceration, partly on the side of his foot. He was able to use his right arm very well, although it was stiffened from partial ankylosis of the shoulder joint.

From this case, as well as from many others which I could give, it is clear that the analeptic treatment, and

fresh air, are not of themselves sufficient to cure scrofulous affections. The analeptic treatment can improve the system up to a certain point, but from that point the system is very apt to relapse into its former, or, perhaps, into a worse, condition. Not only do nutritive substances and artificial tonics of the fittest kind, therefore, require to be given, but the system itself must be invigorated, the nutritive power called out, and the latent vital force developed. These results are also produced by hydro-therapeutics.

You will have remarked that the patient when he recommenced, after a few months of hydro-therapeutic treatment, to take cod liver oil, he sprang into health, although that treatment had, for some time before, ceased to do him any good. This is accounted for in the following way. Cod liver oil is able to develop strength only up to the existing active power of the vital force. It cannot draw out the latent vital force;—this can be effected only through the judicious application of natural stimuli. Even the use of artificial tonics is of little effect in this way, when they are administered by themselves, or in union only with cod liver oil. The little increased development gained in this way will not continue, unless the artificial tonics are associated with that form of treatment which by natural means invigorates the functions, and thereby strengthens the structures of the different organs.

For practical purposes, I generally divide PHTHISIS into three degrees of severity. The first is when consumption attacks a moderately scrofulous constitution. At this stage the constitutional powers are only a slight degree weaker than in the scrofulous. The corpuscles are present in large numbers, the granules in fewer, and the molecules in still less numbers. This degree of Phthisis can be cured, and that

although there exist even one or more cavities in the lungs. The following case supports this statement.

M. M., aged 39. Nervous temperament. Both parents healthy. He gave the following account of himself, "When a baby I was badly nursed in consequence of my mother's ill health. At eight years of age I was sent to a so called respectable school, and was unfortunately made to sleep in a damp bed room on the ground floor. We were poorly fed at school, and not very kindly treated. The result of these circumstances was, that I was obliged to be taken home with the glands of my neck swollen, my eyelids irritable and red, and my abdomen distended. After some medical treatment, and nourishing food, with exercise in the open air, I recovered; but I was never afterwards so strong as I had been before. At the age of 18 I went to business in Liverpool. After my first years residence there I began to keep irregular hours and to dissipate. I caught a severe cold which stuck to me a long time, but after going to the country for a month, I recovered. About three years ago I was out in a tremendous storm, and got drenched to the skin. I went directly home, but something prevented me from changing my dress at once. That same night I felt a cold shivering over my entire frame. The next morning I was in a high fever. A fortnight afterwards I learned that my lungs were affected, and since then I have been getting gradually worse." On examining the chest I found all the signs of an advanced stage of Phthisis. Under the left clavicle there was a loud gurgling râle and imperfect pectoriliquy. On the back over the upper part of the scapula similar sounds were heard. On the right side there was harshness of inspiratory and prolongation of expiratory murmur, along with bronchophony. This patient before coming to me had been under judicious medical treatment

in Liverpool. He had taken a good deal of cod liver oil, but with only partial benefit.

My treatment of this case was as follows:—*First.* To have the chest rubbed by the hand with cod liver oil before and behind, for twelve minutes morning and night, and with water noon and afternoon. A wash down at a temperature of 70°, and to be well dried afterwards. To be wheeled out for an hour at noon, and at three p.m., when the weather was favourable. To take a breakfast cupful of new milk, with a dessert spoonful of rum in it, at 7 a.m. Breakfast; mutton chop or beef steak, or cold beef, or light boiled egg with a breakfast cupful of one half cocoa and one half milk, and bread and butter. Noon; a raw egg beat up with a tea cupful of new milk, and a dessert spoonful of sherry. Dinner; animal food, bread and potatoes, and half a tumblerful of water. Evening meal; cocoa, bread and butter. To drink three tumblersful of water during the twenty-four hours. To sleep upon a mattress and a hair pillow. Temperature of room 60° to 63° and ventilated. *Second.* Rubbing of chest to be continued. To wear a wet compress well wrung out of cold water, and well covered with dry linen over the chest. This compress to fit well. Dripping sheet and shallow bath alternately every morning, and every afternoon wash down. To drink six tumblersful of water during the day. To be out a good deal, but to be careful to avoid fatigue. To have the expansive chest movements for ten minutes twice a day, and to play a little at Bowls several times during the day. To take a dessert spoonful of cod liver oil, with eight drops of the syrup of iodide of iron and quinine, in the fourth part of a tumbler of bitter beer two hours after breakfast, and immediately after dinner. *Third.* Twice a week, at noon, a towel envelope for twenty minutes, and shallow bath one

minute. Twice a week, at noon, rain bath half a minute. The other days at noon a wash down. After four months treatment this patient returned home in good health and is quite well. The natural respiratory murmurs returned, although they were weaker in the left side than they ought to have been. The percussion over both sides of the chest was clear, and he gained in weight two stones and eleven pounds.

In the treatment of this patient, the rubbing of the chest with cod liver oil tended greatly to relieve the chest, and to lessen the irritation felt at the bottom of the wind-pipe, whilst the rubbing with cold water remarkably invigorated the cells of the lungs, and removed the relaxation of the mucous membrane lining the air tubes. You will have remarked that the wet compress was not applied to the chest until the second stage of the treatment. The reason for this is, that it was not suitable to apply the compress over the chest until a constant glow existed there. This glow was produced by the frequent frictions, and then when the compress was applied it became warm immediately and was felt by the patient to be comfortable. The compress soothed to a remarkable degree the irritation existing on the chest, and by slow evaporation through the dry thick covering, acted at once as a sedative and a tonic. The general baths also acted as tonics and sedatives. The envelopes soothed and caused gentle and incipient perspiration. The expansive therapeutic movements enlarged the cavity of the chest, and the patient inspiring deeply each time the walls of the chest were expanded, the air tubes also became distended, and thus they underwent, indirectly, a kind of gymnastic movement. The cod liver oil, and the iron mixture were not prescribed until the patient had been for some time under hydro-therapeutic treatment. My reason for delaying the use of these substances

is this, I find that the system is more beneficially affected by them after a short course of hydro-therapeutics, than if they are prescribed when the patient first comes under treatment. These two remedies have a powerful effect in aiding hydro-therapeutics after it has been employed for some time in evolving vital action.

The second degree of consumption is that in which the corpuscles are fewer than in the first, but in which the granules are more numerous. In this stage the vital force is low, and the tendency to disintegration great. In such cases, only the mildest forms of the hydro-therapeutic treatment can be employed. But this treatment along with nourishing food, gentle stimulants, a mild and dry bracing atmosphere, frequently produces most satisfactory results. Persons labouring under an advanced state of this stage of consumption, I believe, never recover. They may be relieved and slightly improved, but I feel confident that they never can be cured. Here our great object will be, to employ just so much of the hydro-therapeutic treatment as will develop the vital force. But care must be taken not to exceed in the slightest degree the natural power of the frame. It is urged, in condemnation of the employment of the hydro-therapeutic treatment in Phthisis, that cures are attempted by natural stimuli, through the over-increase of the waste of tissue. We have, indeed, such views expressed in the works of some who have written on "Hydropathy." But provided the hydro-therapeutic treatment be judiciously employed, the over-waste will take place only in those very structures which we seek to remove; for the vital force being always weaker in diseased formations, these are gradually consumed and may be ultimately removed altogether, by a course of treatment which only gives vigour to the healthy parts. If this statement be cor-

rect, then the employment of the hydro-therapeutic treatment in connexion with the analeptic, must be of the first importance in a disease where the waste of tissue is rapid, and the vital force low. I have no hesitation in saying that by this combination of treatment, I have, during the last year, been the means of removing in a great number of persons diseased conditions of the lungs, which otherwise must have rapidly occasioned death.

The last stage of Phthisis I regard as altogether incurable.

There is a kind of PARALYSIS occasioned by gradual loss of nervous power, which I have reason to believe depends upon a gradual decay of the entire organism. Every tissue seems to be threatened with an usurpation of power by the chemical over the vital force. The smell which arises from a corpse two days after death, is given off by the surface of the body when this disease is far advanced, and a similar odour is exhaled by the breath. I have had under my care six patients who laboured under this sad disease. The patient has at first no marked symptoms. His appetite is good. His bowels are only slightly sluggish. He feels somewhat listless, and is unwilling to take a walk of any length. After a while he feels some fatigue from a short walk. A slight numbness is felt in one of his fingers, which gradually extends to some of the others, and then up the arm. When you request the person to squeeze your hands, you feel that although he may close both his hands with apparently equal force, yet the nerves of volition do not obey the mandates of the will so readily in the affected arm as in the one in health. In a similar way, loss of nerve power gradually extends over the entire frame until at length the respiratory organs become affected,

and the patient dies partly from suffocation, and partly from general weakness. I have had under my care, as I have already stated, six cases of this sort, two of which were fatal, but the four others were cured. One was a lady about 19 years of age. She was brought to me in a very sad state. She had lost almost all power over the superior and inferior extremities, and there had been a gradually increasing paralysis for about eighteen months. This general weakness came on very insidiously, and the lady first remarked it from the circumstance, that she could not dress her hair as freely as formerly. This disease had advanced very considerably before she came to Ben Rhydding, and in particular during the month immediately preceding her arrival, it had made rapid strides. There appeared to be an increasing general decay of the system along with extending paralysis. Her bedroom had a slight sickly putrefying smell in it, just like that which a room has in which a corpse has lain for a couple of days, and a similar odour was perceived from her breath, and was exhaled also from the body. Nothing could retard the downward progress of the disease. Twice, indeed, I thought that I had arrested it, and it seemed that I did so for a few days; but then the declining symptoms came back, and blotted out the slight ray of hope which arose each time within the bosom of her physician, and her anxious relative. This lady returned home and died soon afterwards. This was a distressful case to watch. A lady of beauty, possessed of a fine intellect, and of well-regulated sentiments, and growing into full womanhood, falling into the grave, from a gradual putrefaction of the whole frame, was truly a sad spectacle to behold.

The other fatal case was that of a gentleman, who was under my care only a fortnight, and when he first came I gave no hopes of recovery. This gentleman's paralysis came

on very gradually, and he was so slightly affected a year and a half before I saw him, that when he consulted some of our first physicians in London, he was assured that he would soon be well again. The following is a sketch of the case as dictated to me by the patient himself:—"This disease came upon me at first very insidiously, and crept on with equal insidiousness all along, until about three months ago, when it began to make much more rapid progress, and ever since, its progress seems to go on more rapidly every month. Two months ago I could step, with the assistance of a manservant, into my carriage. Now I cannot lift my foot three inches from the ground. All the functions of my body have become gradually more and more torpid, but my intellect is as clear as ever." In this gentleman the paralysis gradually extended over the entire frame. By degrees he lost nearly all power over the voluntary muscles. His bowels were very much enlarged, and felt to my hand like a dead weight when moved from one side to the other. They would not act without the use of very strong purgatives. At length the muscles of the trunk began to give way, and the paralysis gradually extended up the abdominal muscles and those of the back, until he became so weak, that when we endeavoured to make him sit up, he fell forward as if his back had been broken in the middle. This gentleman left me after a fortnight's stay, as I found I could do nothing for him, and in a few weeks afterwards he died from complete paralysis. While alive, a putrid odour was exhaled from his body and breath, and a most offensive smell was given off by his fæces.

The four other cases are interesting, as showing the power which the hydro-therapeutic treatment, along with the reparative, has in retarding and ultimately overcoming this otherwise insidious and fatal disease. I shall give you one of these as an illustration.

J. D., 36, single. Father and mother healthy. Junior partner in a large mercantile house. Has been much abroad, and closely engaged in business. Has lived pretty well, but never been a hard liver. Two years ago when engaged in business he had a severe disappointment, which, to use his own words, "affected me a good deal, and occasioned depression of spirits, but my appetite was good, and my bowels regular. I slept well, and could attend to business. About a year ago I felt first a numbness in the little finger of my right hand. Then I felt I could not write so freely as before. As it slightly increased I consulted my medical man, who gave me something to take, and also a liniment to rub the part with. My bowels now became somewhat sluggish, and I had now and then a disagreeable feeling of faintness over my heart. The weakness after a while began to extend to my left leg. Instead of walking as I usually had done to the office, I drove; not from any real want of power, but from an unwillingness to walk. At length I was very much startled one morning in trying to mount my horse, (which I had not done before for almost six weeks,) to find that I was unable to give the spring requisite to vault into the saddle. I felt a sort of dead weight, a want of elasticity about my limbs. This state of matters so alarmed me, that I went at once to consult my physician, whom, it is proper to say, I had not seen for fully a fortnight before. After he had carefully examined me, he said, 'This will not do, you must go for a while to Ben Rhydding, and go through a mild course of tonic treatment, which, with the bracing air, and plain diet, will probably give you your nervous power back again.'"

I immediately placed this gentleman under a mild course of tonic hydro-therapeutic treatment, with a plain nourishing diet. He had the therapeutic movements twice

a day first, for ten minutes at a time, and afterwards for gradually increasing periods, and he was ordered to drive out, for an hour or so, once or twice a day, when the weather permitted. After five months treatment, he returned home in robust health. It is my opinion, and I believe the facts of the case fully warrant it, that had not this gentleman placed himself under my care when he did, he would ultimately have passed into the same condition as the two patients mentioned immediately before this one.

I come now to the last section of treatment, the SPECIAL THERAPEUTIC. The specific action of medicine has been advocated more or less strongly, and consistently by all medical men of reputation, from the days of Hippocrates downwards. We have it advocated in the works of Galen, in the suggestive writings of Stahl, and in the productions of our best modern authors. If it be true that particular medicines act upon certain structures more than upon others, this truth only requires to be carried out into a general law, to convert the medicinal treatment of disease, which, as yet, is merely an art, into a science. We know that mercury acts specifically upon the glandular system and the serous membranes, aconite upon the vascular system, and arsenic upon the external and internal mucous membranes. If the general law be admitted, and if the features of medicinal actions be known, we have a complete system of medicinal treatment, the importance of which, in removing disease, we cannot measure. The special therapeutic treatment of disease is required in all those ailments in which diseased action exists, in contradistinction to those affections depending merely upon debility, or upon loss of nervous power, nutritive force, &c. I need scarcely remind you, that in chronic affections much

the larger portion of the ailments under which humanity suffers, depends upon these latter causes, and I think you will agree with me when I state, that if there be any one point, more than another, upon which medical men go wrong, it is in mistaking mere functional debility for diseased action. I could quote to you numerous cases of patients, upon whom the physician had been in attendance for months, and sometimes even for years, giving them medicine daily, without producing any benefit, but who, by a judicious course of the natural therapeutic treatment, were enabled to return home restored to health in a few weeks. But I must now refrain. Under this section of treatment farther I shall make only a few remarks, with reference more particularly to the repetition of medicines, and the quantity required for the removal of diseased action.

My own observations have led me to entertain the following views upon these points. In all purely functional diseases in which there is no tendency to inflammatory deposits such as dysmenorrhœa, nervous headaches, tic-doloureux, &c., and even at the commencement of inflammatory action itself, I believe that extremely minute doses, such as the one-tenth of a drop of the tincture of aconite, given more or less frequently, will act more efficiently, more rapidly, and occasion less medicinal disturbance than larger doses. On this point I feel certain. For in several cases of tic-doloureux, dysmenorrhœa, &c., I have frequently given the usual dose of the medicine suited to the disease without any benefit, whilst in the *same cases* I have given much smaller doses with marked benefit. This view, I repeat, applies to those diseases which are purely functional and which either have no tendency to secrete, or have not yet secreted morbid matter. In inflammatory diseases, however, when deposition

of lymph is taking place, I believe large doses to be essential, in order that the system may be brought under the specific action of the remedy as early as possible. Acute pleurisy illustrates this point well. In this disease the physician is rarely called in until the inflammatory action and some of its results have taken place. Here, in order to stop the progress of effusion and to cause the reabsorption of the matter effused, mercury, I believe, must be given until the mouth is affected; for until then the inflammatory action continues unabated. I had an illustration of this fact lately. I was attending with another physician a case of acute pleurisy; lymph and serum had already been effused and inflammatory action was going on. We gave mercury, but it had no power over the disease until the gum became sore, but then the inflammatory symptoms ceased, and absorption began. The mercury was ordered to be stopt, but in a few hours afterwards we were sent for. The pulse was up. The palms of the hands were burning hot, the face slightly flushed, and the effusion of the chest had decidedly increased. The mercury was again ordered. Within twelve hours the mouth became again affected, on which the inflammatory symptoms again began to diminish. The pulse came down, the palms of the hands were no longer hot, and the surface of the body was covered with a gentle cooling perspiration. My object in giving you this illustration here, (and similar cases, I have no doubt, must have happened frequently in your own practice,) is to place in strong relief two kinds of medicinal treatment, and to show the relative value of large and small doses in certain diseases. For I believe that in all functional derangements where there is no tendency to inflammatory deposit, or where the deposit has not yet occurred, the most powerful curative effects are produced by minute doses given more or less fre-

quently; while in inflammatory diseases when deposits are taking place, the doses ought not only to be given frequently but also in large quantities, so as to bring the system as early as possible under their remedial influence. When, however, the diseased action has been overcome and the patient is recovering, all medicinal remedies ought to be given up and the mildest form of the natural therapeutic treatment ought alone to be employed. Lasting injury is often done to the constitution by the continued internal use of medicinal remedies. Indeed experience has fully satisfied me that no medicinal substance can be given for any length of time without a certain portion of it remaining in the organism, and producing bad health.

This letter must now be brought to a close. It has already far exceeded the limits which I proposed to myself at first. But I was anxious to give you as fully as I could in a single letter, my views of the treatment of disease generally; and, in particular, my views as to the position in medicine, which the hydro-therapeutic treatment ought to occupy and, I believe, will ultimately take. Far from regarding this or any other single system of cure as a panacea by which the human frame is to be relieved from all disease, I am satisfied that even in many cases in which hydro-therapeutics alone may be of great advantage, the full benefit of that mode of treatment can be secured only when it is aided by various other therapeutic adjuncts. But while I do not claim any such universal efficacy as this for hydro-therapeutics, yet, taking every thing into consideration, I do look upon it as of all branches of medical treatment by far the most important. I believe that it is capable of curing a greater number of diseases than any other single branch

of treatment can overcome; and I feel confident that it is the best means we possess of removing constitutional taints from the system. Nor can I entertain a doubt that were it carried into private practice as a fully recognised branch of treatment, it would shield many a happy home from grief, and greatly alleviate or entirely remove much of the misery which is occasioned now by chronic ailments. This is all that I claim for hydro-therapeutics; and I think I have shown that in claiming this much for that system, my views are supported by the laws alike of physiology and pathology, and therefore are fundamentally in accordance with the generally recognised theory of cure. At any rate, the views which I have sketched so imperfectly have not been rashly adopted, but are the matured result of fourteen years' anxious study at home and abroad, of close observation, and of extensive practice.

