

rally the practice, but to finish the treatment by the cautious exhibition of mercury.\* Whatever will favour the development of the corresponding lung, so as to enable it to do its own duty and also the office of its fellow, will, however, be the surest safeguard against the effects of the disease ; and with this view, it is probable that the most active life, as to exertion, particularly in such exercises as will tend to develop the sound lung, such as long walking, riding, gymnastic exercises in moderation, will be the most beneficial habits for the patient ; and above all, in the female, the discontinuance of the use of stays, or any dress that will press on the thorax and interfere with the compensatory development of the sound lung.

ART. XIII.—*Observations on Sciatica and other Neuralgic Affections, with a Consideration of their frequent Origin from a disordered State of the Stomach ; interspersed with some novel Views respecting the Origin and Prevention of Gall-Stones ; both Diseases exemplified by the Author's own Case ; together with an Account of the Waters of Bagnères de Bigorre and Barège in their Treatment.* By RICHARD CARMICHAEL, M.R.I.A., Corresponding Member of the Royal Academy of Medicine of France, &c., and Consulting Surgeon of the Richmond Surgical Hospital, &c. &c.

[Read at the Evening Meeting of the College of Physicians, on the 18th of April, 1838.]

THE President having kindly invited me to read a paper at this meeting, I began to consider what subject would be most agree-

\* Dr. Stokes, in his recent work on Diseases of the Chest, has noticed, and is the first writer who has done so, that contraction of the side has sometimes followed the cure of pneumonia. Contraction of the side after pneumonia is not usual ; and it is probable that, in the instance noticed, there was deposition of lymph into the interlobular cellular tissue of the lung, which gradually took on the contractile action, constituting the disease here described.

able to the College, when it struck me that some account of the Bagnères and Barége waters, to the salutary influence of which I feel indebted for the honour of now addressing you, might convey some information not generally known, and therefore be useful to those who may be induced to seek for that greatest of blessings, health, at the sources of these celebrated springs. This naturally led me into a statement of my own case, a most dangerous theme for any person to enter upon; for set a regular valetudinarian upon his favourite topic—the recital of his pains and aches—and he will proceed with undiminished ardour *ab ovo usque ad mala*, which may be appositely construed, from your egg at breakfast to your apple at supper.

With this fear before my eyes I shall endeavour to restrain *my* hobby within due bounds, and enter upon this perilous career with confidence, as I am persuaded that the suggestions which occur to a reflecting medical man concerning the disease under which he himself has suffered, are likely to throw considerable light on its true nature, and most appropriate mode of treatment: in support of which opinion I need only adduce the excellent Essay of Doctor Bree on *Disordered Respiration*, as well as many other works of medical men on the *maladies* with which they had themselves been afflicted.

My complaint was a most severe sciatica, preceded and accompanied with the various symptoms of dyspepsia, spasms of the stomach, and gall stones. It is necessary, in the history of my case, to state facts which shew how considerably derangement of the digestive organs is concerned in the production of sciatica and other neuralgic affections. In these observations I shall have occasion to refer frequently to the appearance and characters of the urine, as indicative of the state of the stomach. I shall also offer some conjectures respecting the cause of the formation of gall stones, and consequently how this most painful malady may possibly be prevented. With this notice duly entered, you may perceive, Mr. President, that the paper which I am about to read is a melange which treats *de omnibus rebus*

*et quibusdam aliis*; and that perhaps the recital of my own case ought only to be esteemed a convenient peg upon which to hang these various topics. Be that as it may, I shall endeavour to condense my observations into as narrow a compass, as the necessity of being intelligible will admit.

I attribute the general derangement of my health, which led to the attack of sciatica, to an error in regimen, to which all professional men are most prone—I mean to that inattention of taking in nourishment at regular and fixed periods; and this is an error most likely to occur when it is most desirable that regular supplies of nutriment should be taken, in order to restore the waste which great bodily or mental exertions occasion. Having reliance upon a good constitution capable of bearing great fatigue, I became habituated to fast from eight o'clock in the morning until eight in the evening. In October, 1827, after a particularly severe day's work, both mental and bodily, I was seized during the night with an acute pain in the region of the stomach, attended with a feeling of extreme weight and distention extending to the spine. This was attended with coldness of the extremities and a pale ghastly appearance of countenance. It had all the characters of an attack of spasm of the stomach, and lasted several hours, but at length yielded to hot water, brandy, and opium. Similar attacks occurred occasionally, but did not prevent me from attending to my professional business, which I performed, however, with a reluctance and *ennui*, by no means natural to me. In the November following I was attacked with a gastric fever of the most severe description, attended with incessant sickness and vomiting, pain on pressure in the region of the stomach, and delirium. These symptoms yielded with great difficulty, to repeated leeching and blistering over the region of the stomach; and to small doses of calomel frequently repeated. When sufficiently restored I went to the country to recover my strength; but had the imprudence to remain there but a fortnight, when I returned to Dublin, and resumed my professional practice, while I was still scarcely able

to walk up and down the stairs of the houses of my patients. I felt at this time an unusual languor and lowness of spirits, although at no period of my life was I more prosperous in my profession. My appearance betokened ill health, and I felt no inconsiderable apprehensions that I was about to become a victim to diabetes mellitus, as the urinary secretion had increased to upwards of sixteen pints daily, was colourless, and accompanied by a dry state of skin, while at the same time I had a ravenous appetite. On examination, however, the urine was found to be only albuminous, and did not exhibit any signs of saccharine matter. These alarming symptoms of approaching diabetes mellitus were obviated chiefly by the daily use of the warm bath, which restored the skin to its functions; and I was gratified in finding, that as the skin became soft and perspirable, the secretion of urine diminished.

I look upon a close observance of the state of the urine to be of the utmost importance to the dyspeptic patient. For not only is the deviation just noticed of consequence, but when he finds it vary from the clear, healthy, amber colour, and become dark, clouded, and turbid, or otherwise changed in ways that shall be adverted to, he may be certain that he has eaten or drunk more than was prudent; or, that the quality of his food was such as to irritate and excite his stomach beyond bounds, the powers of which had been already weakened; or that he has prolonged his fasting to too great an extent; or that he has used exercise, either mental or bodily, immediately after meals; or that he may have neglected to use sufficient exercise at the proper periods for bodily exertion; or finally, that the cares or anxieties of life have, through the medium of the brain and nervous system, disturbed the functions of this all-important organ. In fact, the state of the urine points out when errors are committed by the dyspeptic against the organic laws, with the same promptitude as the fabled ring of the Sultan Amurath indicated those against the moral laws; and these indications follow the errors in regimen above alluded to, with such constancy, that little mischief is likely to arise, if

they are received as a warning against their repetition. By this precaution alone, functional disorders are easily remedied, and organic changes most effectually prevented, not only in the stomach and intestinal canal, but in those which are likely to follow, if the first are unattended to, viz., in the liver, kidneys, lungs, and brain. *Venienti occurrere morbo*, is an adage, the wisdom of which every body admits, but to which few attend.

It may be imagined from these observations, that I wish to bring the profession back to the state it was when the urine doctors were held in high repute. This is by no means my object. Mankind are for ever prone to run into extremes, and the practical utility arising from the appearance of the urine was at one time in such estimation, that all the other symptoms, with which a patient was affected, were overlooked, in comparison with the indications afforded by the urine. Just in the same way as some young medical men of the present day seem to think, that in discriminating diseases of the chest, the sounds conveyed to the ear by that most useful instrument, the stethoscope, may supersede the necessity for inquiry into the history and general symptoms of the disease. This folly of the urinists, was pointedly, but not very delicately, ridiculed by the celebrated Doctor Radcliffe, Physician to Queen Anne. A woman brought him some urine in a vial, and presenting it, requested advice for her sick husband. What is your husband's business? A shoemaker, was the reply. Then tell him, quoth the doctor, to make me a pair of shoes, here is my measure; at the same time returning to her the vial, from which he had poured her husband's urine, and replaced it with his own. This well-known anecdote of the sarcastic Doctor Radcliffe, did more to upset the pretensions of the urinists than the most demonstrative argument. But surely, we should not on this account neglect the indications which the changes in the urine afford of functional derangement—the very threshold of disease. When diseases are fully formed, or organic affections exist, as in fever, gout, hepatitis, dropsy, &c. &c., the useful practical indications af-

forded by the state of the urine are universally admitted ; but I would wish to call attention to the practical advantages of also watching the state of the urine in every case of disorder of the chylopoietic viscera, particularly of the stomach. For several days the urine in dyspeptic persons may remain of a clear, healthy, amber colour, then it will suddenly become clouded, sometimes with a white, and sometimes with a yellow or nut-coloured brown sediment ; at other times it will be of a deep brick-red, on which occasions the urinal is often coated with a pink-coloured sediment, such as is found in the urine of gouty persons. Prout observes, respecting this deep colour, that “ the more the sediments approach to *brick-red*, the more of lithate and purpurate of soda they contain ;” and that this deep colour always denotes the presence of some feverish or inflammatory action. The white or yellow sediments consist of lithate of ammonia, with more or less of the phosphates ; and these are the sediments to which even the healthy are subject, when they commit excesses in regimen ; but considerably more so the slightly dyspeptic. In the latter they may be occasioned by the most trivial errors in diet. When the urine exhibits those coloured sediments, the lithic or animal acid diathesis may be said to prevail ; but in other instances in which the urine is pale and much increased in quantity, and deposits, when cool, white earthy-looking sediments, which consist of the triple phosphates of magnesia and ammonia, the uric acid seems to be deficient, and, therefore, not eliminated by the kidneys from the system. The urine in cases of this description does not redden litmus paper ; on the contrary, it is alkaline ; but this may be owing to the evolution of ammonia, as it is very prone to decomposition. This state of the urine is indicative of the highest degree of derangement of the digestive organs, in which not one of them seems to perform its allotted functions. There is sickness, flatulency, acidity, constipation, and black or clay-coloured faecal discharges. In this state of urine a pellicle often forms on its surface, which, we are informed by Prout, consists of minute

crystals, composed also of the triple phosphate of magnesia and ammonia. The expression of the countenance in such instances is pale, haggard, and betrays universal derangement of the system. This was my state at the period of presumed convalescence, which succeeded and continued for many weeks the gastric fever I have mentioned, and is the state which Prout terms the phosphatic diathesis. As I improved, it changed to the lithic diathesis, which continued until I drank the waters of Bagnères, of which I shall soon speak more fully. During this period of my illness, the slightest deviation from the strictest rules of diet was sure to be followed by sediments in the urine, whose depth of colour corresponded with the degree of irritation, or dyspeptic symptoms induced. I was obliged to relinquish vegetables altogether, and of animal food and bread I could not, perhaps, take one-fourth of what my appetite would prompt me to use, without exciting unpleasant symptoms, always followed by those sediments.

The attacks of spasm or sudden pain at the pit of the stomach, extending to the back also, became gradually more frequent. I now began to suspect that they were occasioned by gall stones, as my eyes and skin became tinged with bile after each successive attack, and the urine betrayed the usual appearance it presents in all jaundiced persons. The attack usually came on between two and three hours after a meal, the first indication of which was a sense of fulness at the pit of the stomach, the certain precursor of a most overcoming sensation (as if a heavy weight were lodged there) between this and the spine, that often made me writhe with agony upon the floor. Large and repeated doses of opium, with draughts of hot water, afforded the only relief to attacks, under which I continued to suffer subsequently for more than two years, and which necessarily occasioned great debility and emaciation.

One night, after a severe attack of this description, which came on as usual about two hours after eating, I began to consider why it always happened, that the attacks should so regu-

larly occur between two and three hours after a meal, no matter whether breakfast or dinner. The obstruction of a gall-stone in the duct, which occasions the pain, is mechanical, but why should it only occur at the periods mentioned? To this question the following answer suggested itself to my mind.—That as soon as the chyme passed from the stomach into the duodenum, (which was ascertained by Dr. Beaumont of New York, to be on an average of from two to three hours,) its presence in the intestine stimulates the extremity of the common gall-duct, and consequently the demand is answered by a supply of bile, to complete the process of chylification, not only from the liver but from the gall-bladder. The flow of bile from the latter carries with it the gall-stones it contains, if not too large to enter the cystic duct. These becoming impacted in some portion of the gall-ducts, occasion the spasms and severe agony which attend the paroxysm, until by the use of opium or other means, such relaxation of the spasms is induced, as enables the gall stones to pass either into the duodenum, or back again into the gall-bladder. If the impaction takes place in the cystic duct, pain without jaundice may arise; but if the obstruction occurs in the common duct, the patient becomes jaundiced, as the entire mass of bile—that secreted immediately by the liver, as well as that accumulated in the gall-bladder is prevented from passing off into the intestinal canal; and consequently, being absorbed into the general system, occasions a regular attack of jaundice. The latter was my case. In corroboration of these views, it is observable, that some animals, the horse for instance, are not furnished with gall-bladders; and the reason of this seems to be, that a reservoir for bile is only necessary for the assimilation of large quantities of food taken in at distant intervals. None of the carnivorous animals are without gall-bladders. They are capable of enduring long fasts, and then gorge their stomachs to excess; therefore a reservoir of bile for those frequent great demands upon the digestive powers of those animals is necessary. Herbivorous animals, with capacious stomachs, also re-



quire such a reservoir on account of the large quantity of nutriment they take in at a time, and are therefore furnished with gall-bladders. But the horse has a small stomach, capable of containing little food compared to that of other animals, consequently it must be the oftener replenished ; therefore there is no necessity in this animal for a reservoir of bile, in order to complete the digestion at any one time of a large quantity of chyme. The reason the horse is thus constituted is obvious. He is furnished with great locomotive powers ; but these powers would be useless, were he also supplied with a large stomach ; for when put to that speed which we so much admire in this noble animal, a capacious stomach filled with food would prevent the play of his diaphragm and oppress his lungs.

This view of the uses of the gall-bladder also serves to explain the origin of gall-stones. These bodies are nothing more than inspissated or impacted bile ; and such inspissation is most likely to occur in those who fast inordinately long, and in whom the demand for the bile in the gall-bladder occurs only at very distant intervals. The consequence is, that the more fluid or watery parts of the bile are absorbed, and that which remains is so thickened as to afford the nuclei of gall-stones. In support of this view, we should recollect that absorption is most active in the absence of due nourishment.

Hence, to look beyond myself to others, we perceive the reason why those who are most frequently the victims of this disease are generally the most intellectual part of mankind, as literary men, lawyers, physicians, and all such as in the ardour of pursuing their sedentary avocations, are unmindful of the necessity of supplying the system with due nourishment at regular periods. While it is equally observable, that manufacturers, artisans, shopkeepers, and all those who have their meals at regular and fixed periods, are comparatively little subject to this most distressing malady. If it were found, on inquiry, that savage nations, who live on the precarious supplies of the chase, and who therefore, after long fasts, gorge their

stomachs to excess, are prone to gall-stones, it would give the force of demonstration to those views, which, if correct, afford simple but important practical indications of the best mode of prevention, by enforcing the utility of taking our meals at regular and fixed periods, which I need not say ought to vary with the age, powers, and constitution of the individual. The younger the person, the more frequent the necessity of nourishment. The same may be said of invalids, who not possessing the powers of digesting a usual moderate meal, must supply the deficiency by repetition. But every sixth hour during the day may be esteemed the averaged time for the healthy adult, and certainly ought not to exceed every eighth hour.

From the preceding observations, let it not be imagined that I advocate the heavy meat luncheons so much in vogue. On the contrary, I am sure our profession is a hundred to one more indebted to the extremes of eating than to those of fasting, particularly amongst the better ranks of the softer sex, who in consequence of the enjoyment of a carriage almost forget how to use their legs except in a ball-room. Thus from their habit of over-exciting their stomachs with two dinners daily, of tight lacing, and of enjoying little or no exercise, there is no class of persons in society to whom the medical profession is so deeply indebted for patronage and support. Either let their usual lunch be their only dinner, or let them be satisfied with a light sandwich or a biscuit; or if they prefer it, let them continue, *Deo volente*, to force their delicate appetites with two dinners daily, sit tightly laced in their carriages, and take physic—and the medical world will thrive accordingly.

But to return to my own case. Notwithstanding the serious afflictions of dyspepsia and gall-stones, I continued to labour through my professional avocations during the summer of 1828; at the latter end of which, I first began to complain of pain in the hip, along the course of the sciatic nerve. This I thought to fight off by exercise; but in vain; the more I exercised, the more the pain increased, and ascending a flight of stairs be-

came soon far worse than the punishment of the treadmill. Still I laboured on, visiting my patients in a close carriage, but was reduced to the necessity of being carried up stairs to those who were unable to see me in the lower apartments. As an instance of my folly and perseverance, I recollect the observation of my friend Mr. Colles, while assisting me in two painful and tedious operations : " that although my patients seemed to suffer great pain, yet that he was certain that I suffered ten times greater."

After persevering obstinately in this unwise course for some months longer, I was at length obliged to give in, and confine myself to bed, in which I was not even able to turn without assistance. I now used a variety of remedies : mercury was taken so as to affect the gums ; afterwards turpentine, until it occasioned stranguary ; then the carbonate of iron in large doses ; and lastly, the compound infusion of sarsaparilla in lime-water ; while acupuncturation, cupping, blistering, and tartar emetic ointment, were in succession applied over the course of the sciatic nerve and its branches. Of these remedies, mercury and turpentine seemed the most efficient ; but nothing gave relief from acute pain, except large and repeated doses of opium ; of the preparations of which, black drop was preferred, as it occasioned but little disturbance of stomach. When suffering under the tortures of this most severe neuralgic affection, a dose of black drop would, in fifteen or twenty minutes, not only relieve me from pain, but produce such a happy state of tranquillity and pleasurable sensations, that I had a narrow escape from becoming ever afterwards a regular opium-eater or drinker.

Sciatica appears to be nearly related to gout ; for I was frequently awoke at night, with acute pain in the instep or ball of the great toe of the affected limb, so that I expected, on the return of morning, to see the usual inflammation of gout occupying these parts, particularly as I had known more than one instance of sciatica to be relieved by an attack of regular gout. However, this fortunate termination of sciatica did not fall to

my lot. Erratic pains through all the joints, unattended by inflammation, are by no means unusual in those who suffer under dyspepsia ; but in others, acute inflammation of the joints will succeed those pains ; and this is the disease to which, I believe, the popular term of gouty rheumatism, or rheumatic gout is applied—a good distinctive cognomen, indicating a species of rheumatism connected with derangement of the digestive organs, as contra-distinguished from that other form of rheumatism which arises from undue exposure to cold and moisture. This distinction I consider of great practical utility ; because in the first mentioned species we shall in vain endeavour to free our patient from his pains, until we improve the state of the digestive organs and general habit.

I am convinced that the great majority of neuralgic affections have their origin in the same causes, or state of constitution, as those erratic *gouty* pains (I make use of the term for want of a better) to which I have alluded. The affections of the fifth and seventh pairs of nerves, under the name of *tic douloureux*, and that of the sciatic nerve, under the term of *sciatica*, are those with which we are most familiarly acquainted. But there is not a part of the body whose nerves are not liable to this painful affection, which renders our diagnosis at times extremely difficult. The following circumstances would guide *my* judgment : I should conclude the pains were neuralgic, if, though acute, they are fleeting, and not permanent. If they are unattended by pain on pressure, or by any of the local or constitutional signs of inflammation, or of hectic fever. If with these negative signs, we have positive indications of permanent disease in the suspected organ, we can seldom err in coming to a just conclusion.

Neuralgia of the breasts in females is a very frequent disease, and excites great alarm in the mind of the person affected, from the apprehension of cancer. The absence of induration or tumour, and both breasts being affected with the flying or lancinating pains, together with positive evidence of derangement of the chylopoetic viscera, or of the uterine system, point out the

true nature of the disease. However, in women of large breasts, there may be great difficulty in ascertaining the existence of tumour or induration, and in such persons we must give a very guarded prognostic, particularly if the pains occur between the fortieth and fiftieth years, the period of life most susceptible of cancer.

Neuralgia of the testes, extending to the perineum and pubes, is also not unfrequently met with. It most usually occurs in irritable persons, after a gonorrhœa virulenta, and excites great distress and apprehension in the mind of the patient. In several instances I have been successful in removing those pains by exciting a discharge from the urethra, by means of irritating bougies, or the application of nitrate of silver to the membranous portion of the urethra. My friend Doctor O'Beirne informs me, that he has been successful in removing neuralgic affections of the breasts and testes, by exciting a crop of pustules, with tartar emetic ointment over that part of the spinal cord which supplies these organs with nerves: a view well deserving of attention in our present state of uncertainty respecting the immediate causes of neuralgic affections; and, in corroboration of his views, I may mention, that I have found no means more effectual in removing the severe pains, particularly of the muscles of respiration, to which hysterical women are subject, than the irritation of tartar emetic ointment along the spine. I could adduce a considerable number of instances of the success of this plan, when assafoetida, valerian, ammonia, and all other medicines of this class had failed.

The sphincters of the anus and bladder are liable to be affected with neuralgia, which, independently of pain of a spasmodic character, produces most distressing symptoms arising from disturbance of the functions of muscles so important to the business of animal life.

Neuralgia of the knee-joint so closely resembles the symptoms of ulceration of the cartilages, that it is often exceedingly difficult to distinguish these diseases from each other, a circumstance which may lead to the most distressing errors in practice.

I have myself witnessed two instances of amputation performed by experienced surgeons, under the belief that their patients laboured under ulceration of the cartilages; and yet on examination of the amputated joints, not a vestige of organic disease could be discovered. I should imagine that this mistake is not unfrequent, as I have heard of other instances from a quarter upon which I can place reliance. If there is any doubt upon our minds respecting the nature of the disease, it would be wise to defer amputation until the symptoms of hectic fever make their appearance.

It is extraordinary to what an extent pain can exist in nerves, without any sensible alteration in their structure; but perhaps organic changes are induced, which our ignorance of the minute texture of nerves does not as yet permit us to appreciate. When the microscopic observations which are now going forward have discovered the difference between the minute structure (for I have no doubt but differences will be found) of the motive and sensitive nerves, and between the various portions of the nervous system which possess distinct functions, it will be then time enough to endeavour to ascertain the minute organic alterations which disease may induce. Many years since, in dissecting a subject, I found a portion of a needle, three quarters of an inch in length, imbedded in the very centre of the sciatic nerve, where it passes behind the great trochanter; and yet there was no thickening of the nerve or its investment, nor any of the usual signs of the effects of previous inflammation. Hence we may conclude, that the nervous structure is but little subject to inflammation and its consequences. But this admits of a doubt; for we often find that, after amputation, the most severe neuralgic pains occur in the stump, and in such instances the cut extremities of the nerves have been found indurated and enlarged. It is also said, that in those who have suffered severely from sciatica, the neurilemma of the sciatic nerve has been found thickened and enlarged. In one instance, that of a woman who died of *tic douloureux* in the Richmond Hospital about two years since, the Gasserian ganglion of the fifth pair of nerves was

found hardened and enlarged to the size of a nutmeg, and exhibited a fibro-cellular appearance. The nerves could not be traced through the tumour, but were lost in its substance as far as the tumour extended. I have the above account of the dissection from my colleague Dr. Hutton, who made the *post mortem* examination. This poor woman had been several years afflicted with the disease, from the tortures of which, neither opium in the largest doses, stramonium, nor any other narcotic afforded the slightest palliation; in fact she suffered more agony than *any* human being I ever saw afflicted with *any* disease. To so great a degree was she worn down by pain, that for some months before her death, she had almost the appearance of a living skeleton.

I think it is Dr. Wilson Philip who truly observes, that affections of parts, which were at first merely sympathetic, may ultimately become organic; (I quote from memory;) thus pain in the head, arising from a disordered stomach, if constant and severe, will at length induce that sub-inflamed state of the brain and its membranes, with consequent depositions, which constitute organic changes from the healthy structure. Now this being admitted, it follows, that any part sympathetically affected may ultimately become organically diseased, and this important view we should keep in our recollection, in endeavouring to trace effects to their causes, when we find organic changes in any portion of the nervous system.

Mr. Cæsar Hawkins, in his lecture on Tumours, (reported in *Med. Gazette*, March 10th, 1838,) gives a section to the consideration of tumours of nerves, which he admits, however, are not very common. He does not detail any instances from his own experience, but gives one from that of Sir Everard Home, of a tumour which was removed from the axillary plexus. It is described as having been situated in the texture of the nerve between its fibres, of a tolerably firm consistence, but with a mixture of fluid of a white or light brown colour.

Amongst the narcotic tribe of remedies, after opium, I have found stramonium the most useful in allaying the pains of neuralgia. In some severe instances of this affection of the nerves

of the face, the relief it afforded was instantaneous and satisfactory, but in others it failed altogether. The medium dose was a grain of the extract every sixth or eighth hour, which usually occasioned a sense of dryness in the throat, an indication of the effects of the medicine upon the system, and that it would not be safe afterwards to increase the quantity.

But it is time, after this long digression, to return to my own case. However much my pains were relieved by opium, my stomach and general health become so very much deranged, that it was obvious I could not long hold out under my then system of management, or rather of mismanagement. I therefore called a meeting of my medical friends, who all reprobated my folly in seeing patients while confined to my bed; they, therefore, highly approved of my proposal to leave the country, for the mild, warm climate of the south of France, and the waters of Barège. Indeed, I was myself convinced of the necessity of trying some new system, as my favourite resource, opium, was beginning to fail in affording relief. Two of my medical friends were, I understood, of opinion, that the malady under which I laboured was not sciatica, but disease of the hip joint. The distinctive signs, however, between the two diseases are so well marked, that I was, in my own mind, perfectly easy on this subject. The only symptoms in common between them is, the wasting of the glutei, as well as the muscles of the entire limb; but the two following circumstances may decide our judgment, should any doubt exist. First, when the heel of the affected limb is stricken, the impulse of the head of the femur against the acetabulum will excite severe pain, if the disease is in the joint; but none whatever, should it be in the nerve; and, secondly, in sciatica, the pain follows the course of the branches of the sciatic nerve, so distinctly, that in my own case I was most uncomfortably reminded of my former dissections of those nerves, particularly of the perineal nerve, where it passes near the head of the fibula. In the advanced stages of sciatica, the pains extend to the toes, and are accompanied by a most distressing sense of numbness of the foot. I need not say, that these symptoms do



not attend morbus coxarius, while a fixed pain in the knee is in the latter a well-known diagnostic system.

Rejoicing in the prospect of any new measure likely to afford relief, I was conveyed to the packet which sailed for Bordeaux on the 15th of June, 1829, where I arrived after a prosperous voyage of seventy-two hours, contrary to the expectation of many of my friends, who did not think that I should ever reach it alive. The night I arrived in Bordeaux afforded me a sound sleep, which I had not experienced during the previous year. The mild, warm climate of the South of France (so different from that of this country, which, although in the month of June, had been cold, wet, and variable) was delightful to my feelings, and from the effects of climate alone, I now anticipated a certain recovery. I remained a fortnight in Bordeaux, where I gained considerable strength. While there, the only medicine I took was La Fitte and Chateau Margau claret, strongly recommended to me by my friend, Doctor Millengen; and I believe these wines are the very best restorative tonics for broken down, debilitated frames, such as mine was at that time. I at first protested against claret, as I had found even a single glass of the best I could procure in Dublin to sour on my stomach. The intimation had no effect upon my inexorable medical adviser, who ordered me to take a pint of the wine he recommended the first day, and if I found it to agree with me to take a bottle every day afterwards, which commands I not unwillingly complied with; for to my great surprise I found this pure, unmixed wine agree remarkably well with me, and I have ever since taken special care to have my cellar well supplied with beverage of the same description. The fact is, that our habit of drinking strong wines has completely vitiated our palates. The claret, therefore, prepared at Bordeaux for the English market is rendered impure by a mixture of Hermitage and other ingredients, which give it a strong rich flavour; but which would be so distasteful to a French bon-vivant, that he would not allow it to touch his lips a second time. If medical men were better acquainted than they are, with the supe-

rior qualities of pure clarets of *the first growth*, which is the term, I believe, used by traders in wine, they would not be so much in the habit of recommending strong Sherry upon all occasions where the use of wine is indicated.

I now proceeded, by easy stages, to Bagnères de Bigorre, which is situated at the French side of the central Pyrenees, in the beautiful valley of Campan : it contains between twenty and thirty springs, of which, by the advice of Doctor Ganderax, Inspector of the Mineral Waters, I drank only of the Lascere spring ; of this I took two large glasses (equal to a pint) on going into a warm bath, at the temperature of 96 of Fahrenheit, and after remaining in the bath a full hour, repeated the same dose ; so that I took each morning, before breakfast, a quart of this warm mineral spring. The Lascere waters contain various saline ingredients, in such minute quantities, that they are scarcely perceptible to the taste, and, according to the analysis contained in the work of Doctor Ganderax, is as follows :—

In twenty-five kilogrammes (a kilogramme is exactly 2lbs. 8oz. 1 dr. 24 gr., that is, about equal to our imperial quart), there were found the following ingredients :

The quantity of carbonic acid was inappreciable.

	gr.	c.
Hydro-chlorate of Soda, . . . .	1	15
————— Magnesia, . . . .	4	30
Sulphate of Lime, . . . . .	45	80
————— Magnesia, . . . . .	10	20
Sub-carbonate of Lime, . . . . .	5	75
————— Magnesia, . . . . .	1	55
————— Iron, . . . . .	0	45
Resinous substance, . . . . .	0	10
Vegetable extractive do., . . . .	0	18
Silica, . . . . .	1	0
Loss, . . . . .	0	52
Total, . . . . .	71	0

Notwithstanding the small proportion of saline ingredients, (seventy-one grains in twenty-five imperial quarts of water), and none of them of a very active nature, I derived decided, and almost immediate, benefit from their use. The appetite improved, the tongue became clean ; there was no longer a painful sense of distention, even after a slight repast. The bowels became regular ; and the urine, which had been constantly turbid, and loaded with a deep lateritious sediment, became clear, of a healthy amber colour, and considerably increased in quantity. The neuralgic pains now seldom required the tranquilizing influence of opium, and I had the pleasure of enjoying a sound sleep every night. We, therefore, must attribute the virtues of these waters not only to their temperature, but to their unknown state of combination. In no instance are we authorized to estimate the utility of mineral waters by the quantity or quality of their saline ingredients, of which the Lascere spring of Bagnères is a sufficient proof.

I now ventured to move about on crutches, with the foot of the affected side supported in a sling, so that the limb remained perfectly passive. And here I shall take the opportunity of observing, that in the treatment of sciatica, it is of the utmost importance to prevent the patient from making use of the affected limb ; for, during the acute stage of the disease, any muscular exertion of it is soon after followed by severe pain ; and even during the chronic stage, when the patient fancies himself convalescent, and almost well, it is sure to prevent that favourable result : so that nothing requires more consideration than the time at which the patient may be permitted to enjoy the use of the limb ; he will be, perhaps, the best judge himself, giving him warning of the ill effects of premature exertion. The *passive* exercise of a carriage, or that on crutches in the way mentioned, the foot in a sling, is not only agreeable, but, I believe, useful, when the disease has arrived at its chronic state.

The great advantage I derived so quickly from the use of the Bagnères' waters has since induced me to order, in dys-

peptic cases, *attended with turbid urine*, a small proportion of neutral salts, dissolved in a large quantity of warm water, to be taken every morning, an hour or two before breakfast ; during which time I enjoin some exercise either on foot or horseback. The ingredients of my saline powders are, from twenty to thirty grains of the bi-carbonate of soda, to sixty or ninety grains of Rochelle salts—the tartrate of soda and potash ; to this, if a chalybeate is indicated, a couple of grains of the sulphate of iron is added. This I direct my patient to take in half a pint, or even a pint, of warm water, (temp. 90 to 94), if his stomach can bear it, which it usually can, if divided into two doses, allowing an interval of half an hour between each. Now this simple medicine, with three or four grains of blue pill every night, or every second night, according to the state of the biliary secretion, with due attention to diet, I have found of more advantage in dyspeptic cases, attended with turbid urine and lateritious sediments, than all the farrago of tonic and bitter medicines usually resorted to. In some few instances, when there appeared to be an uncommonly irritable state of the mucous membrane of the intestinal canal, neither this nor any other saline medicine, no matter how minute in quantity, would be advisable. But in the great majority of cases of dyspepsia, attended with turbid urine, I have been so much in the habit of prescribing these powders, from ample experience of their utility, that the apothecaries have christened them “ Carmichael’s powders ;” and I have reason to know that some of these gentlemen laugh at my powders, as silly and inefficacious, of no use whatsoever to the patient, and but very little to the apothecary. However, I find that some practitioners, having ascertained their value, have prescribed them under the form of nice little ounce draughts, prettily coloured, by the addition of compound tincture of cardamom ; so that under this new appearance, I was scarcely able to recognize my old friends. But if these discreet practitioners do not direct their patients to dilute their pretty pink-coloured draughts with a large quantity

of warm water, they will not be likely to derive credit to themselves, or confer benefit on their patients.

Much advantage is no doubt derived in dyspeptic cases from the use of the warm bath, and the long period (seldom less than half an hour, but in general a full hour) in which patients are accustomed to use it on the Continent; for it always improves the functions of the skin, and on this account I am much in the habit of prescribing the tepid salt water bath for the treatment of dyspepsia; a dry skin being so very frequently an accompaniment of a deranged state of the chylopoietic viscera. Or I direct the patient to sponge his body every morning with tepid water, almost saturated with common salt; and when he has dried himself, to make use of powerful, coarse flesh-brushes, until he excites the action of the capillary vessels of the skin even to redness. Exercise in this way is doubly beneficial, for it not only exercises the muscles of the patient, but that exercise is expended on himself in exciting to healthy action the capillaries of the skin, and in removing the accumulated scabiness of the cuticle. By these means the secretion of perspirable matter is promoted, which, together with the urine, eliminates from the system its various exhausted and acidified materials. It is worthy of observation, that both of these secretions, in a healthy state, betray the presence of a free acid. The secretions deposited in the small and large intestines on the contrary, in a healthy state, show no signs of acidity; but in diseases where the skin is dry and parched, and the urine is pale and abundant, denoting alkaline instead of acid properties, the secretions into the small intestines are found to be acid, and even the bile in the gall-bladder, which in its natural state contains a free alkali, may become under these circumstances acidified. But in the various examinations I have made, I never found the presence of acid denoted in the large intestines, although the contents of the small intestines in the same subject changed every where vegetable blues to a red. These circumstances, which I ascertained long since, and published in

my Essay on Scrofula, indicate in the strongest manner the necessity of attending to the state of the secretions of the skin and kidneys in derangement of the chylopoietic viscera. Chemists have not yet determined on the precise nature of the free acid contained in these secretions; whether it is the uric, the lactic, the phosphoric, the muriatic, or the sulphuric. It is in all probability the uric, as it is the weakest of those acids, and therefore most liable to be separated, or disengaged by the superior affinity of the other acids for the alkaline bases which enter into the composition of these secretions.

From the observations and experiments of Doctor Beaumont of New York, on the young man already alluded to, who received a large gaping wound in his stomach,\* we learn that the gastric juice is slightly acid, and only secreted when required, that is, on the admission of food into the stomach. He also informs us, that it is strongly acid in herbivorous animals, while in carnivorous it does not betray the slightest trace of acidity. Hence we perceive the reason why we take vinegar with salad, salmon, and all food of difficult digestion; as the acid thus taken in assists the acidified and solvent powers of the gastric juice; and hence we may learn that the indiscriminate use of alkalies and absorbent earths has been attended with much disadvantage to those who suffer under acidity of stomach, in whom it never affords more than temporary relief. While mi-

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\* This wound was admirably calculated to admit of observation and experiments respecting the process of digestion; for a small fold of the villous coat of the stomach acted as a *valve*, so as completely to prevent any afflux from within, but to admit of being easily pushed back by the finger from without. Dr. Beaumont made the best use possible of the opportunity he thus possessed, of observing the phenomena of digestion in a series of observations continued during eight years, which afford more certain information on this interesting subject, than all the works that ever were written. I never could procure the original essay, but read with great satisfaction an account of Dr. Beaumont's observations and experiments in Dr. Andrew Combe's admirable work on "The Physiology of Digestion considered with relation to the Principles of Dietetics."

neral acids, particularly the nitro-muriatic, on the contrary, are very effectual, according to my experience, in curing permanently this troublesome symptom of dyspepsia. From Doctor Beaumont's observations on this same individual, we also learnt that no gastric juice is secreted during the existence of fever ; hence the injurious consequences of taking solid food into the stomach when it cannot be digested, and therefore must only oppress that organ, until rejected by vomiting. Drink is the only diet fitted for fever patients, which is imbibed by the absorbents and veins, without undergoing any process of digestion.

But to return from this long digression to my own case. My improvement was so rapid, that in a fortnight after my arrival at Bagnères, I was enabled to get on horseback, and thus I had the means of enjoying the delightful climate and magnificent scenery of the Pyrennées. After a month's residence at Bagnères de Bigorre, I ascended the mountains to Barège, which is estimated at 4190 feet, while Bagnères is but 1219 feet above the level of the sea. The climate of Barège is consequently so much colder, that few resort thither before the middle of June, and it is nearly deserted by the beginning of October. This village is situated in a deep valley or cleft of the mountains, which are formed chiefly of gneiss and micaceous and argillaceous schist, appearing in many places like green or blue roofing slate. It is only inhabited during the summer months, for the houses are shut up during the winter and spring. The numbers that flock to this remote and extraordinary village from all parts of Europe, render it extremely difficult to obtain accommodation, and lodging is consequently very expensive. The waters are sulphureous, and of a very high temperature, from 30° to 45° of Reaumer, i. e. from 100 to 135 of Farenheit. They are extremely nauseous to the taste, and exhale an odour like rotten eggs, so that few stomachs can bear them. It is therefore to their external use that they owe all their celebrity. I have no exact analysis to lay before you ; but according to Alibert in his work on Mineral Waters, they contain hydro-

chlorate of magnesia, chlorure of sodium, sulphate of magnesia, sulphate of lime, carbonate of lime, sulphur, silica, and an oleaginous or saponaceous substance, which chemists have in vain endeavoured to imitate. He informs us that Mr. Longchamp has ascertained that they contain soda in its uncombined or caustic state, and that the saponaceous matter mentioned above is an animal substance which he calls *Barregine*, and is essentially different from *Gelatine*, which is used in the manufacture of factitious Barége waters.

I was obliged to wait a fortnight, so numerous were the claimants, before the inspector of the mineral waters could grant me leave for the douche, although half an hour is only given to each individual, and a succession of patients, during both night and day, anxiously wait for their turn to partake of this fountain of health. In the interval I, however, used the warm bath, at the temperature of 96°, from which I received decided benefit. My turn at length arrived for the douche, which I had the option of taking either mild or severe: I preferred the latter. Eleven o'clock each night was the time appointed, and I considered myself fortunate to be permitted to use it even at this inconvenient time. At the appointed hour every night, I found a chaise-a-porteur at my lodging; in this I was conveyed in a few minutes to the douche. By the light of a glimmering lamp I found myself in a cell or dungeon which appeared to be cut out of the rock; it was, however, so hot with sulphureous vapour, that at first I felt nearly suffocated, and I was glad to disencumber myself as quickly as possible of my clothes, in which I was assisted by a surly, grim old attendant, who seemed naturally to appertain to a place filled with fire and brimstone. As soon as I was stretched upon a mattress which lay upon the floor, he turned a large cock about ten feet from the ground; the water, which was at the temperature of 120° Fahrenheit, fell therefore with considerable force, and such was the shock which I at first felt, that I could scarcely refrain from crying out; however, I summoned resolution, and bore it for fifteen minutes, which my at-



tendant said was the longest period that any person had been able to suffer under this infliction, ten minutes being the usual time. By shifting my position, I was enabled to let the water fall in succession over the entire of the trunk of the sciatic nerve and those branches which had been most painful. I found it very fatiguing as well as warm work, and that I really required the assistance of my grim attendant to put on the flannel dresses with which I had come provided. This being done, I was immediately reconveyed by the same machine into my bed-room, where, without taking off my flannel dress, I got into bed between the blankets, and in a few minutes afterwards was covered with a profuse perspiration, which continued for four or five hours, and was promoted by drinking freely of some mild warm beverage. As soon as it had ceased, I changed my flannel dress for another, and remained in bed for several hours afterwards.

I have been thus minute in my detail of trifling particulars, for the benefit of those who purpose going to Barège. The difficulty even of obtaining lodging is so great, that it would not be advisable for any patient to go there until he had secured one, and also permission from the inspector of the mineral waters to have a time allotted for his douche or bath ; and he should also take especial care to go well provided with changes of flannel dresses. I continued the use of the douche daily, or rather nightly, for a fortnight ; during which time I suffered under an increase of the pains, thirst, frequency of pulse, and other signs of slight fever. This is the usual effect of these waters when first employed ; and indeed I am not surprised that they should occasion great constitutional disturbance, when we consider the excitement occasioned by the douche, not only upon the cutaneous capillaries of the parts upon which it falls, but upon the entire surface of the body, which literally becomes of a red heat under its influence. Discipline of this kind for fourteen successive nights would pull down the strongest person ; and I, of course, found myself at the end of that time considerably

reduced in flesh. It is deemed a very unfavourable sign, when the douche does not excite perspiration, and in such instances, I am certain, much mischief must follow its use. From this account of the effects of the Barége waters, it is obvious that it is a most powerful instrument, capable of effecting much good or much evil. If inflammatory action is present, I conceive it must do mischief, and I am certain that I could not have borne the douche three months before I used it. If there is any inflammatory affection of the head or chest, the use of the douche must be attended with the utmost danger, and more than one instance of apoplexy and hemoptysis occurred during the short period of my visit to Barége. Great numbers of paralytic patients frequent this place. But as we have reason to suspect in all such cases some latent head affection, the douche should be resorted to with great caution. In no such instance ought the strong douche, however, to be employed, the weaker one must be comparatively more safe.

Partial paralysis, depending upon some affection of the spinal cord; various neuralgic affections; chronic lumbago, and sciatica; chronic rheumatism and gouty affections of the joints; various cutaneous diseases, such as lepra and psoriasis, *et hoc genus omne*, are the complaints which have a fair chance of receiving benefit from these powerful waters. Their great utility in old, exfoliating, gun-shot wounds has been so well established, that it is many years since the French government founded a military hospital, into which all appropriate cases are sent for three successive summers. But if the patient after this trial is not found fit for duty, he is either pensioned or discharged the service. I was informed that old wounds submitted to the influence of the Barége baths, enlarge at first under their use; and that even many of those that have been healed, will again ulcerate; this is no doubt owing to the excitement of the absorbing system, and the consequent destruction by ulceration of bad granulations, or the weak cicatrices of such as have imperfectly healed; but that afterwards most satisfactory cures take

place in old wounds which had resisted every other mode of treatment. The military patients are to be seen at all times in a large bath capable of holding twenty persons; they are marched down in successive divisions, each division remaining in the bath a full hour. Amongst those who recovered from grievous gun-shot wounds, I should not omit to mention our countryman General Crawford, who after passing three successive summers here, was established in perfect health. Grateful for the benefit derived from these waters, he gave, during his life, twelve hundred francs annually, for the benefit of the poor who frequent them; which donation has ever since been continued by his heirs.

The waters of Barége are but little used internally. They are said to be stimulant and diuretic, but are not in the slightest degree aperient. They disagree, however, so much with the generality of stomachs, that few persons can be prevailed on to persevere in their use.

The lightness of the atmosphere must no doubt have a considerable influence in the removal of many chronic diseases, for, as I before remarked, Barége lies in a valley 4190 feet above the level of the sea. Its great elevation will be more perfectly comprehended by my hearers, when it is understood, that this is an elevation six hundred feet higher than the top of Snowdon in North Wales. The effect of the attenuated atmosphere of so elevated a region upon diseases, may be in some degree appreciated, since I have been assured by resident medical men, that when the country people in the plains are affected with ague, they ascend the mountains as high as Barége, and without any other means become rapidly well of their disorder.

It is to be regretted that the French government does not increase the number of baths and douches, for there is, I understand, an inexhaustible supply of water; but there is not satisfactory accommodation of any description for one-half of the numbers who frequent this place.

After using the douche another fortnight, the change in the weather to cold, some showers of snow, and heavy torrents of

rain, gave us notice that it was time to depart. It was now approaching the latter end of September, and the floods from the mountains began to make such ruts in the only road which leads to this village, as to render it difficult to pass. We were informed that very soon it would be totally destroyed by those torrents—that the stupendous mountains, which hang over Barège, would be whitened with snow, and avalanches threaten its destruction. There is one part of the village most exposed to avalanches, which is only occupied with temporary wooden houses, erected at the beginning and taken down at the end of the season. Barège consequently becomes deserted by all human beings during the winter, and in their place, I was told, is tenanted by wolves and bears from the mountains. I therefore bid adieu to a place, which I shall always recollect with feelings of pleasure and gratitude, for I was completely free from pain, and never since had any return of the symptoms of sciatica.

After leaving Barège I took a delightful tour on horseback through perhaps the most wild and beautiful scenery in the world; for the valleys of the Pyrenées may well compete with those of Italy or Switzerland. The view from the Pic de Bergon in the neighbourhood of Barège, from which you behold the grand boundary chain of mountains that separate immediately France from Spain, the circle of Gaverney, and the celebrated Brèche d'Orland, is unique, and perhaps one of the finest in the world. I visited many of the mineral springs with which the central Pyrennees abound, which, with the exception of Barège, are situated in the most beautiful valleys of these mountains. Saint Saviour, Cauteret, the Eaux Bonnes, Bagnères de Luchon, and Bagnères de Bigorre, already noticed, are the most celebrated. These waters are all of a high temperature, and much frequented by visitors from every part of France during the summer season; but have comparatively received little attention from the hordes of English, which annually sweep over the other parts of the Continent. However, when the beneficial influence of

these waters and the beauty of the valleys of the Pyrenées are more generally known, they will perhaps flock in as great numbers to them, as they do at present to the fashionable watering places of Nassau ; particularly as great facilities are afforded by the Irish Steam Packet Company for this excursion, by the fine steam vessel which leaves Dublin twice a month for Bordeaux during the summer season, and which on its way touches at Plymouth for the accommodation of English passengers.

Independently of any practical hints which the recital of my case may inculcate, it certainly affords a good moral lesson to the members of my own profession, indicating the folly of not *giving in* at once, when assailed by disease. The spasms and gastric fever, from which I narrowly escaped with life, were occasioned by over-exertion, long fasting, and a total disregard to the organic laws. My return to professional business long before my strength was restored after this fever, and while I was scarcely able to drag one leg after the other, occasioned my subsequent ill health and all the tortures of sciatica and gall-stones. Even when unable to move without the greatest pain from the first of these maladies, I still continued, in despite of warnings the most urgent, to engage actively in the turmoils of practice. The fact is, that of all individuals when suffering under disease, the medical man has the least chance of recovery. The public who place confidence in his skill will take no excuse ; and the more difficult he is of access, the more urgent will be their demands for him. His only safety is in flight ; and had I been as wise at the first approach of illness, as from woeful experience I am at present, I should have escaped the infliction of those painful and protracted complaints. I shall conclude by strongly recommending you to pay more attention than you are likely to do to the wise old adage quoted by Lily, "*Felix quem faciunt aliena pericula cautum.*"