Sciatica, lumbago, and brachialgia : their nature and treatment, and their immediate relief and rapid cure by hypodermic injection of morphia / by Henry Lawson.

SCIATICA, LUMBAGO AND BRACHIALGIA

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DR. LAWSON

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THEIR NATURE AND TREATMENT,

AND

THEIR IMMEDIATE RELIEF AND RAPID CURE BY HYPODERMIC INJECTION OF MORPHIA.

BY

HENRY LAWSON, M.D.

ASSISTANT-PHYSICIAN TO ST. MARY'S HOSPITAL, AND LECTURER ON PHYSIOLOGY IN ST. MARY'S HOSPITAL MEDICAL SCHOOL.

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PREFACE TO THE SECOND EDITION.

Since the first edition of this book appeared, many cases of the diseases to which it relates have come under the writer's treatment. All have been dealt with as the work details, and almost all—more than 90 per cent.—have completely recovered. But there are certain facts which have since occurred in the author's practice, which deserve some notice, and these he has put before the reader in Part XI., which has been written expressly for this edition. They are points which he hopes will give rise to some discussion, for they are extremely interesting from a physiologist's point of view. Certain data as to the mode of injecting, and the general treatment of cases, have also been given, so that it is hoped that the second edition will prove no less interesting to the general practitioner than to the first.

Weymouth Street,
Portland Place.

PREFACE TO THE FIRST EDITION.

This book has been written to prove the advantages that result from the persistent and constant practice of hypodermic injection in Sciatica, Lumbago, and Brachialgia; and in demonstrating these, it does so by the records of cases, and other experience, which cannot find their way into a Preface.

My reason for writing a book on the subject, is the hope that I may thus inspire a belief in the method by which I myself was relieved, and by which I have since cured nearly a hundred instances of nervous pain. My own case was, I should say, the worst that has ever been recorded. I had been under the medical care of some half-dozen of the leading men in the profession; I had

been ill continuously for nearly six months, and had, in spite of every other conceivable remedy, fully and fairly tried, been reduced first to the use of crutches, and then to my bed, on which I lay in daily expectation of death. At last subcutaneous injection was thought of and tried; and, from the moment it was done, I obtained relief such as I had not experienced for nearly half a year. This ease was maintained by constant repetition of the remedy, till at length I was completely cured. And this case is but a type of the majority.

As to the pathology, I fear we are still in the dark. However, I have given the ideas which I temporarily hold myself, and those which have been urged more especially by Drs. Handfield Jones, Fuller, and Anstie. I have urged reasons against the association of the diseases treated of in the following pages, with that form which is known as facial neuralgia,—chiefly those respecting a difference in treatment and clinical history. However, it is quite possible that I may be wrong in

doing so, though I do not yet see that it is in the slightest degree an error.

The novelty—if indeed there be any—in the treatment, has consisted in my *persistent* use of the remedy, and, as a rule, in my being *my own operator*. This last I believe to be of more importance than many men suppose. I have not infrequently seen how students inject, and I should be sorry to submit my patients to any but a very few, whose practice I was certain of.

My advice, in cases of Sciatica, Lumbago, and Brachialgia, is, try hypodermic injection at once; repeat it if necessary, when there is pain, every eight hours, and keep it up as long as the pain is felt, even though it be for months. It is perfectly harmless when properly administered, and it is the greatest blessing you can bestow on the unhappy sufferer. This has been my practice—with what result the following pages afford ample testimony. In conclusion, I have to offer my best thanks to the Editor of the *Medical Times and Gazette*. In that Journal most

of the following pages originally appeared, and my gratitude is due for the kindness and courtesy which the Editor invariably extended to me while so long a series of communications travelled through the press.

H. L.

10, George Street,
Hanover Square, W.

Note.—An error has unfortunately crept in while some of the earlier sheets went to press. It is in the spelling of the word Brachialgia. It has been corrected, however, in the later-issued sheets of the work, which, I may mention, were, owing to illness, written long after the previous ones.

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SCIATICA,

LUMBAGO, AND BRACHYALGIA:

THEIR NATURE AND TREATMENT,

And their Immediate Relief and Rapid Cure by

HYPODERMIC INJECTION OF MORPHIA.

It may be as well to state that in advocating the method of treatment described in the following pages I lay no claim whatever to originality. I merely give the results of my experience of a remedy which is as simple as it is effective. The application of the syringe to the hypodermic method we owe, I suppose, to Hunter and Wood. The hypodermic administration of morphia in sciatica was urged by Dr. Blakiston in the pages of the *Medical Times* nearly fifteen years ago. It is too much the custom nowadays to father upon a writer the discovery of a remedy or plan which he has merely taken second-hand from another, but which he may have been more successful than his predecessor in popularizing; and writers themselves too frequently encourage the mistaken inference. This has happened so often of late that one almost despairs of that moral regeneration in medical writers which leads to the discrimination between reticence and candour.

PART I.

THE history of Sciatica is, it must honestly be confessed, the record of pathological ignorance and of therapeutical failure. It presents to us a blurred page whereon we find traced the results of confused reasoning, incomplete generalisation, hasty observation, and unphilosophic methods of treatment. From the circumstance that the affection itself is rarely fatal, it has failed to arrest the entire attention of the great masters of our art, and because of the fact that the patient who is afflicted with it loudly demands relief, its treatment has seldom been pursued with that persistence in any one remedy which is so essential to the drawing of just and reliable conclusions. Being a disease, in which a symptom is essentially the leading feature, so far at least as our knowledge yet extends, it has been often confounded with other maladies, such as rheumatism and morbus coxæ, and, being

connected with a supposed degenerate condition of the nerve-trunks, it has been, with questionable justice, grouped with that vague class of diseases, neuralgia. Hence the reason why we so frequently hear of obstinate sciatica, for it cannot be hoped, so long as no definite method is followed in either the study or the treatment of disease, that much in the shape of useful therapeutical result is likely to be achieved.

In sciatica, more perhaps than in any other malady of equal gravity, therapeutists, it seems to me, have erred in not confining their treatment to the simple phenomena of the disease. Notwithstanding the one or two autopsies which are reported in our annals, and which throw a very uncertain light on the pathology of sciatica, indicating that there is an alteration of the neurilemma of the nerve, I think it will be admitted by those who wish to see Medicine based on a solid foundation of fact, that there is no convincing evidence as to the actual state of the sciatic trunk in this affection. I do not fear any contradiction in asserting that even now we know nothing of the pathology of sciatica. It is clear, then, that if this be so, any special line of treatment on *à priori* grounds of this

kind has the doctrine of chances quite against its success. To my mind, it is no less clear that, in reference to the etiology of sciatica, we experience nearly an equal difficulty in laying down anything like a clear and comprehensive statement. And this, I opine, is true whether we regard the disease from the standpoint of sex, age, temperament—if I may be permitted the expression,—state of nutrition, or occupation of the sufferer. I am disposed to conclude provisionally, from a large number of cases *pur et simple*, that sciatica is a somewhat special affection, and that its only relation to what are generally regarded as neuralgic diseases, such as the tic douloureux, etc., lies in the circumstance that in the two cases pain in the direction of nervous trunks is experienced, for in neither origin nor character of pain, nor in the results of treatment, can I see much to warrant the association of sciatica with what is generally known as facial neuralgia.

These, then, being my opinions—and they are opinions based on no hypothesis—it will be readily understood by those who admit them why the subject of this paper has, till of very late years, proved one of the most torturing and intractable maladies, in the long cate-

gory of human ailments. To be brief, the simple fact that all we really *know* of sciatica —to wit, that it is a pain in the course of the sciatic nerve—has been ignored, is the reason why the disease has been so long deemed incurable. Men have had an abhorrence of what they call treating symptoms, and thus, forsaking the substance of unquestionable phenomena for the shadow of hypotheses evolved out of their moral consciousness, they have failed to cure a disease whose cure is now among the certainties of therapeutics. In my belief, the symptom of sciatica is, so far as we now know, the whole disease, and by arresting this symptom we remove the affection. I should be very sorry for a moment to allege dogmatically that sciatica is nothing more than pain; but the pain is all that we recognise of the disease, and I *know* that by removing the pain we in due time, with the utmost certainty, cure the disease, whatever its hidden nature may be.

En parenthèse, I may remark that pain must, upon all physical grounds, be the expression of some minute, abnormal, molecular, (possibly undulatory) change in the tissue. Anything, therefore, which removes the pain without production of any disadvantageous

results must be beneficial. To argue, then, against the treatment of a symptom as unphilosophic is, it appears to me, to reason from premises which are not only unsound, but are clearly refutable.

It may be as well, perhaps, at the outset to explain both why I have taken up sciatica as a subject for a communication to a leading Medical journal in which these remarks first appeared, and why I have expressed such very decided opinions as to the fallacy of the method of treating it hitherto in vogue, and the vast importance of attending to one symptom—that of pain. I must mention, then, that I am myself a former sciatica sufferer, and that in my own person I have supplied what I believe to be the most obstinate and dangerous case of this affection that I am acquainted with. I shall give the details of my case among the records of typical instances at the end of this paper, but *en passant* I may mention that the pain along the course of the sciatic nerve persisted for more than six months; that it first reduced me to the employment of crutches, and then absolutely prevented locomotion; that the limb became permanently flexed and terribly wasted; that nearly every remedy in the Pharmacopœia, and many out

of it, were tried in vain; and that at last, under the advice of Mr. Ernest Hart, subcutaneous injection of morphia was attempted, and with the most signal and immediate success. Indeed, I am not outstepping plain matter of fact when I assert that to the method of treatment proposed and most patiently carried out by that gentleman I owe my restoration to health. For six months I had hardly known what sleep was, notwithstanding the administration of opiates three and four times a day. Appetite was utterly lost; physical power was prostrate; mind, through long suffering, was enfeebled to that degree that I look back upon that period of my existence with astonishment and horror. I was, indeed, fast sinking into the grave, a victim to what the philosophy of modern physic styled a symptom, and which it was not considered necessary to deal with in any but a secondary degree. Five minutes after the first injection of morphia I experienced the only ease I had known for seven months, and I need not say that by a continuance—necessarily protracted in so grave a case—I was in a few months restored to perfect health. From that moment I determined to seek out cases of sciatica, and afford to the suffering

that blessed relief from pain which only those who have gone through many dreary nights of sciatic agony can realize. I have now accumulated many cases of true sciatica; and while I have found other remedies do less or more benefit to the patients, I have never found any effect a cure and remove the pain except the salts of morphia, administered hypodermically and locally. They have never failed. In some instances they require to be maintained and persevered in; but they give instantaneous and effectual relief. They never impair nutrition—indeed, they promote it indirectly, and in recent cases they effect a cure so rapidly that the result seems almost like a charm to the pain-worn patient. I trust, therefore, that those who may at first sight think that my observations savour too much of confidence, and are devoid of requisite caution, will remember that the circumstances of my own sufferings have led me to give concentrated attention to sciatica, and have taught me the necessity for, as the lawyers would say, "confining myself to facts," which perhaps in the case of any other affection I might have failed to do.

General Characters of Sciatica.

In describing the general characters by which the affection may be recognised, it is as well to begin with those which force themselves on the attention of the patient, and which are sometimes called symptoms. I prefer to speak of the features of the disease in this way, as I think the term "symptoms" has many objectionable qualities which render it inexact; and I have no desire to coin a new word, seeing the lamentable superabundance of unprecise technicalities with which the accepted terminology of Medicine hampers scientific progress. The indications, then, of disease which manifest themselves to the patient are primarily pain; stiffness, soreness or tenderness on motion or pressure, loss of muscular power, permanent contraction of limb, coldness of surface, and apparent anæsthesia, may all or any of them subsequently present themselves in cases of true sciatica; but pain is the chief, and in acute cases generally the sole peculiarity. In most works in which sciatica is dealt with, it is included under the head of neuralgia, and the general description of the pain is one of those specializations

which are so much to be regretted. Writers have had before their mind the type of neuralgia proper—tic douloureux—and out of this special form they construct the definition of sciatic pain. I call attention to this because it is not only an error in fact, but because it leads often to mistaken diagnosis. It is not at all true, save in rare cases, that the pain of sciatica is intermittent in the accepted sense of the word; nor is it correct to say, as some writers do, that it is a sharp, acute, thrilling pain like that of facial neuralgia. It is nothing of the sort. The pain in sciatica is, in bad cases, of great severity; but it is a constant, heavy, absorbing pain—a pain on which the mind of the patient is unceasingly fixed—a pain which renders any prolonged posture quite impossible, and which is relieved, but only temporarily so, by change of position, and most distinctly, when the patient is recumbent, by flexing the whole limb. It is not a pain which compels the patient to rush from one side of his chamber to another in a state bordering on frenzy; but it is one which makes him peevish and irritable, which precludes him from any continuous occupation, whether of work or pleasure, which is, so to speak, perpetually gnawing at him, and which

completely deprives him of appetite. It is a pain which, as the patient will tell you, runs along down the thigh—in one or two cases I have seen the direction reversed—but if you question him you will find that its course is not the rapid, darting, shooting current of neuralgia, but is simply a pain which extends with moderate rapidity from one point to the other. But it is always a constant pain. It will often be found that it is severe to a degree that is intolerable, and sometimes it may seem even endurable, but these alternations, if they exist at all, will be found most irregular, and they are most commonly absent. As to the starting-point of the pain, there is no rule to be laid down. Mostly the upper third of the sciatic is the part complained of, but now and then the pain is at first located in the knee, or even in the ankle or calf, and sometimes it begins almost at the ischiatic notch. In all cases, however, of pure sciatica, it is sure to be found after a while distinctly along the course of the sciatic nerve, beginning at a point about midway between the sacro-iliac synchondrosis and the great trochanter, and extending along the outer side of the thigh to the knee-joint. It may at first seem to the physician, from the replies of the patient, that

the pain is worst at night, but a little careful observation will dispel the idea. I would dwell on this fact, because in a large number of gonorrhœal and syphilitic cases the pains are decidedly more "racking" at night than in the daytime, and should be distinguished from those of sciatica, if only for the reason that they are relieved by iodide of potassium, while the pain of sciatica certainly is not. I have, indeed, seen a case of sciatica rendered materially worse by the administration of the iodide, which was given on a confused notion of the pathology already alluded to. It will soon be learned, at least from an intelligent patient, that the circumstance of his being left to the sole contemplation of his sufferings is the reason why the pain appears greater at night. If he lies down on a sofa during the daytime and tries to sleep, he will, as might be imagined, complain that his pain is worse than it was before, while he was even partially diverted by conversation. If the pain has existed for several days, the patient will be found much lamed, and probably will be compelled to use a stick in walking. He will complain of pain in moving the limb, and will be found walking on the toes, in order to admit of that flexion of the limb which appears

to give relief. Should this state of things have continued for a fortnight or so, the flexion will have become permanent, extension will be impossible on the part of the patient, and forcible extension will be attended with much pain. If the case be an old chronic one, extension can only be effected gradually. Any attempt to straighten the limb would, I feel assured, be attended with rupture of tissue of a serious nature.

Besides this peculiar pain—which, by the way, unlike that of facial neuralgia, comes on at first somewhat gradually, and by no means very severely—and the lameness already described, there are various other characters, which, though unperceived by the patient, are perceptible enough to the physician. These are tenderness of particular parts on pressure, wasting of the muscles, coldness of the surface of the extremity, slight anæsthesia, and, in very rare instances, possibly complicated with other nervous diseases, hyperæsthesia also.

Of all these the most frequent, as they are the most readily recognised, are the tenderness and the wasting. Whatever may be the significance of tender points over the vertebræ in neuralgia proper, it must be confessed that

in sciatica, as a rule, this tendency to exhibit spinal points of tenderness is not shown. In some few cases where the pain is almost confined to the upper third of the nerve, and where the most sensitive part is apparently the point of exit, there certainly is found tenderness in a well-marked degree over certain lumbar and sacral vertebræ. In the majority of cases, especially where the disease has not had a career of many months' duration, no vertebral soreness or "tenderness on pressure" can be detected. But it seldom happens in decided cases of this disease, in which the pain has lasted for some days, that tenderness in the direction of the nerve does not exist. If the physician follows out the course of the nerve from above downwards, pressing firmly with his thumb, he will soon come to a point where the patient cries out that he is "hurt." As I have already said, this will commonly be in the upper third of the course of the nerve, and will lie along a line of from two to four inches. In some cases, however, and particularly in those of long standing, the whole course of the nerve will be found very tender on pressure.

Wasting of the limb is only found in protracted cases, where there has been lameness

for a long time. In these it is exceedingly distinct. It is necessary to bear in mind the fact that the atrophy is the sequel to disuse of the limb, because it helps us to avoid some of those enticing, but dangerous, speculations anent the relation of the nutrition of the limb to the condition of the nerve. I have no desire for a moment to deny that the nutrition of the muscles of the thigh may be dependent on the influence of the sciatic nerve, but I think it is more in consonance with physiological fact and clinical experience to regard the nutrition of the muscle as the concomitant condition of its exercise. In cases of sciatica with lameness the muscles sometimes for a whole year or more are allowed to fall into disuse, and they waste away. In other cases of sciatica there is no wasting worth mentioning. The question is one of no mean import, since the hypothesis to which I object is urged in support of one still more visionary —viz., that sciatica is an affection of the central nervous system.

Leaving theory aside, it will be seen in well-marked cases that there is very great flattening of the buttock of the affected side, and the whole of the flesh of the thigh will be seen flabbier and distinctly thinner and less

rounded in outline than that of the healthy limb. The patient should be made to lie upon his belly, and the difference between the two sides will then be apparent almost at a glance. In cases in which the wasting has not advanced very far, the first thing which will strike the eye of the observer is, not the diminution of the muscle, but the apparent increase of the bony prominences, and especially of the *sacro-iliac synchondrosis* (a point of the utmost importance in diagnosis, as I shall show when on that part of the subject); but a little trouble in comparing the "processes" and handling the flesh on both sides will leave no doubt in the mind of the physician.

Anæsthesia is also a sign of the disease present in cases of some duration. It is never marked in pure cases to any absolute extent, but if we take compass-points and compare the cutaneous sensibility of the two limbs, we shall obtain a well-drawn balance of sensibility on the part of the unaffected thigh. This indication is, if I mistake not, also urged by "central mischief" theorists in support of their doctrine, but I cannot see upon what grounds it is employed; there is clearly diminished circulation in the whole limb, for reasons already stated, and I think we have

in this condition a sufficient explanation of the phenomenon without evoking the grave hypothesis of degeneration of structure in the cord.

Temperature is another point deserving of notice by the student of sciatica, though, of course, it is of little value as a sign of this affection. If a delicate thermometer graduating fractions of degrees, be carefully attached to the surface with adhesive plaster, and in this way the temperature of the two limbs be taken, the temperature of the suffering limb will be observed to be lower by some fractions of a degree than that of the healthy one. This, again, is adduced in favour of central mischief, but, as I have said, it finds a sufficient explanation in the disuse, diminished circulation, and, hence, generally decreased nutrition of the whole extremity. It is not met save in those cases in which the pain of locomotion is so great that the leg is kept as far as can be in constant rest.

PART II.

Conditions under which Sciatica presents itself.

It may be objected to the employment of the term "natural history" of a disease that it is too general, since it should include the symptoms and pathology of the affection as well as the circumstances accompanying them. On the other hand, the expression "ætiology" appears equally unsatisfactory. I trust, therefore, that I may be excused for treating of the questions included usually in these divisions under the heading of the general conditions of the malady.

Sciatica being a disease of an essentially local character, the bodily circumstances which are its companions are of a very varying nature. Hence it is difficult to determine those which are constant. It is, however, possible to indicate a few of the more regular conditions under which the disease occurs; and firstly, as to age. It is, I think, tolerably

accurately laid down in most of our treatises that sciatica is a disease from which the young possess an almost absolute immunity. It is essentially an affection which attacks persons between 20 and 60. Nevertheless, I have met with one case of pure and well-marked sciatica in a boy of 14, who was addicted to aggravated habits of masturbation. But such cases are extremely rare, and the limits stated will be found to be correct in at least nine-tenths of the cases of sciatica *pur et simple*. It is not so easy to say whether it is more frequent in the old than in the adult or middle-aged; but if we take the age of 40 as the pivot of the scale it will be observed that the majority of instances occur between 20 and 40, and the minority between 40 and 60. Sex presents another determining condition of sciatica. Women are far less subject to this affection than men. I should say pretty nearly in the ratio of 1 to 3. The type of female constitution in which sciatica is oftenest met is, in the case of younger women, that which may be styled the "leucorrhœal." Patients suffering from disordered menstruation of various kinds, accompanied by "the whites," occasionally contract sciatica, and I have not found that the removal of the menstrual con-

dition relieves the pain in the direction of the nerve. Under a course of chalybeates and proper injection the case usually gets well, *quoad* menstruation, and the general strength is improved, but the sciatica remains. Another type is that so familiar to those who have charge of out-patients at our hospitals. I refer to the sallow, shrivelled-faced, bright-eyed, and flatulent old tea-drinkers. These occur especially among the Irish population; they eat little more than a few pieces of bread in the twenty-four hours, but they take tea (or rather a decoction of the leaves) three and sometimes four times a day. These people are sometimes seized with sciatica, and they constitute very troublesome cases.

As to mental state, I can certainly offer no personal observations of a positive character. Intelligent and stupid people seem alike liable to the disease. Something has been vaguely written concerning the association of sciatica with central mischief, but, as I have stated [*ante*], I apprehend that this is an assumption purely gratuitous and certainly unwarranted by fair induction. If we exclude from our consideration those obscure pains which accompany disease of the central nervous system, and which are certainly not sciatica as I

understand it, then there is no justification for the opinion that there is central nervous mischief in this disease.

Inheritance is a condition which certain writers—who, upon *à priori* grounds rather than on the results of clinical experience, group sciatica and tic in the same category — have lately enforced with some emphasis, and which therefore merits the attention of those who may in future study sciatica. For myself, I must say that the records of thirty cases lead me to believe that there is nothing to support the idea that sciatica is inherited, indeed, quite the contrary. To be sure, if we were to include sciatica among the common neuralgias, and we were to ask each patient whether his father or mother had suffered faceache, we should get an answer in nearly every case in the affirmative. Who has had a father or mother who has not had faceache (or toothache)? But, I would ask, is this a legitimate method of accumulating Medical statistics? Is it not such statistics as these that give rise to the assertion that "there is nothing so false as facts except figures?" Inheritance, then, in sciatica I hold to be no condition whatever.

Another somewhat unsatisfactory condition of sciatica is that which is sometimes given—that of unilaterality. To say that a disease is unilateral is simply to predicate that which may be said of nearly all our ailments. It is only a small proportion of human ills which are bilateral, and it happens unfortunately for the supposed character of sciatica that sciatica is in some few instances present in both limbs. It may be stated that the right leg is oftener affected than the left. We may dismiss this also as without useful significance.

The state of the alimentary canal appears to me to supply us with a condition which has some constancy. I find in the great bulk of my cases that the function of the digestive tract is much impaired. This disturbance would not be surprising in advanced cases of the disease, for in all such the pain, sleeplessness, and anxiety gravely interfere with digestion. But I think it is worthy of note that, in a very considerable number of cases, if the patient declares that for some time previous to the commencement of pain in the thigh he has suffered with "dyspepsia," further inquiry will show that constipation, pyrosis, and even hæmorrhoids have had their way for a long while. The presence of piles in cases of sciatica has

been often pointed out, and the fact is worthy of more consideration than it has received. The vascular relations of the sciatic and the rectum may, I doubt not, have important influence on certain cases of sciatica, though the exact pathological nature of this influence remains to be worked out.

Concerning conditions of diet, there is nothing to be said that can have any scientific weight.

Finally, as to the condition of the nerve itself, as I have said in an earlier page, we are not justified, as seekers after truth, in jumping to the pathological conclusion which is, I regret to think, so dogmatically laid down in some of our treatises. Sciatica is a disease of no rarity, yet only one or two cases have occurred in which the nerve has been examined. From the results of observation in these, it is concluded that, in all sciatica cases, the nerve-sheath is inflamed, swollen, and filled with a gelatinous fluid. But is this fair? Is it less absurd than the generalization of that proverbial Frenchman, who, finding the barmaid of an English hotel red-haired, immediately wrote down :—"Englishwomen have red hair." The matter is really a serious one, for not only is it damaging to the character of Medicine as

a science, but it is attended with grave results to Medicine as an art. For what do we find? Why, that one physician, unquestioningly accepting this mere hypothesis, treats his cases of sciatica with iodide of potassium to absorb the gelatinous liquid of the nerve-sheath, and thus to prevent the lameness which follows pressure on the filaments; and another who, for the same reason, tells us that he cures his cases by puncturing the sheath with a large needle, and thus allowing the "gelatinous fluid" to escape. We cannot question the workings of the iodide, but I should certainly like to know how that physician knows when he has reached and perforated the sciatic nerve. It is, certes, a delicate little bit of operating. In conclusion, and *en parenthèse*, I must express my opinion that the lameness in sciatica is not caused by pressure of the sheath benumbing the nervous filaments, as contended by a distinguished physician. I have no doubt in my mind that the lameness is not the consequence of want of nervous power, but of disinclination on the part of the patient to move a muscle whose motion is extremely painful, and with this belief, I fail entirely to see the *rationale* of the administration of iodide of potassium. It is

perhaps unwise to offer any speculation as to the part of the nerve primarily attacked, but, if I may be permitted to say so, I have a strong suspicion that changes of nerve structure commence in those delicate filaments which form such exquisite reticulations on the surface of the sarcolemma of the muscle.

PART III.

Causes of Sciatica.

As yet we have no very precise knowledge on this head. We know enough, however, to establish the provisional statement that the exciting circumstance is generally either exposure to cold and wet, or extreme exertion of the limb, and that these are in many, but by no means in all cases, preceded by general innutrition of the tissues, or by severe mental labour or intense nervous shock. It has been urged that, from the position of the nerve, it is pressed upon in sitting, and that, hence, prolonged sitting is to be regarded as a cause. I cannot imagine that this notion is urged in seriousness; it is so palpably without foundation, and so manifestly in opposition to the facts both of anatomy and disease. Firstly, the sciatic nerve is certainly not so placed that in the sitting position it receives any unusual degree of pressure. Secondly, we do not find among women, who admittedly are

more habituated to sedentary life than men, that sciatica is more frequent than in the latter; indeed, it is, as I have stated, just the opposite. How the pressure doctrine would affect cranial neuralgias I should not care to speculate; but if the notion have anything in its favour, the chimney-pot hat, which presses so unpleasantly on the frontal region, ought to prove a fertile cause; yet I fear the facts are against it.

Here I may mention that I have intentionally omitted reference to the existence of a bowel overloaded with fæces, as such a case does not come within the category of sciatica.

Excessive sexual indulgence is often said to be provocative of sciatica, and the connection between the vascular apparatus of the reproductive system and the lumbar plexus is adduced in explanation, but I must say that I think it is "not proven." I have given careful attention to this point, and have made it a subject of special inquiry, but without eliciting anything in its support. It would be absurd to deny that unusual exercise of the generative organs must tend to diminish the general force of the body, and that, when persisted in for any length of time, it must considerably debilitate the system, and thus

perhaps conduce to a diseased state of some part of the body (the nerve-ends or others) by depriving it of the pabulum by which it is enabled to maintain its normal standard.

It is the more readily intelligible if the doctrine of pangenesis be admitted. During constant demand for semen, and therefore draught of gemmules, those parts which from anterior circumstances can least afford to supply those gemmules will be the first to suffer. This, however, is at best only a speculation.

But when we have said so much I think we have admitted all that can justly be asserted. The history of most cases, so far as we can gather it, is opposed to the view that excessive sexual indulgence is a cause of sciatica, and for this reason alone I reject the hypothesis. We cannot be too careful in drawing positive conclusions from data which may be evoked in support of a multitude of conflicting theories. There are a very large number of human beings who are addicted to certain definite habits, as excessive smoking, drinking, or copulating, and these at some period of their lives fall under our care as patients; but in such cases to educe the cause of the ailment on the *post-hoc* principle would be, I fear, a process not calculated to add much to

our knowledge of disease. Such a method is really little better than guess-work. As Mr. Paget ably pointed out in his introductory address last session to the Clinical Society, the study of coincidences, as pursued by Mr. Darwin, is a grand field of medical research, but such coincidences as those to which I refer were not, I apprehend, those which he had within his mind.

In regard to mental anxiety, shock, and intemperance as causes, my opinion is the same as that I have already expressed. They may all lead up to sciatica, just as they may lead up to any other affection of the body, but not as direct or immediate factors in the production of this disease. They primarily affect the digestive system, and then it is the old story of the "Belly and the members." They tend to diminish the force-productiveness of every tissue, and then some accident (some cause we do not yet know of) occurs, and, like the last straw on the camel's back, determines the particular tissue which is to yield. And in regard to intemperance I would remark, *en passant*, that the drinkers of tea and beer, who are much more subject to gastric catarrh than spirit drinkers, are also the more likely subjects of sciatica.

In concluding this section, I must confess that I *think* there are only two direct causes of sciatica: exposure of the limbs to cold, and over-exertion, especially the former. It may be that ere long we shall learn more upon this point, but, so far as I have been able to ascertain, these are really the only *immediate* circumstances which bring on attacks of sciatic pain. Cold may produce sciatica, either in the form of dry cold or wet cold. That is to say, that the exposure of the thighs for hours to cold air, particularly draughts, or to cold produced by the slow evaporation from clothes saturated with wet, is very likely to bring on the disease. Indeed, this is the history of nine-tenths of the cases we meet, whether in private or hospital practice, the remaining tenth being due, we may say roughly, to over-exertion of the muscles; and, if we look to the occupation of sciatica patients, we shall find that the affection is found generally among sailors, cabmen, 'bus-conductors, pedestrians *par excellence* (who have fallen into low health), men who take much horse exercise, waiters, City men who ride into and out of town on omnibuses, potboys, and such like. But in all these, so far as I am acquainted with the history of the patients, the

immediate cause, the most striking circumstance which preceded the pain by a comparatively short interval, is cold or over-exertion of the limb.

I have had a few cases in which the pedal of the sewing-machine was accused of producing the pain. The fact is of interest; but as the cases were those of milliners, who now nearly all use the machine, it is impossible to lay much stress on the charge in so small a number of instances from so large a class.

PART IV.

Diagnosis.

It may, perhaps, strike some of my readers that the diagnosis of sciatica is so simple a matter that it hardly deserves even a passing notice. I feel, however, that it is not always so easy a task to be able to say in a certain case that sciatica is or is not the disease present, and yet how important a point it is! I know of a case of sciatica—and of sciatica quite uncomplicated—where some of the first physicians and surgeons in England came to totally different conclusions in diagnosis, the physicians asserting that the case was sciatica, and the surgeons—with one notable exception—contending that the disease was one essentially of a surgical nature. Fortunately for the patient, the physicians carried the day. The difficulty which presents itself in diagnosis is this one—that the only leading symptom is pain. But while a difficulty it is also an advantage; for, if all the other evidence is

negative, we are tolerably sure of the disease we recognise. It is the establishment of the negative evidence which renders the diagnosis a matter of some trouble, and requiring considerable care. For, as the pain in a supposed case may possibly proceed from certain changes which do not at first strike the eye, it is necessary to make a very careful examination of the patient before we form our opinion. If we could always find pain along the line of the nerve and discover tenderness there on pressure, our course would be simple. But in recent cases particularly, this is not so. The patient may express rather vaguely the direction of the pain, and the tenderness may be, and probably is, absent.

The pain, then, may be due to any of a multitude of diseases. Firstly, it may be owing to some injury to the thigh from external violence, and if so, its origin will soon be determined. Secondly, it may come from hip-joint or knee-joint disease generally, or from rheumatism affecting either of these articulations. Thirdly, there may be disease or injury of the spine or spinal cord. Fourthly, it may be connected with aneurism of one of the iliac or other large vessels, or with some abdominal tumour which presses on the plexus

of nerves within the trunk. Fifthly, it may be a vague syphilitic pain; and, sixthly, it may be the consequence of disease of the sacro-iliac synchondrosis, an affection extremely rare, but which is nevertheless to be met with occasionally in acrobats.

It is by a process of analysis by which we successively exclude all the above-mentioned diseases that we arrive at the conclusion that sciatica is present; and it will be well in all cases to make such an examination as shall justify us in putting them aside. It need not take long, if it be pursued systematically. The general history of the patient's previous health will soon determine whether we have got either syphilis or rheumatism to deal with.

Here I need hardly remind the reader that by rheumatism I mean chronic rheumatism, and that I imply the existence of distinct enlargements in the joints and a decidedly abnormal state of the urine (which latter in true sciatica uncomplicated by severe digestive disorder is not present). Nor need I mention the fact that the "rheumatics" of popular parlance, and indeed of a few of our professional brethren, is too often either sciatica or brachyalgia.

Hip-joint disease is more likely than any-

thing else—in its early phases—to be confounded with sciatica, and though I have not seen a case of hip-joint disease treated for sciatica, I have met with two cases of the converse. The distinction is almost too well known to require notice. Let the patient be placed on his back; then, grasping the foot of the affected limb firmly, thrust the limb upwards against the joints (both of knee and hip), the thigh and leg being kept extended; if this causes a deep, penetrating pain, be assured there is something more or something else than sciatica present. Next turn the patient on the unaffected side, and, with the little-finger-side of the closed fist, strike a few sharp blows on the head of the bone, and if this is complained of as causing deep pain it is equally certain that there is more wrong than is involved in sciatica. If these operations are unheeded by the patient, we may leave the idea of hip- or knee-joint disease out of the question. The problem now is to find whether the column or cord is morbid, or whether there is abnormal internal pressure. Suppose we take the latter first. If the pressure be caused by aneurism or by any solid tumour of the soft parts, its recognition in the early stages may not be easy. The bruit in the one

case, and the result of palpation and manipulation in the other, will afford some help, but the probability is that in these early stages the pressure would be too slight to give rise to any pain which could be regarded as sciatic pain.

Nevertheless it is to be questioned how far the mere presence of bruit is to be regarded as indicative of vascular constriction and enlargement. The recent ingenious experiments of Heynsius and Harting are of great interest in this respect.

Should the tumour, however, have reached a size which would tend to make it compress the nerves, we should have paralyses displaying themselves; and we should find so considerable an amount of venous engorgement in the limb as at once to excite our suspicions, besides, of course, the other well-marked indications of such morbid states. Assuming, then, the absence of these appearances and symptoms, we should be justified in concluding that internal pressure was not the cause of the pain.

I have omitted mention of retained fæces, which is sometimes said to cause pain in the limbs, as I fancy its recognition is palpable. I have also omitted a possible difficulty—that

presented by a sharp bony growth projecting from the bed on which the nerve rests. Such a growth might produce irritation of the nerve, and yet might be impossible of recognition at the outset. The progress of the case under treatment would probably, however afford some clue.

Injury or disease of the spine or cord might at first be confounded with sciatica, but only at first sight. The existence of extreme tenderness over the vertebræ and of pain in the back, or the presence of grave and characteristic nervous symptoms, as paralysis, formication, spasm of muscles, hyper-æsthesia, and so forth, afford sufficient landmarks for our guidance. The absence of all the foregoing indications, then, would leave us nothing to mislead our diagnosis save that rare disease to which I have referred—viz., *sacro-iliac synchondrositis.* In this affection the seat of pain, and markedly the seat of tenderness, are very nearly the same as in some cases of sciatica, but here we should have an absence of tenderness in the lower part of the course of the sciatic nerve, and the progress of the case would decide our opinion. If inflammation of the sacro-iliac synchondrosis were going on, it would soon end either in

resolution or suppuration, and in either case we should very speedily learn that we had not to do with sciatica.

But supposing we have made such an inquiry as justifies us in excluding all the conditions to which I have above referred, then do I think—so far as my knowledge of the disease now extends—that we need have no hesitation in pronouncing the case to be one of sciatica pure and simple. But should we have been unable to exclude the evidence of those other conditions, or should we have neglected to make so careful an investigation as that I have briefly sketched out, I am certain that it would be premature, as it might be also dangerous, to pronounce a definitive opinion.

PART V.

Treatment.

Sciatica being, like cholera, one of those affections in which despairing therapeutists have ransacked the Pharmacopœia in an almost random and haphazard fashion, hoping from the mere doctrine of chances to stumble eventually on a cure, one has to deal with an unpleasantly wide range of facts in giving an account of its treatment. Perhaps, then, for convenience' sake, it may be advisable to group the methods of treatment under the four empirical heads of remedies administered—*a*, by the stomach; *b*, upon the skin; *c*, (1) underneath the skin (hypodermically or subcutaneously), or (2) into the substance of the skin (endermically); and (*d*) by hygienic measures. Of these, I need not say, for the title of the paper expresses it already, that the hypodermic method is the only one that I hold to have much real value in the therapeutics of sciatica. Nevertheless, I will endeavour as

briefly as I can to indicate my own experience of all these plans of attempting a cure of this affection, and firstly of medicines given by the mouth or stomach.

Of course there are "specifics" for sciatica. Thus we have turpentine, camphor, sulphur, iodide of potassium, arsenic, and the famous hypophosphites. There are many other favourites, but these are "sheet-anchors." Yet, I can honestly say, I never saw relief from pain follow the use of any of them; though, no doubt, each is of value in cases of special complications. Turpentine in minute doses, ♏ x. ter die, is useful enough in certain cases of sciatica, where the general health is impaired by a condition of almost chronic tympanitis; under other circumstances my experience of it is not favourable, even in the negative sense of doing no harm. As I have already said, sciatica is not uncommonly co-existent with piles, and in such instances I have known even such small doses of turpentine as these productive of grave distress, and we all know that the system, at all events of private patients, cannot with impunity be regarded as a *corpus vile* for experimentation. Camphor is practically inert, so far as I have seen; it has indeed a very decided therapeutic effect, but

in general sciatic pain it is simply a useless drug. Sulphur in bolus or emulsion I have tried often without the least result, save to give the patient some annoyance, from the fact —explain it how we may—that it is in some form, and that an offensive one, evolved by the skin for days after its administration. In the shape of sulphurous acid it is, as I have shown elsewhere, a most active remedy in water-brash, and hence in cases of sciatica, accompanied by pyrosis—not an uncommon complication—it may be given in ʒj. doses ter die, with the best consequences.

For, as I propose to show in a future paper, I am convinced that water-brash is not connected with the development of *sarcina*, but with the presence of a large quantity of a fungus of the genus *Leptothrix* (?) which perforates the epithelial lining of the stomach, and by reason of its irritation causes increased secretion of watery matter. To this conclusion I am led by the microscopic examination of the epithelium deposited from many samples of water-brash exudation. In these the cells are covered with *leptothrix*, just as stones are covered with tufts of moss, and are perforated by what I suppose may be regarded as the mycelium of the fungus. *Sarcina* is very

rare, but *bacteria* and *vibriones* are extremely abundant.

For reasons already given I am opposed to the employment of iodide of potassium on the *à priori* grounds on which it is recommended. Where a syphilitic taint is suspected, it may for very just empirical reasons be given, and in whatever mysterious way it operates its effects will be certainly good; but so far as sciatic pain goes, my individual experience of the iodide is that it leaves the sufferer just as badly off as he was before, and in these cases, explained (?) by that convenient expression "idiosyncrasy," it is productive of much annoyance.

Arsenic, in my hands, has not redeemed its reputation. I have seen its use followed sometimes by gastric irritation, but I have not noticed that it gave rise to any improvement in the general condition of the body such as to justify the high encomium of those who laud it as a "nervine," and I am quite sure it has no influence over sciatic pain to warrant its prolonged use.

It is true I have tried Fowler's solution only. Possibly other preparations might be found more efficacious.

As to the hypophosphites, I almost fear to

offer my individual opinion, seeing that it is in opposition to those "having authority." But I must confess I have grave doubts of the active therapeutic virtues of a drug which declines to exhibit its powers save when it happens to be administered with cod-liver oil and other well-known nutrients. I have never found, either in my own case or in that of others, that it was really of any benefit in sciatica.

Of general remedies—such, for instance, as acids and alkalies—I have not much to say. I have never given them a very extended trial in ordinary cases, because their administration, so far as it had been carried, did not leave a favourable impression on my mind. Where there has been reason to assume that the pyrotic condition often met with in sciatica has been due to some state of the liver in which the biliary elements were distributed through the system, I have of course used nitric acid, and with good effect. Indeed, I know of no medicine whose therapeutic properties are so marked as those of nitric acid in the forms of gastric catarrh where the sclerotic is jaundiced. Its effects in such cases are decided and quick, but it must be given in doses ranging from ♏xxx. to ʒj. ter die. As a

means of treating sciatica I have no faith in it whatever.

Alkalies are not infrequently given in sciatica, especially when, as in the complication above mentioned, acidity of stomach prevails. This I cannot help thinking, is a profound mistake. I should not object simply because it is the principle of treating a symptom, if it really did treat the symptom. But it does not do so. The acidity is in the stomach, and though a dose of sodæ bicarb. may relieve this for an hour or so, its effects are not more prolonged, and the source of the acidity — abnormal fermentation — remains, unless we would saturate the body with alkali. Because of this, then, I object to the use of alkali as a method of treating sciatica. It may do harm by interrupting the digestive functions, not to mention more serious accidents, and it can do no good that I know of. Under the head of alkalies I must be understood to include the mineral waters, at least provisionally. I have tried but a few of them, and though some of them are unquestionably refreshing, and in that way perhaps beneficial, I have not seen any result of import from their use, and I can see no theoretical grounds for their employment. Of the cases in which

French hydropathists tell us that mineral waters have worked marvels, I am disposed to imagine that the writers have not very satisfactorily excluded the chances of their having cured rheumatic disorders rather than pure sciatica. But I am free to admit that more light is wanted on this particular branch of my subject.

In the group of nutrient tonics—cod-liver oil, iron, and quinine — we find a series of remedies which, as we might have imagined, are very valuable in sciatica, not because they arrest or diminish the pain, nor because, if employed alone or in combination with each other, they cure the disease, but from the fact that they help to maintain the nutrition of the body, which the agonising pain of the malady so greatly interrupts. In mild cases of sciatica, taken "in the bud," the administration of quinine and iron—say as the agreeable double citrate—or of either with cod-liver oil will occasionally arrest the progress of the disease; and of all three, the oil, where it can be taken, is the most efficient.

I used to give the potassio-tartrate with the oil, but I think the liquor ferri perchloridi a far more active preparation, and one which may be combined in emulsion with the oil.

But in severe cases it is simply torturing a patient unnecessarily to confine our treatment to the giving of tonics, and we may be assured that, even though their administration will prevent that serious loss of flesh so common in aggravated sciatica, it will not give the patient that blessed rest and ease for which he cries so urgently.

Strychnia would not be termed a tonic, perhaps; but, be that as it may, it has more claim to tonic virtues than many so-called tonics. It has little value in true sciatica, and in those cases in which it has been held to have produced good results there is a probability that the affection included more than I understand by the term sciatica. I would venture to suggest that in such cases the injured parts were not solely peripheral ones.

Next in order of importance to tonics in the treatment of sciatica come stimulants. Under this head I include alcoholic (not ordinary malt) liquors, ether, ammonia, opium or its preparations, Indian hemp, tea, coffee, and perhaps belladonna and hyoscyamus. Wines of all kinds, and especially the weaker forms and those that contain much sugar and extractive matter, I reject unequivocally as liquors to be distinctly avoided in the treat-

ment of sciatica. I desire to express my opinion very decidedly in favour of the liberal administration of alcohol—whether as brandy or whisky—in severe sciatica. I was first led to this view of the matter by the advice of my friend Dr. Charles B. Radcliffe, and every day's experience teaches me its great value. Whether alcohol be a food or not I shall not take upon myself to determine, for I admit that the point is one which has yet to be demonstrated. I should be very sorry to conclude that because alcohol is eliminated as alcohol it is therefore either a poison or useless as a force-generator; as, likewise, I should not care to allege that because alcohol is oxidised in the body it is therefore a food.

Those who insist that alcohol must undergo chemical change in order to produce force forget the fact—too much forgotten generally—that molecular changes may be very important factors in therapeutics. Very slight changes of temperature effect very great systemic changes, and it is a well-known fact that the mere commixture of alcohol and water is attended by a considerable elevation of temperature.

But in the present phase of therapeutics I think we must be disciples of Mr. Gradgrind,

and ask for facts; and I am confident that the facts demonstrated by the administration of alcohol in sciatica are facts most favourable to that administration. It is simply astonishing to find the quantity of alcohol that can be ingested in this disease, not only without damage to the system, so far as can be ascertained, but certainly without influencing injuriously the mental faculties of the patient. In one case I know that the patient, who had previously been most temperate, used to drink at least three-quarters of a bottle of proof brandy daily without being intoxicated or even "muddled," and stated that it diminished the pain. This course was persisted in for many weeks without any bad result. I by no means wish to quote it as a precedent, but I am as certain of this as I am of anything in therapeutics—the employment of alcohol in some pure form is to be uniformly insisted on in the treatment of sciatica. The dose must be proportionate to the patient's age, sex, and previous habit, but it should be a liberal daily allowance, and it should be given in divided doses frequently. Beer of all kinds I have found extremely objectionable, and wines, save those of high strength (not fortified, but natural strength), are to be avoided as far as possible.

Next to alcohol as an important stimulant comes ordinary sulphuric ether. This, of course, does not either cure the disease or arrest the pain, but it makes it more bearable, if I may so express it. A good deal of the suffering in chronic sciatica is due to the mental irritability of the patient, who is continually brooding over his sufferings. Ether given in ℥xxx. doses three or four times a day (or in some cases in double this quantity) is a stimulant of some certainty, and is most comforting to the patient. I have not tried it very often, but it has seldom failed to give comfort to the patient, and, with the exception of occasionally producing excessive perspiration, it has had no unsatisfactory action.

I have not administered ether in the manner recommended in a recent interesting paper in *The Practitioner*, but I mean to try this method in future cases, and I anticipate very excellent results.

Ammonia is a remedy of service, although its effects are but temporary. The action of ammonia as a therapeutic agent in these, and, indeed, in most cases, is still unexplained ; but there can be no doubt, I think, that even when administered in the mild form of spirit. ammon. aromat. it is of benefit in sciatica.

Ammonia being the starting-point of such a myriad of organic bodies, one may well conceive that its influence on the blood may be both manifold and complex. Empirically, I think it must be admitted to be a drug having a wonderful number of applications and an immense usefulness.

Whether it is that it gives unusual nervous force generally, or in whatever way it operates, there can be no question of its importance, more particularly in those cases of chronic sciatica where there are considerable mental depression and restlessness. As muriate, I have known one instance in which it seemed during the first few days of its administration to diminish the pain. But though the dose was increased from gr. xxx. t. d. to ʒj. t. d., its further influence did not exhibit itself to me.

One would have thought, perhaps, that in an affection like this, where pain is so essential a symptom, the preparations of opium would furnish us with at least an approach to a reliable remedy. It is singular, however, that, so far from this, opium administered internally, no matter in what form, is a drug which is certainly to be avoided in sciatica. I have tried it largely and continuously in my

own case and in that of others, in the shape of morphia, laudanum, and solid opium, and not only without producing any alleviation of pain, but with the utmost injurious results to the general health. While under the influence of opium taken by the mouth, the patient is perhaps less heedful of his pain, but unless the dose be pushed to an unwise extent, he gets no real rest or sleep. When the effects of the medicine have passed off he suffers dreadful depression, weak pulse, intense nervousness almost amounting to hysteria, a feeling of nausea, a loathing for food, and constipation. Altogether he is infinitely worse than if he had not taken the opium at all. I have seen so much of this, and, indeed, have felt so much of it, that I unhesitatingly urge my brethren in the profession to avoid above all things the mouth-administration of opium in cases of true sciatica.

From what I have learnt of the effects of opium when smoked, I incline to the belief that, with the exception of the hypodermic and endermic methods, the pipe is one of the best modes of introducing opium into the system in sciatica. It would seem that when so given the effects of the opium are very much like those which follow its introduction by the skin.

In one case in which the opium was given in suppository the results were such as to lead me to regard this as by no means a bad kind of administration. Since then, of course, the syringe has carried off the palm.

Cannabis indica has been much extolled by writers on neuralgia, but I believe that it has been found more useful in cases of tic than in those of what is objectionably styled neuralgia of the extremities. Be that as it may, I can only say of it that I have not tried it extensively, and that my experience of it leads me to think that it is of trivial value in cases where hypodermic injection can be borne. It might perhaps be of service as a *dernier ressort* in those instances in which, from some unknown reason, the patient cannot tolerate opium, no matter how it be given. When its influence is exerted fully, the patient, as I know from personal experience, being reduced to a very uncomfortable condition of semi-catalepsy, is, as regards the "Ego," removed beyond his pain, as he is beyond everything else. But as this influence very rapidly passes off, and as it could not possibly be maintained for weeks, Indian hemp is really an impracticable remedy in this disease. It might be useful in face-ache, but in sciatica

it is simply a toy drug, if I may so express it. Furthermore, and this is worth notice, its preparations are most annoyingly irregular in strength. I believe you might go to half a dozen different chemists and purchase samples of the extract of Indian hemp which had as many seriously different activities.

So far as ext. cann. ind. can be held to be poisonous, I have experienced its effects. The sensation was different from, and far from being so pleasant as those described in books. I had been using large doses of extract for a couple of days without any effect. I then increased the dose slightly, and having accidentally procured the extract from a new source, I was most painfully placed under the influence of the drug.

Henbane has shown itself utterly powerless against the pain of sciatica.

Belladonna, for obvious reasons, is also a drug which cannot be employed with advantage as an internal remedy. I employ the word "internal" merely in the ordinary acceptation of "administered by mouth." Of its introduction by the skin, those who have tried it speak well of it.

Tea and coffee can perhaps hardly be considered as therapeutic agents. Yet there are

some who hold that in ordinary neuralgia the latter has a very decided beneficial effect. My experience leads me to the conclusion that in sciatica cases they are both best avoided. Indeed, I almost invariably, where it is possible, put my patients through a course of cocoa or some allied preparation, as I am quite certain that tea-drinking is most injurious in this disease. As to the use of coffee it is less easy to decide, its effects appearing to vary much with the individual. Thus I know of some whom *café noir* so quickly purges that they invariably employ it when requiring a mild laxative, and I have met with not a few on whom it has precisely the opposite effects; and it is most probably in such constitutions as these latter that coffee produces its least injurious results. As a rule, however, I have found it advisable to discontinue the use of tea and coffee in the treatment of sciatica.

Purgatives in sciatica I must most distinctly protest against, except in cases where the degree of constipation is such that their administration is imperatively demanded. I am aware that some eminent authorities countenance the use of purgatives, upon the belief, or rather supposition, that a loaded colon is a

frequent cause of sciatica. But, besides my objection to this kind of practice, on the ground that the principle on which it is based is a false one, I go on the more reliable, though empirical, fact that I have never seen purgatives do anything but mischief in sciatica. They may perhaps diminish the pain to a trifling extent and for a few hours after their first operation; but they are invariably followed by intensification of the suffering and by a degree of debility which far more than counterbalances the little benefit they effect. Where there is undue costiveness, the employment of belladonna or the administration of a pill containing three or four grains of pil. col. co., combined with an eighth to a quarter of a grain of resin. podophyll., will generally secure a comfortable daily motion; or, in other cases, the very simplest and gentlest form of enema may be advantageously used; but anything in the shape of systematic purgation, my experience convinces me, is a most mistaken and injurious form of practice.

Of the use of sedatives I have not much to say. The only ones of which I have any experience worth recording are tobacco and bromide of potassium; and of these, even, I have no very high opinion. Concerning

tobacco, it may be said at once that in those who are unaccustomed to smoking, it would be worse than useless to attempt to use it.

I mention this because I have recently found that in spasmodic asthma smoking *ad nauseum*, by men unused to the weed, produces very excellent results, *quoad* the asthma.

Then, of those who are smokers, there will be found two classes—one in which the pipe or cigar is stimulating, like very small doses of morphia (given hypodermically); and another in which its effects are simply stupefying. In the former it will not be necessary to suppress the pipe in dealing with sciatica; indeed, rather the other way. In the latter, it is essential that the habit of smoking shall either be discontinued absolutely or considerably diminished. This is, it must be confessed, a rude generalisation, formed on a limited number of cases; but I throw it out suggestively, and with the hope that some of my readers may examine the question for themselves and publish the result. The problem is at least of interest.

Bromide of potassium—that most wonderful of drugs, whose mode of action is so unknown—will sometimes be found useful

in this disease. When, owing to the patient's absence of occupation and loss of usual exercise, there is considerable sleeplessness and unrest during the earlier hours of the night, and when the patient lies awake, tossing restlessly and wearily on his bed, bromide will ofttimes prove of great service. In these cases it should be given at bedtime in some aromatic infusion, and in a dose of from twenty to thirty grains. In most instances it will procure sleep, and in nearly all it will produce that calmness of mind and quiet which are so remarkably characteristic of its action.

Other sedatives I have not tried extensively enough to warrant my offering any opinion on their value in sciatica, and with the foregoing observations I conclude my account of the internal remedies for sciatic pain.

PART VI.

Remedies applied to the Surface of the Skin.

These resolve themselves into (1) the ordinary methods of producing "counter-irritation"—liniments, ointments, plasters, blisters, acupuncture, and the actual cautery; (2) cupping and leeching; and (3) the application of different varieties of electric vibration—static, dynamic-direct, and dynamic-induced. I omit noticing the employment of anodyne lotions and of plasters like belladonna plasters, as I consider that they have no special effect on the pain in this disease.

Perhaps of all remedies, those which come under the categories enumerated above are even at the present moment the most popular. Doubtless this is because many of them give temporary relief, as well as because in some few instances of recent cases they bring about a speedy cure, and of the methods most in vogue those of surface irritation are the most favoured.

Here I may mention that I do not think the cry raised against the use of the word "counter-irritation" was justifiable. The expression in itself involves no hypothesis; it means simply an irritation set up in opposition to that caused by the disease. However, I have ventured to substitute the term "surface-irritation" as one which is no more than a statement of fact.

Many varieties of surface-irritants are employed, each medical man having his own special form in which he believes. I shall very briefly advert to my experience of a few. One of the first which I tried was croton oil, as being easily applied, and productive of irritation which lasts some days. In the cases in which I used it, the oil itself undiluted, was rubbed into the skin of the thigh along the course of the sciatic nerve. One who has seen the powerful effect of this liniment on the skin of the chest would have thought that when used in a stronger form on the thigh it would produce a suitable eruption of pimples. My experience, however, was most unsatisfactory. In one patient, whose skin was unusually delicate, it acted powerfully, but un-uniformly; indeed, it led to the formation of one or two very unpleasant boils, without

producing a general eruption. In the others, it was simply inoperative. Ung. antim. tart. acted much in the same way, and had to be given up as useless. Nitrate of silver a (concentrated solution) produced its usual caustic action, but was perfectly ineffective as regards relief of the pain. Indeed, of all the liniments tried, that which succeeded best was a mixture of equal parts of chloroform and soap liniment. This, poured out on a piece of flannel, which was then applied to the skin, and kept in position with a warm hand, acted well. After a few seconds it produces a feeling of intense burning, so as to be no longer tolerable to the patient, but in a minute or two this passes away, and the application may be repeated. I found that a series of such applications, at intervals of a few minutes, and kept up for about an hour, gave, in nearly all instances, decided relief; but I regret to add that, in a very short time, the sciatic pain returned, if not in redoubled intensity, certainly in unabated force.

Blisters have been found, by many physicians, to do good in sciatica. In my hands they have not been so fortunate. I do not now refer to blisters which have been dressed with certain alkaloids; for, in such examples,

the cure effected could not be attributed to "surface-irritation." But the ordinary blister, whether produced by the hot-water method or by emplast. lyttæ, or by acet. cantharid., has not, in my practice, done enough service to warrant its general employment in sciatica. I have tried blisters over the exit of the sciatic nerve, and long strips of blister along the course of the nerve, with no adequate favourable consequence. In most instances they somewhat diminish the pain, in no instance did they remove it, and in one patient they seemed to intensify the suffering; at all events, while the irritation of the cantharides occurred, and before the epidermis was "raised," the patient complained that his "rheumatics" were far worse than before: this, I own, may have been mental irritability, but I cite it as an apparent consequence.

From plasters (curiously enough) I think more good may be expected. The ordinary pitch-plaster or the emplast. calefaciens (if not too strong) is the best, but I prefer the former. It should be large (about 12 in. by 4 in.), should be well warmed before being put on, and should be worn for several days. I do not know how to account for it, but I am sure that the patients have nearly always expressed them-

selves as decidedly relieved by use of the pitch-plaster. Dr. T. King Chambers, in his capital clinical lecture on sciatica (see "Clinical Lectures"), expresses his disbelief in the supposed irritant action of this plaster, and certainly there is good reason for his scepticism; but, at the same time, I do not think that his explanation of the effects of the plaster is strictly satisfactory. He thinks the effect is due to the warmth produced by a covering of a large piece of leather. Dr. Chambers very properly points out that the sciatic is the largest and most exposed nerve in the body, and that it is particularly liable to be affected by changes of temperature, seeing that it is so badly protected. To this view I would urge the following objections:—(1.) Between the nerve and the surface there is, besides the ordinary tissue (dense non-conducting skin and fat), a layer (so to speak) of blood kept at a constant temperature, owing to its rapidity of renewal: it is difficult to imagine, then, that by any outward presence of cold air heat could be directly abstracted from the trunk of the nerve. Of course I do not for a moment doubt that intense cold applied to the surface would at once affect the sciatic nerve, but what I mean is that this cannot (in the average

limits of variation of temperature) take place directly. (2.) I have not found that by making the patient wear immensely thick flannel drawers the effect was to be compared with that of the plaster. (3.) The plaster which acted most efficiently (and, indeed, infinitely better than the ordinary emplast. picis) was that which is sold in the oilman's shop under the name of "Poor Man's Plaster," and in which the resinous substances are spread on either paper or very thin calico.

Acupuncture has been much employed, especially on the Continent and in America, in the treatment of sciatica. A more extended trial of it may show it to be useful in this and in other affections; but at present, so far as my knowledge of the plan goes, it is not to be relied on. It is troublesome and painful. In the case in which I tried it I used a little piece of apparatus which I saw described, I forget where, some time ago. But, as I have said, I do not think any good resulted from its use.

The machine is a metal cylinder having within it a piston of wood, working easily and provided above with a wire spring, which when a catch at the end is disengaged forces the piston below the orifice of the cylinder. The lower end of the piston has projecting

from it a number of needle-points. The mode of using the instrument will be obvious.

I have heard recently that acupuncture with an instrument of this kind has been used as a means of introducing croton oil into the skin, and so setting up severe "surface-irritation," and with good results, but I confess I have not yet tried it.

The last method of surface-irritation of which I will speak, as it certainly is the last I should like to employ, is the "actual cautery." I do not believe the actual cautery as used in human Medicine to be of the slightest service in the treatment of sciatica. Possibly if we employed the iron at the same low temperature, and over the same extent of surface, as the veterinary Surgeon uses it in "firing" a horse, it might be more useful. I should like to know more on this point. But, as it is now tried, the method terrifies the patient, sometimes disturbs his digestion (why, I cannot say), and does him not the slightest particle of good. In my own case it was useless.

It may be worth mentioning that all pain resulting from the iron may be prevented by first freezing the skin with the aid of Richardson's ether spray apparatus. This in no way interferes with the production of a good

eschar, but it entirely prevents the pain, though not the fear, of the patient.

The second group of remedies applied to the surface is that included under the term "blood-letting." I am so distinctly opposed on principle to anything like a removal of blood in dealing with sciatica, that this method is one to which I have not given any extended trial. I have, however, in the country seen blood-letting attempted in the case of stout men who were suffering from "rheumatics," and I must say that the impressions I bore away with me were not favourable ones. Irish farmers bleed their calves in order to increase their appetite, and thus fatten them, the increased desire for food being out of proportion to the blood lost. This may account for some of the good consequences of bleeding in sciatica; but I certainly should not advise any one with a regard (if not for his patient) for his reputation, to attempt using either the cupping-glass or the leech in the treatment of this disease.

In the third section of surface remedies we come to the most interesting, as it certainly is the least understood of all the departments of modern therapeutics—that of electricity. A series of circumstances has led to this—I must

write the word — ignorance on the part of medical men, not merely of the physiological action of electricity, for that is intelligible enough, but of the commonest principles and facts, without a knowledge of which the use of electricity may be as dangerous as in skilful hands it is beneficial. Firstly, for years past electricity, which, we are told, "is life," has been in the hands of quacks and charlatans, and this fact has very naturally prejudiced sensible men against it; secondly, the two chief authorities on the subject, Remak and Duchenne (we omit Benedikt as being a later writer) took diametrically opposite views as to the forms of electric vibration to be employed; thirdly, hospital teachers neglected teaching their pupils the use of electricity in disease; and fourthly, the application of the remedy is so tedious and troublesome that it would not "pay" either the physician or the general practitioner to administer it himself, and he has seldom a skilled operator at hand.

The terms electricity and galvanism are employed with fearful vagueness by some medical men, and we fancy that there are not a few who think that all forms of electricity are alike, and that a little box, with a handle that is turned round and round, and a pair of chains

or wires, embody the materia medica of electric therapeutics. This is greatly to be deplored, and I cannot but think that if the terminology so well described and so forcibly insisted on some years since by Mr. J. Netten Radcliffe wereal ways followed, especially by instrument-makers, much ambiguity would be avoided, and much benefit to science would accrue. Thus the ordinary friction electric machine, the type of apparatus for producing static electricity, being that with which the name of Franklin has been so well associated, and being styled Franklin's machine, we get the word Franklinisation to designate its employment in medicine. Similarly the ordinary galvanic battery, in which the reactions of certain chemical solids and liquids are made to develop electricity—which is termed dynamic—having been connected with Galvani's discovery, the word Galvanisation is used to express its application to a patient. Lastly, we have that curious combination of a mild galvanic battery and the induction coil, which was Faraday's great discovery, whose effects are so valuable in certain nervous affections, and the employment of which is styled Faradisation. Here, then, are these simple words, uniform in their derivation, each expressing

distinctly a particular therapeutic mode of using electricity; and I will ask why are they not invariably employed by medical men in their writings? Students like to worry their brains about the complexity of the laws of induction, and questions of resistance and tension, and so forth, and puzzle themselves with the terms static and dynamic; but if the three words referred to were invariably used, the busy practical man need no more trouble himself about the difficulties of electric science than he need bother his mind about spherical aberration, indices of refraction, and laws of deviation, because he wants to examine a urinary deposit under his microscope. I have digressed thus from my present subject in the hope of helping to make a matter which some think recondite appear tolerably simple. In summing up, therefore, in aphoristic form, the remarks made above, we may say—with the old electrical machine we Franklinise, with the galvanic battery we Galvanise, and with the induction coil (whether galvano-induction or magneto-induction) we Faradise.

I have tried each of these three modes of using electricity in the treatment of sciatic pain, and with some very instructive results; and, in the first instance, after referring to

two very useful English books which those interested in medical electricity should read—Dr. C. B. Radcliffe's "Epilepsy, Pain, and Paralysis" (Churchill), and Dr. J. Althaus's "Medical Electricity" (New Edition, 1870. Longmans), I will speak of Franklinisation. There are three principal methods in which static electricity may be applied—(1) Sparks may be passed from the machine to the painful part, the patient remaining in the ordinary (uninsulated) position; (2) the body may, so to speak, be charged through the affected part, the patient being placed on an insulating stool; and (3) a shock may be given by the discharge (with the discharging rod) of a Leyden jar (or more than one, the extent of surface being considered). Of these three, I must confess that the only ones I have tried have been the first and the last. It should be added that I have not given the subject that extended trial which is necessary to forming definitive conclusions. Still, I may say that so far as I have employed static electricity the result has not led me to hope for much from Franklinisation in sciatica. In one case where the effect of the passing of sparks from the prime conductor produced a good deal of reddening of the skin, accompanied by pain,—

where, in fact, surface-irritation had taken place,—there appeared to be some little relief afforded, but then the case was not a very severe one; and even admitting that relief was obtained, it must, I should think, be attributed rather to the congestion of the capillary blood-vessels than to any direct soothing influence of the electric vibration upon the nerve. From some remarks which I once heard from Dr. C. B. Radcliffe, I fancy that if the practice of charging the body from the machine were given a full and fair trial, valuable results would be obtained; but, so far as my individual experience has gone, I have not found static electricity of any practical use.

Of the forms of dynamic electricity, that which is most often, though not most scientifically applied, is the Faradic. Faraday's machine—the induction coil—enables a small battery (a single Smee's or bichromate cell) or an arrangement of magnet to develop a very intense electric vibration—the power depending on the length and character of the wire in the coil—which, however, has these peculiarities; firstly, each individual vibration is momentary, and each succeeding one differs, as to the direction in which the current passes, from its fellow.

By the induction coil, we are enabled to produce a series of rapidly successive currents of a force (therapeutically speaking) which can be graduated by means of a contrivance that practically reduces the extent of the coil. This contrivance used to consist in withdrawing the soft iron bar from the coil, and now consists of a tube of copper closed at one end, and which, sliding over the coil, allows us to bring as much or as little into action as we please.

I believe that there are still a few physicians who hold to Duchenne's doctrine of a difference physiologically between the primary and secondary currents of the inductorium—*i.e.*, the current from the thick and that from the thin wire. For myself, I believe that M. Becquerel satisfactorily demonstrated the absurdity of this idea by showing that, owing to the difference in the diameters of the wire, there must be a corresponding difference of tension between the currents, and that this was what Duchenne mistook for a difference of physiological qualities between the two. Holding this view (and in order, also, to render the subject as intelligible as possible), I have refrained from making use of the terms primary and secondary currents.

It will be well to bear in mind that, whether we use what is called a volta-induction coil, or a magneto-induction coil, we are in each case employing Faradisation; and that while applying the instrument, we are causing two currents passing in opposite directions, and rapidly alternating with each other, to traverse the parts of the patient included between the two poles.

It is also necessary to state that in some Faradic machines—such as the magneto-induction coil of Mr. Browning, of the Minories, described a couple of years ago in the *Medical Times*—the two currents are caused by a commutator to pass in one direction. A fact, too, worth further development, is that, by altering the rheotome, the duration of each current is increased or diminished.

Now, there is a further point in regard to the application of Faradisation, which is of importance in the treatment of disease. It is a matter of considerable moment how the electricity is applied. It may be so contrived that the current is, so to speak, split up, and distributed over a considerable surface, or caused to penetrate the skin, and then affect the muscles. My experience of Faradisation in sciatica leads me to oppose very de-

cidedly the use of the ordinary conductors—the brass tubes filled with moistened sponge. When in a case of severe sciatica, a case in which locomotion has become painful and the limb is kept constantly flexed, Faradisation is used in this way, the result is most baneful. The (in both senses) irritable muscles are, according to the strength of the current, thrown into violent contraction, and the patient is left in excruciating agony for several hours after the operation. The only—so far as I know—admissible method of applying Faradisation in sciatic cases, is that in which a good-sized pair of metallic brushes (such as are now sold with every medical induction coil) are employed as conductors; these so distribute the current as to affect but slightly the subjacent muscles, while they produce a great deal of surface-irritation and hyperæmia. As to the extent of the coil to be used, or in other and more popular language, the strength of the current to be administered, that must be absolutely left to the discrimination of the operator, who should invariably begin with a feeble current, and increase it gradually up to the point of endurance on the part of the patient. Some persons have an epidermis highly sensitive, while others have a skin

which contains such a mass of corneous non-conducting material, that it may fairly be called a hide. In no case should the application be persisted in for more than ten minutes at a *séance;* and though in course of time it may be used three times a day, it will be advisable to limit the application at first to once in the twenty-four hours.

A great deal is said and written about the part to which the positive and negative poles are respectively to be applied. I must say I think there is nothing to warrant the belief that there is—in cases where metallic brushes are used as conductors—the least difference therapeutically whether the positive pole is placed in one position or another. I am disposed to think that the same holds good too in regard to the application of Faradic electricity in all cases, but on this point opinions may fairly differ.

The idea, which is founded on clinical observation, receives, I should imagine, some confirmation from the fact that the currents are, at regular intervals, passing in exactly opposite directions.

It seems to me, therefore (but I shall be glad to know the opinion of those of my professional brethren who have considered the

subject on this point), that the medical man who is about to apply Faradic electricity to the treatment of sciatica need not trouble himself about either primary or secondary currents, or about positive and negative poles, but need simply apply the brushes to the limb in the following manner:—The brushes should have the wires expanded fanwise. Then, one being placed above, near the sciatic notch, and the other at about the junction of the middle and lower third of the thigh in the direction of the sciatic nerve, one brush should, while firmly pressed against the skin, be made to approach the other, either being kept fixed. After a few brushings the local effects will exhibit themselves, and the application should then be suspended.

As the result of my experience I may say that there is positively no therapeutical difference between Faradisation produced by the volta-induction coil and that of the magneto-induction coil. I mention my opinion on this point because I am aware that some medical men think otherwise. It is remarkable, too, that according to the researches of MM. Lenz and Jacobi the laws which regulate the force produced by the two forms are actually identical.

It may, perhaps, appear singular that I should have entered into such details concerning a therapeutic method which I cannot hopefully recommend in the cure of sciatica; but it is, nevertheless, true that my opinion of Faradic electricity in these cases is, that it may be either extremely injurious or very slightly beneficial. Ere I had learnt practically the sad consequences of applying the induction current so as to contract the muscles, I tried this mode only. Subsequently I employed the plan already stated. The result was generally *nil;* but in some few cases, just those kinds in which liniments proved useful, it was alleviative.

Though I have no faith in Faradisation as an anodyne in sciatica, I may mention a curious fact which recently on two occasions came under my notice. In two cases of severe facial neuralgia affecting the superior division of the fifth, one of the conductors of the Faradic machine was placed on the second (or middle) division, and the other toward the extremity of the branches of the superior division, and the result was immediate and decided relief.

Still, as I doubt not that electricity will be one of the great medical engines of the future,

I have thought it right to say all I had to say on the subject even of Faradisation.

Galvanisation, or the use of the continuous galvanic current, has long been used, and with varying success as to the treatment of sciatica. Remak spoke of the results of this mode of treatment in such laudatory terms that his cures appear to have been little short of miracles. Other therapeutists, and among them not a few English physicians, have also tried galvanisation, but they have not reported so favourably of its effects. I have experienced the effects of the continuous current myself, and I have watched its results in some of my patients, and I am prepared to say that we have in galvanism a remedy which, under other conditions than those under which it is now employed, will prove most valuable in the future. I do not in the least doubt the pain-relieving power of the current from the galvanic battery. I have felt it in my own case, and have seen it in the case of patients, but I must also say that the difficulty of applying the current, owing to the densely non-conductory character of the skin, the troublesome nature of the operation, the almost impossibility of keeping up a constant current for months, and our ignorance of the

relative physiological merits of what are called intensity and quantity, and of the therapeutic difference between a single huge cell with large surface, and a large number of small cells, all render the employment of galvanism in an affection like sciatica more interesting to the scientific physician than beneficial to the patient.

I have no personal knowledge of the therapeutic value (in such cases as sciatica and brachyalgia) of those ingenious chain batteries of Mr. Pulvermacher, which are regularly worn upon the patient's body, but I should think they must be productive of benefit, while they would certainly not be troublesome or difficult to manage. *A priori*, I should fancy that a current of low chemical power, but with just sufficient tension to enable it to secure its constant and prolonged transmission through the affected parts, would be likely to do much good, and I mean to give the subject attention.

I would not have it supposed that I deny galvanism to be a remedy in so-called rheumatics, but when we have—as in hypodermic injection of morphia—a safe, certain, rapid, and convenient remedy of another kind, we must not resort to one which, however attrac-

tive to the therapeutist, is really of not much practical use to the patient.

I shall not attempt the Herculean task of describing the various forms of galvanic batteries now in use, but would merely remark that, besides the ordinary combination known as Daniell's, of which from 70 to 100 cells are generally employed for medical purposes, several convenient forms, consisting of fewer cells of much greater individual intensity, have of late been offered for sale by the English instrument-makers; and in the present phase of electro-therapeutics, the physician must absolutely be left to his own choice.

Such are the Stöhrer's battery, sold by Pratt, which consists of a few cells of similar form to those used in the inductorium of the same maker; a battery sold by Messrs. Weiss; and the handy and cheap galvanic chains of Mr. Pulvermacher, in which, owing to the small size and great number of the elements, the current is of very high tension. Of cheap and constant galvanic cells may be mentioned the Menotti sand battery, and the excellent *Leclanché* cell.

Some are in the habit of attaching a galvanometer to the battery, and I believe that of these not a few imagine this apparatus to be

a sort of gauge of the therapeutical strength of the combination, this being, they fancy, indicated by the deflexion of the needle. It is needless to tell the student of *physics* how absurd is any notion of this kind, but it is necessary to inform the student of *physic* that in electro-therapeutics the galvanometer is of no real use. We want some handy means of estimating the exact intensity and quantity of the current at any time produced by our batteries; but, unfortunately, the method which can be used for one of these purposes (thanks to the late Dr. Matthiessen, the British Association or B.A. unit) is too complex for medical practitioners. The physician's best guide, though it is, at most, an inconstant one, will be the sensation produced when one pole is placed in the hand and the other is brushed lightly along the skin of the wrist.

In applying the galvanic current, the patient should recline on a couch, with the hip and outer side of the affected limb exposed and uppermost. The sponges of the conductors being then moistened, one should be applied to the skin just above the point of exit of the nerve from the trunk, and the other over the seat of the nerve at about the commencement

of the lower third of the thigh; if the skin be, as it often is, of a tough character, it will be well to apply, for twenty-four hours previously, a small cold-water dressing over the parts against which the poles are pressed. By this means the skin becomes saturated with water, and is thus made a better conductor, an ingenious and useful plan, which was suggested to me long ago by Dr. C. B. Radcliffe.

But it may be asked, does it matter whether the positive pole is placed above or below? and this is, of all questions in electro-therapeutics, the one, perhaps, that on which the evidence forthcoming is least satisfactory, owing to the way in which the experiences of different workers conflict. My knowledge is certainly a very limited one, which I hope to enlarge now that an electrical room is about to be established at St. Mary's Hospital, but so far as it extends it teaches me that the inverse, and not the direct current, is the one which produces most relief in cases of sciatica. The galvanic current, being supposed to travel from the positive towards the negative pole, we may roughly define the inverse current as that in which the current is supposed to travel towards the central nervous system,

and the direct that in which it travels towards the periphery, a plan which, of course, would only apply to a motor nerve, but it will answer my purpose for the present.

Now, when first I applied the galvanic current, I imagined that the most natural method was to apply the positive pole near the root of the nerve, and the negative below. My readers will then judge of my surprise when I found that this plan, both in my own case and in that of others, while it apparently gave some ease during the operation, appeared to intensify the pain for hours subsequent. I next adopted the inverse current. I placed the positive pole below and higher up, and the negative on the skin near the exit of the nerve, and I found that this resulted in the production of more ease than any other plan. Now, why this should be, must, I fear, in the existing state of therapeutics, remain a mystery, but I am disposed to regard it as a fact, and I shall be very glad if some of my readers will give the plan a fair trial, and will communicate their results to the journals. I am aware that Remak gives very elaborate instructions as to the conditions under which the negative pole is to be applied to the painful point, but no one, I venture to say, but Remak

himself could have estimated these conditions properly.

It is very easy to speculate, but very difficult to establish general laws; still I cannot help thinking that the anodyne effect of the current applied is explicable on Dr. Radcliffe's law of the action outside the positive pole; and further, that it tends to support my conjecture that the nerve-ends, and not the trunk, are affected in sciatica.

As I have already stated, the relief afforded by the continuous current, whilst it is unquestionable and immediate, is neither of long duration nor of great extent. For some few hours the limb feels somewhat "deadened," so to speak, and the suffering is certainly more tolerable, but this condition of things does not last long, and the pain is, even under the best circumstances, not entirely banished. If the hypodermic injection could not be employed, then I should say that our most useful remedy for sciatica was the galvanic current; but when I compare the two plans, when I think of the difficulty, nay, the almost impossibility, of administering electricity at the patient's residence, and of the tedious character of the operation; and when, on the other hand, I know how sure, safe, and ex-

peditious is the subcutaneous remedy, I am bound to say that galvanism, while it should still be used (in special cases) is really of little value in the great majority of cases of so-called rheumatics.

And in severe cases it would simply be cruel to ask the patient to come to our consulting-room.

PART VII.

Endermic and Hypodermic Methods.

It is only needful to say a word or two in regard to the endermic method in sciatica, for it is essentially the hypodermic plan painfully applied; it may as well, however, be mentioned that it consists in blistering the part, and then applying morphia to the portion of the skin operated upon. The objection to this is that there is a constant sore; that it is troublesome; that, unless it is done with a hot application, it takes time; and finally, that it is not at all so rapid in its effects as the hypodermic method. There is no necessity for further remark on the subject, for we shall presently come to the consideration of the hypodermic method itself, which is unquestionably better and more reliable—and more expeditious.

Of all hypodermic methods, I should think that of plunging a needle into the sciatic nerve at once the most courageous and futile

that there is. I have never either attempted or witnessed the operation, nor should I care to, for I consider it to be most unquestionably wrong. It is based, I believe, by those who adopt it, on the supposition—for such it must be—that the sciatic nerve has undergone some change, which has increased its size and enlarged its sheath with a quantity of morbid fluid matter. What there is on which to found this very remarkable theory I confess I have failed to observe. Doubtless, those who admire the operation have satisfied their own minds on the point; but, while the pathology of sciatica remains in its present condition, while we are so painfully ignorant of the nature of the change which takes place, of the part of the nerve in which the supposed enlargement occurs, or, indeed, as to whether the pain really proceeds from the nerve itself or from its finer branches, I think there are grave reasons for the abandonment of such a line of treatment as that to which I have referred. Nevertheless, I have referred to the process, and I think to refer to it is sufficient; at least, I shall not take upon myself to describe a mode which I believe—so far as I may believe—to be at best profitless.

Before we come quite upon the method which I have found so successful, it is requisite to mention a system practised by so distinguished a man as Trousseau. It is a surgical rather than a medical one, and it may be very briefly described as consisting in cutting down upon the painful part, and inserting a piece of cotton-wool between the lips of the wound to keep them from uniting. This method, which is certainly more of a hospital than a private patient cure, is, at the best, a rude one. Dr. Trousseau, who describes it at length, speaks very favourably of it, and gives cases to illustrate his view; but I should not advise my readers to put the method into private practice, nor do I see any necessity for it. The hypodermic method is so easy and simple—painless, if necessary, but so little painful when most so, and is, after all, applicable in about, at a low estimate, 90 per cent. of the cases—that it readily takes precedence of so formidable a process as that just described. Indeed, the hypodermic method is in advance—far in advance—of all that I have hitherto said, and for this reason I have kept it till the last, that those who have attempted, and probably may believe in, other methods, may see that before adopting it I

have faithfully attempted most other existing plans of treatment.

Hypodermic Injection.—I have come at last to the true and, as I believe, *almost the only remedy for sciatica*—the hypodermic injection of minute quantities of morphia. It is a remedy which I have used successfully in my own case, after everything else had been attempted vainly; I have every reason to have a thorough faith in its effects, and my readers will therefore excuse my being a little prolix in the description of it. Firstly, of the syringe. There are many varieties employed, which principally belong to three classes. There is the syringe, the piston of which is moved up and down by a screw-movement. This I object to, because it is unnecessary; when it goes out of order it is more troublesome, and because it adds a useless degree of complexity to the apparatus. Next there is the syringe with the fixed nozzle, in which the needle, if broken, cannot be restored without sending to the makers. This, also, I strongly disapprove of. Lastly, there is the form which consists of a plain piston working up and down in a silver cylinder, and causing the fluid to move up and down a glass tube at a distance from the piston, and in which the needle is

attached to the rest of the apparatus by means of a screw. This is the form which I always employ, and which I especially recommend. I do not see why it is made only to hold about six minims; it would be more convenient for general use (for other purposes than for use in sciatic cases), if it were made of larger capacity, but that concerns us little at present. In regard to the needle or point, I always employ a steel one, and I prefer it for several reasons: I will only mention a few. Firstly, it is much more readily introduced into the frozen skin than gold; secondly, it is far less likely to break (I have never broken one, but I have broken two or three of the others). There is, however, an objection to its use which must be avoided. It is very apt to rust within, and if only occasionally used it is almost certain to do so. The remedy for this is one which ought in any case to be always employed, because it, so to speak, is a guarantee that the passage is free: it is a piece of gold or silver wire, kept always within the needle when out of use. If this precaution be adopted, I see no objection to the employment of steel nozzles for the syringe, but, on the contrary, every argument in their favour. With a syringe so provided

the reader is possessed of the best now made. There is a serious objection to those syringes at present in use—viz., that they are exceedingly apt, by the smallest possible, and occasionally even by no ill-treatment, to give way at the junction of the glass syringe with the lower part or screw which the needle is fastened to. If a syringe is constantly in use, it is impossible to prevent this occurring, and especially if one is in the habit of using warm solutions. I think this might be partly prevented by attaching a shoulder to the tube at its extremity, and adapting the part into which it is fastened so that the syringe might enter and be screwed round. This would prevent that traction to which the syringe is now so much subject, and would, I think, prevent accidents.

I may mention that the needles of some syringes are made much too long. I have seen one quite three inches long, whereas an inch and a half, or at most two inches, is an abundant length.

The prevention of pain during injection is a very important point, and I think, too, is one which many of us do not understand. Dr. Richardson's spray-producer, with ether of low sp. gr., gives the practitioner an easy and rapid

means of producing the necessary anæsthesia, and should in all cases where pain is much complained of be used. It is unnecessary to do more than refer to an instrument so well known. In using it, a very small portion of skin—about the size of a shilling—is, if necessary, frozen. If necessary is said, because when the sudden pallor is produced, and the part is literally frozen, a certain amount of redness is subsequently (twenty-four hours) produced. This may be prevented by simply causing a layer of water and ether to freeze upon the skin. By this means there is frequently sufficient anæsthesia produced to admit of the operation without the least after effect that is perceptible, and without that unpleasant sensation of pain which is sometimes so annoying to the patient.

Having described the apparatus employed, we may now say a word or two about the substance administered. Of course this is morphia; but there is a something to be said about it. Whether acetate or hydrochlorate be employed matters little. I myself use muriate, and I advise its employment. But what strength shall the solution be? I should say that a solution for hypodermic injection, such as that always prepared for me by Messrs.

Hopkin & Williams, should be ℞ morphiæ muriat. gr. x., aquæ dest. ʒij., solv.

This solution is always solid at ordinary winter temperature, and generally so in summer. It contains half a grain of morphia in every six minims, and it must be heated before each injection. This latter process seems a useless one at first sight; but it has this great advantage, that when cool the solution is perfectly solid, and thus it escapes decomposition, which inevitably takes place in those solutions liquid at ordinary temperatures, and which, from the writer's experience, invariably become full of fungi, and so are rendered dangerous substances to be injected. I should like to impress upon my readers the necessity of preparing the solution as above: simply the addition of so much muriate of morphia to so much distilled water, adding neither acid nor glycerine—for the first gives rise to extreme pain, and the second, I am seriously disposed to think, forms a new compound, which seriously interferes with the result. Very little trouble is required, merely a little heating in preparing the solution in the manner in which I have advised.

With regard to the quantity of morphia re-

quired, that will, of course, depend on the case, and on the previous habits of the patient; but, if we may suppose an ordinary case coming to us after a few weeks, we should not commence with a larger dose than the one-sixth of a grain—*i.e.*, ♏ij.—in our syringe. Even this will in particular cases—rare of course, but which every one will see occasionally—produce the most unpleasant results of heart disturbance and vomiting. These cases constitute about 5 per cent. of all. But the practitioner is perfectly safe in giving one-sixth of a grain as an opening dose. He can follow this up at an interval of twenty-four hours with a larger dose, if requisite; and afterwards he will, of course, use his own experience in treatment. In severe cases it will be necessary to inject twice a day, and occasionally, in rare instances, three times daily. There are some, perhaps, who think that it would be better to give a large dose at once; but I must unquestionably differ from them. Both from the effects upon myself and upon others, I may unhesitatingly state my belief that the method of giving more morphia than from half to three-quarters of a grain at one application is objectionable, and should not be attempted; if necessary, it may

be given at eight hours' interval, thus making three injections in the day. But even this is almost going beyond the range. It will be understood distinctly that I am speaking of sciatica alone, for in other affections many grains of morphia may be taken in the twenty-four hours.

If, now, we suppose a case, it will make our treatment more intelligible. The patient lies in bed about nine or ten o'clock at night, and we have to commence the injection. Let us suppose it is the right limb which is affected. First, we melt the morphia and examine the syringe, to see that all is right. Then, if freezing is requisite, the patient being required to lie upon his left side, we select a spot on the right thigh, about four inches from the hip-joint directly downwards towards the feet. Here we blow the ether on the skin for a few moments, till either a layer of frost is produced or a sudden white marking; then, laying aside the apparatus, we fill the syringe from the morphia solution with exactly two minims of morphia, and proceed to inject the nozzle into the centre of the frozen skin. How is this done? It seems such a simple thing that instructions appear out of place; yet they are not. It is of some consequence how the

syringe is held and how it is introduced into the skin. With regard to these points, of course each person has his own way. This is ours:—Holding the syringe between the thumb and two fingers of the right hand at a point at which the nozzle joins the rest of the instrument, and allowing the body of the syringe to rest against the forefinger, we steadily introduce the needle at an angle of about 40° to 45° to a depth of from an inch to an inch and a half. Then, with equal steadiness and with sufficient slowness, we introduce the fluid. Finally, we withdraw the syringe steadily, but promptly, placing one finger on the skin to prevent it being drawn forwards. If there is any bleeding, a little piece of cotton-wool pressed on the wound will, in almost all cases, be sufficient to arrest it.

So much for the operation—one of very little difficulty, and attended with the most blessed results. It may be repeated quite close to the same spot, and for months within a radius of an inch and a half. It is followed by the most marked relief and pleasant feelings — more promptly, perhaps, in my own case than in some others. I had had no relief from pain for months, notwithstanding that nearly everything that medical art could achieve had been

resorted to. The moment I was hypodermically injected—which was recommended and done by Mr. Ernest Hart—I obtained relief. But now a question arises—Is the relief of the same strength whether the morphia be injected in the neighbourhood of the pain or into some distant part? This great question I consider not decided, even though the Medico-Chirurgical Society has reported on it. I do firmly believe that there is a difference in the case of sciatica. I have tried the effect of distant operation on myself and on patients, and always with the same result—that there was far less immediate relief from the pain. If I am asked to explain this physiologically, I am bound to say I cannot. But there are some things of which we are so sure, that, though we are unable to see the way to explain them fully, we can, nevertheless, admit; and this with me is one of them. Of course, if my pathological idea of this disease be correct, it would be more intelligible; but that is a question it is nearly impossible to decide at present.

At all events, be the theory what it may, the effects on the patient are very well marked, and are briefly as follows. The effects are of course more marked in some patients than in

others. In some mediately liable to the action of opium they are these: — Within half a minute to a minute from the time of injection there is felt a peculiar sensation in the stomach. It is not painful but uncomfortable, and apparently consists in a series of very decided contractions, travelling from œsophagus to intestine. These very soon pass away, lasting but a few minutes; but they are the first symptoms. Pain is immediately banished; no sooner has the sensation at the stomach made its appearance than pain vanishes. It totally — when a proper injection has been made—disappears, as if it had been something which, so to speak, had been immediately removed. This forms the great peculiarity of the hypodermic mode in these cases—that is, a couple of minutes from the application of the drug the pain has ceased to appear. It is to those who try it for the first time something so marvellous that they can hardly understand it; and, indeed, in cases of severe sciatica, when the patient—as in my own case—has suffered without relief for months, it is truly remarkable.

But this is not all. The patient is, so to speak, fairly under the influence of opium. He thinks too rapidly—not in a state of stupor,

but in a state of the most intense restless activity, and so intense that the mind cannot be placed at any one subject with advantage. It is doing the work of hours in a few moments; but there is with this a dislike to active exertion, even to the writing down one's thoughts. To sit down and enjoy oneself is the highest thought, and the strongest one. The most curious part of the matter is, the utter absence of worry. I should almost think that the most severe misfortunes would be borne easily by men in this position; but, at all events, ordinary trouble or misfortune is completely forgotten, and it is impossible for one who has never been beneath the influence to imagine the condition of happiness, the equability of mind—the general contentment, so to speak, which exists. But how long does this condition last? We may say, for about three hours; that is its time usually. For three hours the condition I have described is less or more maintained. What happens then? Sleepiness comes on—the heavy, dull sleepiness resulting from opium. The patient, having been injected, say, at nine o'clock, goes to sleep about twelve. Then, of course, his length of sleep will depend on two factors—his general ability for sleeping, and the extent

of his disease; but generally we may put him down six hours—sometimes he will take as many as nine—and will then wake up. How is he then? If he be slow-pulsed he may possibly still feel sleepy; if not, he will probably feel wakeful enough. And how about his food? Strangely enough, it is one of the peculiarities of opium when given by the skin that the appetite, so far from being impaired, is absolutely strengthened. Indeed, it will be well to operate immediately after a meal (say supper); but, apart from this, the patient will usually require more food, and it will be well, of course, to give it to him. Generally this is the effect produced:—The patient's appetite is largely increased; and doubtless this is one of the best results attained. Altogether we see a peculiar state of things—absence of pain, intense comfort for a time, prolonged sleep, and increased appetite. These seldom last longer than the twenty-four hours, and I think it will be well then to repeat the dose; but this is a matter on which physicians can exercise their skill. Hospital patients which were injected only twice a week recovered; but I must say that those which I had made special arrangements to inject every day made far more progress.

What are the physiological conditions produced? How are the pulse, temperature, breathing, bowels? The pulse is at first increased in rapidity and in force; something has raised its whole powers. This remains for some time —from one hour to three; it then loses force, without rapidity; and then, towards morning, it loses its rapidity. The temperature is not absolutely raised, but it is more distributed, and there being a quicker circulation and greater force, there is more blood in the extremities, and thence higher temperature. The limb, before the operation, was quite chilled, being colder than the healthy one; now, under the opium, both are sensibly increased. The breathing is, of course, in proportion to the pulse; but in some few cases I have noticed peculiarities which I have not yet got the explanation of. The bowels are seldom constipated; of course in extreme cases they are so slightly; but, provided it has been the habit to have them opened every day, in nine cases out of ten it is continued, thus giving a marked contrast to cases where opium has been given by the mouth. When constipation is produced it is very readily got rid of.

Having so far dealt at length with the subject of the medical treatment, I may now

offer a word or two on the hygienic methods, which, it must not be forgotten, are always half of the treatment in this affection as in all others.

Make your patient eat as much as he comfortably can; if he eats a little, make him eat often. Take care that he is always warm; that is a point of the utmost importance, and you will do well never to forget it. I mean not only to inhabit a warm house (and locality, if possible), but to wear warm woollen clothing (in winter) next the skin; this is a point of considerable importance. As to baths, I cannot say I approve of them in sciatica—most cases they disagree with; but if they are a habit—and a useful one—let them be continued. As to rest, I can only say consult the patient. Let him take as much exercise as he likes, but never after the least increase of pain is produced. Let things be made pleasant for him—I can say no more than that. Be assured, with the best remedies, that a person continually worried cannot recover properly. No matter how little the worry, be assured it does its mischief. For think that during the whole day, while others have those various occupations which help to drive away their most unpleasant thoughts,

with the invalid it is not so. He sits and ponders and makes to the worst purpose every little ill he learns anent his own affairs. I dwell upon these things because no one who has not experienced them himself can realise them. It is impossible for the perfectly healthy man to conceive how little an affair becomes to the weary, sad, and sickly man a burden which it seems he is utterly unable to support.

I think I have said all that I had intended. I append a selection of cases. Since I have written the account of these I have had many others equally interesting, but they will suffice.

And now I must apologize to my readers for the extreme length to which my remarks have extended. I am sure I never thought they could have gone on the sixth part of the distance; but as one looks into a subject one sees very far, if not very clearly. My vision has apparently extended sufficiently. I can only hope that my remarks are not without some small profit.

Case 1.—Richard D., coachman, aged 45, "lymphatic temperament," pulse slow and weak, tension low. Has for years suffered

with pyrosis. Bowels are sometimes very costive, at others equally lax. Was lately exposed to wet, in fact, "got drenched," waiting at the theatre; found his right leg rather stiff next day; towards evening it began to "ache rather," and the next morning it was so painful that he could with difficulty get out of bed, and then it pained him a good deal. It has been getting worse ever since (about eight or nine days), though it has been blistered. The leg, when seen, was slightly flexed, and the man walked somewhat on the toes of the affected limb. No tenderness on pressure over nerve, no painful or tender vertebræ. The ache seems to run from the middle line between trochanter and tuberosity of ischium to the outer side of the thigh; no pain in knee. Ordered liniment. crotonis et liniment. chloroformis, partes æquales, to be applied to the limb, and to have infusi quassiæ ℥j., ol. morrhuæ ʒij., liq. ferri perchlor. ♏xv., t.d. There was slight improvement after three days; appetite a little better, and pulse fuller, but limb was still flexed, if anything more than before, and the man complained of the constancy and absorbing character of the pain. Injections of morphia were now commenced. The usual solution was employed. One-sixth

of a grain (or mij.) was injected into the limb at the juncture of the upper third with the lower two-thirds of the thigh. The effect was very remarkable. The patient had before the operation to be assisted on the couch, and he complained that I ought to have "done it" without making him lie down, as it would hurt him "dreadful" in getting off the couch. Seven minutes after the injection, he said, "I feel very queer," and deliberately got down off the couch, at the same time expressing his astonishment at the power he obtained over the limb, and stretching it out, and moving it about with surprise. This patient came in a cab, and had to be assisted into the consulting-room; he walked from the room to the cab with the greatest ease. The next day he complained of the pain still, but he said that he had been enabled to sleep the night before, and he spoke of the pain as altered materially in character. I repeated the injection. After six injections this patient was completely relieved from his affection. I may observe that in this case, as in most sciatic cases, the affected limb was colder than the other, and immediately after each injection its temperature became higher than that of its fellow.

Case 2.—Mary G., aged 30, housemaid

(single), came from the country, and considers that her health has been bad since her arrival in London. Has a rather "hard place," with a good deal of going up and down stairs, and has "heavy trays" to bear now and then. Has for some time suffered from loss of appetite, furred tongue, constipation, and heartburn. Drinks a good deal of tea. Menstruation irregular, quantity insufficient, and frequent leucorrhœa. Complexion ruddy, and temperament highly nervous and excitable. As she says herself, sometimes she is as "jolly as any girl," at others she has "a mind to make away with herself." No other hysterical symptoms. Went out one night lately to take a warm bath, and complained of chill on returning, and next day, when cleaning the stairs, felt a sharp pain running from the hip to the knee, and some pain also in the ankle of the right leg. She "had some liniment from the doctor," but it did not remove the pain, which has gone on from bad to worse for a fortnight. She is unable to sleep at night, owing to her suffering, and is obliged to keep the limb bent, and can never remain more than some minutes in any one position. The surface feels colder than that of the healthy limb, but the thermometer indicates

hardly any difference between the two. Her pulse is rapid and full, but that is common to many neurotic patients. Still she seems languid and debilitated. She was directed to have ol. ricini ʒj. o. n., and infusi calumbæ ʒj., acidi nitrici dil. ♏x., liq. ferri perchlor. ♏xv., ter die. Also to have a strip of emplast. cantharidis, 10 × 1 inch, along the course of the sciatic nerve, beginning at a point midway between great trochanter and tuberosity of ischium. At the expiration of a week she was seen again. The pyrosis had diminished, the appetite had improved, and the "whites" were somewhat lessened, but, strange to say, the aching of the thigh was nearly, if not quite, as great as ever. The hypodermic injection was then tried. One-sixth of a grain of hydrochlorate of morphia (equal to ♏ij. of my solution) was injected into the thigh at about the middle of the upper third on the external surface. The patient complained, in about twenty minutes after the operation, that she felt giddy and drowsy; nevertheless, she walked home some little distance. The following day she called, according to regulation. She said that she had had the first night's sleep that she had enjoyed for a long time, and that the "thing I had put into" her gave her a great appetite.

The pain had not been annihilated, but it was greatly lessened, and the movements of the limb, hitherto very painful, had become vastly easier. This patient was kept under the injection for ten days, and was then perfectly restored to health. The case was one of those which illustrated the tendency of the patient to look forward to the injection with pleasure, for it was with some little difficulty that I induced her to give it up. She even went so far as to ask whether she might not "do it for herself" if the pain came on again, alleging that she looked forward to it because it made her feel so comfortable.

Case 3 (illustrating sciatica from sexual excess).—H. De la B., a gentleman who had been in the Indian army, but had lately returned to this country. He has a sallow colour, with slightly jaundiced conjunctivæ, and cracked bright red tongue. Pulse slow and very weak; habit, so far as could be judged, lethargic. Had been a "man about town," and even lately had indulged habits of debauchery. Has little desire for breakfast, but is not absolutely sick in the mornings. Has drunk at one time, but is now "tolerably temperate." Complains of slight dull pain in right hypochondrium, but has no discernible

alteration of liver. Suffers much from constipation, with occasional intervals of diarrhœa. Has had external piles for years, but does not find them troublesome, except after a sexual debauch or after pedestrian exercise. Lately has given way to indulging his passions to an excessive degree, and has suffered from acute aching pain in the back, hip, thigh, a little in the calf, and much in the arch of the foot of the left limb. Affected limb very distinctly colder than the other. There is also less sensation, both generally and as respects the distance through which distinct sensations are recognised, than in the sound limb. The patient walks lame, the leg being flexed considerably, and he complains of entire absence of sleep. In this case we tried the effect of galvanisation with Pulvermacher's chain, and of this ingenious and portable battery it is only just to say that, notwithstanding the relatively high intensity of the current it evolved, it gave some decided relief while the current traversed the limb, the integuments having been previously saturated with water by means of water dressings, in order to increase their conductivity. We next, a day after, tried the "actual cautery," and it must be confessed that this, as soon as the slough appeared, ap-

peased the pain, but did not remove it. On the other hand, the patient complained of peculiar sensations about the bowels, which I am disposed to think, from similar experience in other cases, may have been due to the cautery. These sensations were described as a strange burning and most uncomfortable feeling about the neighbourhood of the cæcum. He was ordered—Pil. rhei co. gr. v., resin. podophyll. gr. $\frac{1}{4}$ o. n., infus. gentian. ʒj., acid. nitric. dil. ♏xv., ter die. Under this he improved in general health, but the pain in limb continued almost unabated. Subcutaneous injection was now employed. A quarter of a grain of hydrochlorate of morphia was introduced just over the tender point. The relief was apparent in a few minutes. The patient complained next day of having been slightly nauseated by the morphia, but on being ordered to eat immediately after subsequent injections, this feeling was obviated. The injections in this case were continued daily for a fortnight, and during part of the time the dose was increased to half a grain. At the end of this period he lost all pain, and could move the limb without discomfort in every direction. There was still some loss of power, owing doubtless to the limb having been in-

active for so long a period, but the muscular power was steadily restored.

Case 4.—A young professional man, aged 25, recently married, of somewhat excitable and nervous temperament. Complains of great depression of spirits and loss of appetite. Has been terribly dyspeptic. First noticed pain in right thigh after a long walk. It began as a dull ache, located in the neighbourhood of hip-joint, but it soon extended to the knee-joint, and even along the gastrocnemius to the ankle. After a couple of weeks the pain became much more severe, and unceasing, absolutely preventing sleep save in short snatches. Often gets out of bed and walks backwards and forwards across his bed-room for a considerable time. Finds that rest gives no relief, but admits that after exertion the pain is worse. Has been taking laudanum, in doses of a drachm, three and sometimes four or five times a day. The effect of this has been merely to produce less or more stupefaction; but during the stupor he is still conscious of the pain. Says the effect of the laudanum is simply to make him "drunk." This vicious method of treatment has been persisted in for nearly three months, during which the pain has increased in intensity, the

appetite for food has been almost destroyed, and much constipation and considerable gastric catarrh have been produced. At this date there was great lameness, the patient being obliged to use a stick in walking, then progressing very slowly and painfully, and being much exhausted after a walk of a few hundred yards. He cannot straighten the limb, and walks almost on the toes. There has been great wasting of the muscles, and the trochanter and sacro-iliac synchondrosis of the right side are very much more prominent than those of the other extremity. He was now ordered sea-air and salt-water baths, and quinine and iron, and hypophosphite of lime, and to avoid sexual indulgence and everything tending to produce exhaustion. Under this plan another month elapses. The patient is still worse, and is clearly passing on to the grave. He is still compelled to indulge in opium, and he drinks a bottle of brandy per diem. The tonics have apparently had no effect. The gastric catarrh is as bad as ever. There is great general emaciation, utter sleeplessness, a pained, anxious, worn expression, extreme irritability of temper, and entire inability to concentrate the mental powers on anything. The patient is unable to walk out

of doors, and has to move about his room on crutches. The heart's action has become much enfeebled, so that partial syncope often presents itself. There is extreme tenderness all along the course of the sciatic nerve, the limb is quite bent on itself, and the wasting of the flesh has gone on to a melancholy extent. The mind of the sufferer is quite demoralized, and, indeed, is more like that of an hysterical girl than anything else. Used to a previous active and energetic life, and now shut up for months in a chamber, in torture, and without hope of relief, his mind is absorbed by his affliction, and he spends his time between groaning and giving way to all kinds of ideas as to his malady. One day he imagines he is about to be paralysed, another that in a few hours a huge abdominal aneurism will burst and end his life, and so forth. At this time, between the fifth and six months, a host of remedies is attempted, liniments, frictions, shampooing, vapour baths, turpentine, morphia, belladonna, plaster, blister, and last, but not least, the actual cautery. All in vain; most of the applications give some slight temporary relief, but after all the pain returns unabated in severity. It seems wonderful how the patient holds out, seeing that he eats so little,

sleeps so little, and suffers so intensely. At this stage, as an almost *dernier ressort*, electricity is thought of, faradisation and galvanisation being employed. The first day's application of the induced interrupted current is sufficient to prove its injurious character. The patient suffers more acutely during the five or six hours following the application than he has done for weeks. Next day the current from about seventy of Daniel's elements is administered. On the first occasion it is passed along the course of the nerve. The result seems to be *nil*, the patient alleging that neither during the passing of the current nor subsequently has he observed any mitigation of the pain. On the following day the galvanic current (number of elements the same) is passed in the manner suggested by Dr. C. B. Radcliffe athwart the trunk of the nerve. It was very remarkable that the effect of the current, when passed in this manner, gave relief, but so it was nevertheless. During the passage of the current there was considerable abatement of the ache, and for some hours (three or four) subsequently the pain was of a mitigated character. The application of galvanism in this fashion was persisted in for a few days with some success,

and doubtless, could the patient have been submitted to the current in his own room, the results would have been still better. But as he had to be carried up and down stairs, and conveyed in a cab to the house of the operator, these circumstances counteracted the beneficial effects of the electricity. Be that as it may, however, it was found necessary to give this method of treatment up, and, as matters were now getting critical, a consultation was held as to what further steps were necessary. At this consultation it was decided that the affection could hardly be sciatica. It was considered that there was some mischief going on in the sacro-iliac synchondrosis—a view certainly favoured by the great prominence of the joint, and by the extreme tenderness it exhibited. On this opinion, the patient was directed to lie upon an Alderman couch for ten weeks, and to remain thus, perfectly passive. The consequence of this line of treatment showed themselves in rapid enfeeblement of the patient's bodily powers, increased intensity of pain, absolute disgust for food, and a state of mental irritability which warranted the gloomiest forebodings. It was evident that things were now assuming so grave and

alarming an aspect that something must at once be done, in abandonment of former modes of treatment, with a view, at all events, to stay the pain, which was rapidly killing the patient. A further consultation was held, and it was determined to fall back on the old diagnosis of sciatica. Hypodermic injection of morphia was now tried. One-sixth of a grain of the hydrochlorate was injected under the skin near the sacro-iliac synchondrosis. The operation in this case was performed by Mr. Ernest Hart. How shall I describe the result? If a miracle had been performed, it could not have seemed more marvellous to the patient. Hopeless of ease, broken down, and despairing, he was, in a moment, deprived of all pain and distress. His own words will best convey the almost incalculable blessing which this method confers upon the sciatic sufferer. Looking about him in utter astonishment, he said, "Well, that is really wonderful; what a glorious discovery! You have given me the first moment of ease and comfort I have had for six months." And so, indeed, it was. It must not be supposed, however, that in a case like this a few injections restored a dying man to health. The injections had to be repeated nightly for many

months. But this is certain, this is absolutely unquestionable: from the first application the patient improved. He suffered but little pain, and that only for an hour or so before each injection—when, in fact, the effect of the previous injection had been exhausted. His spirits improved, he plucked up his appetite, he was enabled to pursue his usual avocations, and he soon began to walk about his room, and eventually walk out of doors. Indeed, his recovery, though slow, was gradually constant, and was never for a day retrogressive. *In the whole range of therapeutics I know of no instance where one remedy has produced so definite and wonderful a cure in so apparently hopeless and aggravated a case*, and I express my opinion thus decidedly because I feel that words cannot convey fully the immense significance of the facts.

Case 5.—Jane S., a married woman, aged 50, has had nine children and one or two miscarriages; ceased to menstruate about seven years since, but even now has occasionally an unpleasant discharge from the vagina. Lately has had a great deal of anxiety about some of her children, and has in consequence suffered loss of appetite, complains a good deal of flatulence, and has also diarrhœa not unfrequently,

sometimes "brings up" her food, and has been once or twice sick in the morning, bringing up "a nasty frothy" liquid. Some pain over right hypochondria and tenderness over stomach. Found she could not get out of bed the other morning "for pain" in her hip; at first it was only painful when she moved in a particular manner, but at night it got to be a regular pain, which kept her awake. Says she feels most pain about the upper and outer part of the right thigh. There was no affection of the liver in this case, and the pyrosis was soon checked by a few doses of sulphurous acid. Under cod-liver oil and perchloride of iron she improved in bodily strength, but the pain in the thigh continued and extended to the knee. This patient was an inveterate tea-drinker, and I found that on a diet of cocoa, instead of tea, she was much benefited. In this case I first tried the effect of hot fomentations with turpentine stupes, and the results were certainly such as to warrant a persistence in this plan where other methods cannot be employed; but I did not wait to try other drugs or systems, and at once, therefore, proceeded to give subcutaneous injections of morphia. The first gave immediate relief; the second, which was done by an assistant, seemed, she said,

not to do her so much good; but the third brought the pain down very much—as she said, "the instrument the last time, Sir, touched the disease." After the fourth injection she seemed to suffer so little inconvenience that the morphia was discontinued. She has since remained quite well.

Case 6.—Lieutenant V., aged about 37, of full habit and of sanguine temperament, was brought to me, in the summer of 1869, in consultation by Dr. Norton. At the beginning of 1861 he had, while in the Mozambique, been exposed to the terrible rains prevalent in that climate, and had been laid up in consequence with excruciating pain in the leg and thigh, which so completely lamed him that he was compelled to be moved about on a sort of truck. Finding no relief, he came to this country, and was from February to July, 1862, in Haslar Hospital, from which he was eventually discharged as an incurable case of sciatica. When I saw him, in conjunction with my friend Dr. Norton, he was then practically crippled. He could limp along with difficulty with the assistance of a stick. His appetite fortunately was still good, and in other respects his health was tolerably good. The flexion of the leg and thigh were, as they

are in all cases of chronic sciatica, contracted beyond the normal, so that neither leg could be fully extended, nor the foot be placed at right angles with the leg. For this reason, of course, he always walked less or more on the toes. Being a corpulent man, the wasting of the muscular part of the buttock was not very striking, but it was nevertheless perceptible. I at once advised subcutaneous injection of morphia, commencing with one-sixth of a grain of the muriate, and increasing to one-fourth of a grain, if necessary. I heard nothing more of the case till the patient was again brought to me in the autumn by Dr. Norton. The change certainly exceeded my best anticipations. The limb had regained its muscularity so as to be equal to its fellow thigh, and both extremities had lost a good deal of their fat. There was still some little contraction of the flexors of the leg, but the power of movement was indeed vastly improved; the lieutenant could walk well with but little feeling of subsequent pain, and with very little "limping." He spoke of himself as quite another man, and expressed a wish (to which I was opposed) to join another ship. Dr. Norton informed me that subcutaneous injection of morphia had been persisted in daily

for some months, and with very little inconvenience and much personal satisfaction to the patient. It is but fair to state that, in this case, Dr. Norton assisted the nutrition of the "long disused" muscles by a series of medical athletic performances, through which he put his patient each day after he had had his injection. It is needless to say that the muscular exertion without the administration of the morphia would not only have been useless, but even dangerous—a fact which Dr. Norton very sagaciously perceived, since the dose of morphia always preceded the physical exertion. The point is of interest, because it opens up the question whether the cure of sciatica may not be greatly shortened by the plan here carried out by Dr. Norton. As a further proof of the progress of the case, I quote the following memorandum received from Dr. Norton :—

"January 14, 1870.—Patient has to-day walked three miles at a stretch without stick or support, and without feeling any particular fatigue."

Case 7.—Mrs. D., married, aged 43, has had three children, and has been for some years separated from her husband, and on that account has suffered much and constant

mental trouble. Has had pain in the right hip and thigh for some three years, and has been told that it was incurable. Pressure over the upper third of the course of the sciatic is attended with severe pain, which passes down almost to the foot. There is, however, no serious lameness. Pain is not worse at night. Limb, especially at buttocks, is wasted slightly, and after a walk of over half a mile the pain becomes almost intolerable. Has, under other care, been blistered, mustard-poulticed, linimented, and "galvanised." She says that the latter made the pain vastly worse for some days after the operation.

I feel confident, from her description of the electric apparatus employed, that in her case faradisation, not galvanisation, was used. I can readily understand that the former produced the effect stated. I have never seen it produce any other except when a brush was employed or the skin merely affected, so as to act on the "counter-irritant" principle.

Having been put on cod-liver oil and perchloride of iron for a fortnight without any relief, morphia injections were commenced. As usually happens, the immediate result was wonderful to the patient. During the first week I injected one-sixth of a grain, increased

to a quarter of a grain of the muriate with the best effect. The pain was kept under. The patient could thereby take more exercise; the appetite, as a result of the cheerful mental state, became almost voracious; and the improvement even in the course of the one week was very marked. This plan was kept up for seventeen days altogether, at the end of which time the patient considered herself sufficiently recovered to discontinue the injection. After some months she returned to me, saying that a relapse had followed a severe wetting; but two injections removed the pain completely.

Case 8.—Martha G., single, a seamstress, aged 25, in low cachectic condition, has had pain in the right hip (which is especially troublesome at night) for more than four months. Had scarlatina about eight months before consulting me, and had a tedious recovery. Menstruates irregularly, and has "not enough" at times. No ulceration of vaginal walls or the uterine cervix. Drinks tea three and sometimes four times a day. She was ordered infus. quassiæ ℥j., liq. ferri perchlor. ♏xxx., ter die; and vaginal injections of milk-and-water. After three weeks there was a very manifest improvement in the general health, spirits, appetite, and menstrual discharge of

the patient; but the pain continued undiminished. The case being a hospital one, in which I could with difficulty arrange for daily hypodermic injection, a liniment, consisting of equal parts of soap liniment and chloroform, was ordered. This gave some temporary ease, but really nothing worth considering in a remedial aspect. I therefore directed her to come to my residence and be injected regularly every day. As usual, I commenced with one-sixth of a grain, increasing it to a quarter of a grain. The progress of the case was slow, but satisfactory. At first she complained that the effect of the morphia passed away in four or five hours; but subsequently, and on increasing the dose, she obtained rest for nearly the twenty-four hours. (The pain used to come on about two hours before the injection, but was immediately arrested by the latter.) After five weeks I considered her perfectly cured; the pain had completely gone. In this case there was hardly any tenderness on pressure, and there was no lameness; but even a short walk aggravated the pain. I may mention that in this, and in nearly all my cases, I insist on the patient substituting either cocoa or milk for tea or coffee, and indulging moderately

in the use of spirits, beer and wine being avoided.

Case 9.—Mary G. This case illustrates very well the inability of morphia in some cases. The patient was over 50 years of age, and had six children. She had been a sufferer for years, and had been under every form of treatment, including the electrical, save the hypodermic. Her symptoms were of the usual kind, and were somewhat severe. On first seeing her, I recommended subcutaneous injection, and it was tried, one-sixth of a grain of muriate of morphia being given. She was a hospital patient, and she came back after three days with great complaints. She had been very ill. Half an hour after the injection she felt sick, and vomiting lasted for six hours. She was left without injection till next day, when she was injected with one-twelfth of a grain. The following hospital day I saw her she complained of having suffered in the same manner, but not so severely. Worst of all, there was no ease whatever produced. It was useless to continue the medicine, and the patient, naturally disappointed, went away before other remedies could be employed. I have had no other case like this one.

Case 10.—J. A., a gasfitter, aged 53, had

been suffering for three months, and had been blistered and physicked without the least avail. Had very severe sciatica in the left thigh. The pain extended along the whole thigh, and was considerably increased on pressure. This case came to the hospital in August, but was not put under the treatment properly till the first week in September. He then had an injection of one-sixth of a grain (usual solution), and next day was considerably improved. No medicine was given. The injection was continued for ten days, each day being an improvement on the last, and before the end of October he was discharged perfectly well. This was a most perfect case, and, no other treatment being attempted, it illustrates the value of the hypodermic method as fully as possible.

Case 11.—T. L., aged 50, a labourer, in wretchedly bad health. Came in complaining of intense pain in the hip and left thigh. He had suffered under it for nearly three months. Bowels were most irregular; appetite very defective; general strength feeble. Does not appear to have any serious disease other than sciatica. The sciatic pain is very severe. Says he has no rest, either night or day, and almost wishes "it would kill" him. Ordered him the ordinary podophyllin pill, to be taken every

night, and to take three times daily the mixture beneath :—

℞ Infus. Quassiæ, ℥j.
Liq. Ferr. perchlor., ♏xx. t. d.

At the same time I injected him with muriate of morphia $\frac{1}{6}$ of a grain, [♏ij. of my solution.] I injected into the upper part of the thigh and sent him home. He came to me in two or three days, saying that the injection gave him great relief for about twenty hours after it was done, and that since the pain had not been so severe. I thought the latter part of his story a little exaggerated though. Still, I injected him again with the same dose, and as the purgative pill just kept the bowels open, I made him continue it and the mixture, and ordered him to be injected daily. He came on the 15th of May, and was discharged toward the end of June, perfectly well. He had gained in weight, and the iron had done him service, whilst the injection completely removed the pain.

Case 12.—J. S., aged 55. This patient was a gasfitter. He came to me in July, 1870. He had been three months suffering from sciatic pain in the right thigh and leg, and had been blistered and physicked without the least

avail; otherwise his health was good, and his bowels were kept regularly open. This was a severe case, which had been previously under the charge of two different physicians without the slightest improvement whatever. Indeed, he complained, when I saw him, that he was worse. The pain never "left him," though it sometimes came on much worse than at others. It seemed especially bad at night, and he got no rest till near four o'clock in the morning. There was no history of syphilis whatever. I looked upon it as a very severe case of sciatica, which would put the value of the mode of treatment adopted to a severe trial. Nevertheless I commenced it alone, in order to put it fairly to the test. The man could not make up his mind to the injection on that day, so I sent him home without any medicine. He came next day, and determined to have it done. He was injected with ℿij. of my solution, about the upper third of the external part of the thigh. He went home, and came again three days after, saying he had been more relieved by the injection than by anything that had been done since the attack began. I therefore increased the dose, seeing that the last had affected him but slightly, to ℿiij. When I saw him again in a few days,

he was very much better, though still in pain. He said it seemed to relieve him for about twenty-four hours, but not longer. I ordered him to be injected again. Unfortunately, owing to my absence from the hospital for a month or so, I did not see him again till September 3rd. He told me that he had been injected three or four times during my absence by my assistant, but that it had given him a great deal of pain and no relief, so he had left it off till my return. I found that he had been injected with a solution different from mine, [though of the same strength,] for it was kept fluid by means of acid. This is a most objectionable method of preparing a fluid for hypodermic injection. It always gives pain, and frequently, perhaps on this account, gives no relief. On the 6th of September, I commenced to inject him again, with my own solution, and with the dose above mentioned. On the 10th I found him very much better. The injection was then increased to ℿiv., and was kept up without any other treatment till the 15th of October. Each day that it was done, he informed me how much better he was; and on the 20th, which was after the last day it was done, he was discharged perfectly well and strong, and without pain. I look on this

case as one which, in its way, is quite as remarkable as my own, and which shows forcibly the value of injection of morphia over all other remedies at present known.

Case 13.—R. S., aged 56. This was a gentleman, who certainly did not look his age. Indeed, he did not seem more than 40. Was accustomed to horse-exercise; and after a heavy day's hunting, in which he had got very wet, he complained of pain in his thigh and leg. Indeed, it was more in the leg than the thigh. He had been under treatment of several medical men, without any benefit. When I saw him, he had been suffering from tolerably sharp pain in the thigh. It was not very severe, however, and it by no means prevented his sleeping perfectly at night. Indeed, he complained of it almost solely when walking, or after horse or other extensive exercise. I examined his leg closely, to see whether there was anything in the shape of an accident, but could discern nothing of the sort, while there was pain on pressure about the middle of the thigh. I questioned him closely as to syphilitic infection, but could elicit nothing, though I still strongly suspect that syphilis was at least half the cause of the complaint. His general

health was admirable, appetite very good, and bowels perfectly regular. But he was an extremely nervous, very fidgety man. I tried the injection of ♏ij. of the morphia solution, and advised him to give up horse-exercise for a little while. Next day he said that the morphia had lessened the pain a little, but had not removed it when he walked about. I injected him again, and ordered him the following mixture, to be taken three times a day :—

℞ Aquæ destill. ʒj.
Potass. Iodidi gr. iij. M.

He did not come to me for more than a week, but then he said he was very much better. Seeing this, I believed the case to be one of sciatica, associated with syphilitic infection. I therefore continued the iodide of potassium with the injection. In the course of a month the patient declared himself well enough. He had not lost all the pain, but he was able to take horse-exercise again, and in my opinion was perfectly well. There may be some doubt as to whether it was the morphia or the iodide of potassium which cured the patient. I am inclined to think both did; but unquestionably it may seem to some to have been the iodide of potassium.

Case 14.—E. P., a woman, aged 32, is married, and had a child about two years ago. Has not been well since her confinement. Menstruated but little for the first year subsequently to the birth of the child, which she nursed. Gave up suckling it nearly six months since, and has been tolerably regular since. Bowels all right. Pain in the hip came on nearly three months since, and she was, till I saw her, under the charge of the chemist, who, as far as I can see, purged her well, but administered nothing to strengthen her or relieve her of pain. When I saw her she had been considerably reduced in weight and strength, though she said that formerly she was a strong and healthy woman. She complained of pain in the left thigh, which was constantly present, being occasionally very severe, especially so after she had fasted or been over-exerted. The pain, which kept her awake for a long while during the night, was quite along the course of the sciatic, from its exit above to near the knee, and occasionally there was pain in the back of the leg and the gastrocnemius muscle. There was considerable tenderness along the course of the nerve—in some parts being quite excessive. I ordered

her to take an ounce, three times a day, of the following mixture :—

℞ Infus. Quassiæ ℥j.
Liq. Ferr. perchlor. ♏xx. M.

and I then injected her about the upper third of the thigh with ♏ij. of my solution. Next day she said she had got the "first little ease" she had had for weeks. It was not enough, though, for she had been kept awake as usual, and was in considerable agony when she came to me. I therefore, finding that the effect of the morphia had been good, but very slight, determined to increase the dose; so I gave her an injection of ♏iv. of my solution, and told her to go home at once and eat a good meal. I didn't see her again for three days, when she told me that the injection had made her quite "tipsy," and that she had slept well, and had hardly any pain for two days, but now it was on again. It was not, however, nearly so severe as at first. I injected her again, but with one minim less. I gave her ♏iij., and sent her home at once. The result was capital. In about three weeks, carrying on the injection three times a week, this woman was discharged perfectly well, and

I believe she has since very materially improved in health.

Case 15.—R. L., aged 51, a tailor, had had sciatica once before. It had lasted for nearly two years, and, having some little money left him, he gave up his business, and went to the seaside and got well. That is three years ago. It has now come on again in the same leg (the right one), and has got very bad within the last three weeks. This was a man of most infirm health. He had been ailing for a long time, and at the time I saw him was suffering, besides sciatica, from severe chronic bronchitis. He was thin and infirm, and was frightfully constipated, his bowels being sometimes left unmoved for even a whole week. I ordered him a plaster on the chest, a cod-liver oil mixture to be taken three times a day, an ordinary Mist. Scillæ to be taken when the cough was troublesome, three or four times a day, and ʒij. of our hospital (St. Mary's) Mist. Magnesiæ to be taken every morning. For the sciatica I injected ♏ij. of my solution of morphia. Next day he said the pain, though a little relieved by the injection, was as bad as ever; he even thought worse. I then injected ♏iv. of my solution, and told him to come to me on the morrow.

He came, and told me he was decidedly better. His cough, too, was a little eased, and the leg was, though still painful, very considerably relieved. I then made arrangements for his daily injection, and at the end of a week he was materially improved. His leg was comparatively easy and free from pain, and his appetite and general strength were much better. The cough, I am sorry to say, was very nearly as severe as at first. I then arranged to have him injected twice a week, and in little more than a fortnight he was completely cured of his sciatica. He, however, still remained under treatment, because of his chest.

Case 16.—M. S., a woman, aged 45, had ceased menstruating about three years before, and had not been in good health since. Bowels are extremely irregular. She suffers, too, from pyrosis, which has, of late, become considerable. Complains of pain in the left thigh, along the outer side, all along the course of the sciatic to near the knee. This sciatic pain has been on more or less for nearly a year, and the limbs, especially the upper one, are considerably tender on pressure. Here the first thing was to attack the bowels and stomach. I therefore ordered her my ordinary bismuth mixture, containing a drachm of

sulphurous acid in each dose. I told her to refrain from tea, coffee, and beer, and to take cocoa—and whisky-and-water when she required a stimulant. I ordered her also to take every morning a two-ounce dose of the following mixture until her bowels were open every day :—

℞ Magnesiæ Sulphat. gr. 120.
Liquor. Ammoniæ ℥x.
Extracti Glycyrrhizæ gr. 20.
Infusi Sennæ f. ℥ij. M.

Having thus provided for her general health, I proceeded to inject ℥ij. of my solution into the thigh at the junction of the upper third with the middle part, and then I told her to go home and keep quiet. Next day she said she was decidedly relieved, and she had slept better than she had done for a long time. I then repeated the injection, and increased it to ℥iij. When next she came she said she was getting on very nicely. Her bowels were open, and I found that her pyrosis was much diminished. Her leg, too, was far less painful than at first. I then arranged for her regular injection every day, and at the end of a week I found her very much better indeed. I continued the injection for another week, at the

end of which she was well enough to leave it off save on two days in the week. A fortnight after this I discharged her, perfectly recovered. She had lost the pain in her leg, and had very fair digestion, and was looking infinitely better than when first she came. Indeed, she herself said she was better than she had been for three or four years.

LUMBAGO.

PART VIII.

THIS, which is essentially a neuralgic affection, is nevertheless one which differs to some extent in character from the preceding disease, sciatica. It is seldom of such long duration, it is not infrequently accompanied by an attack of *herpes zoster*, and its pain, save when herpes is present, is rather occasional than continuous. Of course there are abundant instances where indeed the pain is most acute and continuous, but not in the majority of cases. Indeed, where *herpes* is present, the agony, in most instances, is almost intolerable, far exceeding the pain of sciatica, and, indeed, of most affections. But then herpes, when properly treated, does not, in most cases, last very long; and, furthermore, the pain is stopped almost wholly by subcutaneous injection of morphia. In other instances herpes becomes a most incorrigible disease, and obstinately refuses to yield to any treatment which the physician can at-

tempt. Of course he has still the subcutaneous injection to fall back on for relief, and he should employ it in full and frequent doses, for relief from pain alone is a most material blessing. But in some cases the groups of pustules will continue unhealed, and occasion great torment to the patient. Cases of this kind are not frequent, and they usually happen late in life. I wish I knew of any cure for them; but unfortunately, as yet, I have not been successful in finding any.

We do not desire to make a number of diseases when experience and reason show us that there is but one, and therefore we classify under Lumbago all those painful affections which are directly associated with the courses of the nerves, and in which no other part appears injured, from the first rib downward to the hips. It may seem somewhat absurd to speak of a man having lumbago when the nerves, say between the third and fourth ribs, are afflicted. And it certainly does appear strange; but then, if we are to give a new term to the disease which would be applicable to the affection itself rather than to the part where it happens to appear, we should, it seems to us, but do harm to medicine, by substituting for an old and well-

established term a new one, which might, in course of time, be itself dispossessed.

For these reasons, because of the horror with which we view the introduction of new terms into medicine, we apply the name of an old and well-known disease to several forms which we believe to be merely varieties—and that, also, of the slightest character—of the one too familiar form.

It is possible we may be in error in not making each pain a distinct disease, or giving it a separate name and description, but we think, in so far as our list extends from the top of the chest to near the bottom of the abdomen, we have but one and the same disease to do with. We do not so well know whether those forms of lumbago which affect the very lowest portion of the abdomen, and which frequently involve the bladder and penis, are to be included in our list. We are not prepared to say as to the nature of these affections. There may be neuralgia of any internal organ, and we fancy that diseases such as those we have referred to belong to this category. Whilst all those which we have been dealing with are unquestionably affections, so to speak, of the outer surface,—have nought to do with the interior of the

body—the form of neuralgia which some authors have classed with lumbago is, I think, of quite another group, and has to do with the internal neuralgias, if they may be so termed, and must be somewhat differently dealt with.

It will be well, then, if the reader will understand my definition of lumbago to include all those forms of outward, frequently acute, though occasionally dull pains, which follow the course of some one or more of the nerves on one side of the body, which generally come on with extreme suddenness and sharpness, and usually obey the direction of the nerve, the pain being first felt behind, and then in front, so quickly, however, as almost to obscure the course; which may attack the nerves of either side, from the first intercostal space to the hips, or which even occasionally may simultaneously involve both sides of the body. It must be invariably understood that the above definition involves the supposition that the disease is uncomplicated by any other affection. For of course, if any other disease be present, as a rule many other symptoms will have to be taken into consideration; but in simple lumbago the definition holds perfectly good.

As to the branches of the nerves attacked, it cannot in the faintest manner help to clear up either the nature of the disease, or to aid the treatment to know them. It is doubtless a very interesting inquiry to make, and it enables him who institutes it to limit the malady to the particular series of nerves attacked; but beyond this it is not of the remotest possible use as regards the treatment. It will be as well, of course, for the medical man to map out the special nerves or branches which happen to be attacked, for such knowledge cannot fail to be useful to medicine as a science, and to the profession of the future. But what I mean is, as to the present knowledge and treatment of lumbago, it is really of no use whatever. Hence I have carefully avoided introducing the subject into these pages, as I consider it one which the practical physician has little or nought to do with.

The symptoms of the disease have been practically described already. They consist of pain of a usually sharp and severe character, which is generally situated about the side of the body, or, more rarely, in the front, or, still more rarely, behind. It usually comes in "starts," and, during the intervals, the pain,

though felt, is by no means severe. But during the existence of the agony it is most acute, in some cases compelling the patient to hold his breath, from a fear lest stirring in even the faintest manner should render the suffering more desperate. Of course, in some instances, the pain is by no means so sharp, being pretty easily borne; but in many instances it is as I have stated, and then it is terribly agonizing.

We may not—indeed, usually we do not—find any other symptoms of the disease. The bowels may discharge their office in the usual manner, the appetite may be good, and the function of the various organs of the body may go on, and usually does go on, with the most perfect regularity. There is, indeed, but one condition which may be present, and, indeed, is not unfrequently present, and which lends an unpleasant character to the disease, and is, in some rare cases, totally incurable. We have never seen incurable cases ourselves, but such are recorded as undoubted cases of death from *herpes zoster*, a peculiarity of the neuralgic attack which sometimes, though rarely, presents itself with sciatica also.

We shall describe this affection presently, but meanwhile we must point to another

peculiarity of lumbago, and that is, pain in one of the mammary glands, usually the left. This is an accompaniment of lumbago occasionally, but I cannot think it part of the disease. It is common enough in women who have never suffered neuralgia, and I regard it as simply the result—a too common one among the lower orders, in whom the affection is most frequently met—of over-lactation in a frame absolutely unfit to supply milk at all. Hence, although I mention it as a not very unfrequent accompaniment of lumbago in women, it is so much more frequently met with in other cases, and is cured so readily by iron, and by cessation from nursing, that we may dismiss it as unworthy of any further observation.

Herpes is generally an accompaniment of true lumbago, and, in common with Dr. Anstie, I am disposed to regard it as essentially a disease connected with a neuralgic condition, and in the nature of its pain eminently neuralgic. It appears usually upon the loins,—though it may occur either higher or lower,—and presents itself as a series of clusters of vesicles, which more or less follow the line of one or two nerves, and which usually occur at but one side of the body

only, from the spine posteriorly to the central line in front. They do not form a perfect line, either in continuity or level, but, as I have said, they form a series of clusters, some large and some small, at varying distances from each other, and within the limits I have given. They vary in size, some being exceedingly small, others as large as a pea; but in most cases the latter size is more frequently ultimately attained. They secrete a peculiar fluid, which remains within them for some days, but which is generally discharged in about from a week to a fortnight. In some cases, however, these symptoms are much enhanced, and the disease does not die out for a very long period indeed. When each sore yields its fluid, it generally dries up and disappears; but the ultimate disappearance may not occur for a very long period, and in every case well-developed marks will always be left behind upon the patient. Their first appearance is preceded for a day or two by the sharpness of pain which is their peculiarity, and in about a week they have reached maturity.

Whilst this affection is present the pain is very intense. It is acute enough in many forms of lumbago; but in the case of herpes it is generally agonizing. It is almost, with-

out exception, the most extreme pain that a human being can undergo. It comes on at intervals, which are filled up by the ordinary suffering of the patient, and then it is intolerable; it is, however, relieved almost to completeness by the injection of morphia.

Acetate of lead lotion is recommended as likely to allay the smarting. From my experience, however, I cannot speak very favourably of it. The various cooling lotions tried have been only temporarily successful. It seems to me, as the result of my experience, that the best treatment is to paint over the vesicles immediately they appear,—and constantly, so as to avoid breakages, which prevent its proper action,—with Dr. Richardson's well-known *styptic colloid.* By applying this just thickly enough to completely cover the eruption and no further, a wonderful degree of ease is obtained. Indeed, the patient will declare himself manifestly relieved after the eruption has been satisfactorily painted over with the *styptic colloid.*

The patient must be told to avoid scratching the painful parts, as, if this practice is indulged in, as sometimes happens, very annoying sores may be formed. If the pustules are left unscratched, and covered up with the collodion,

which should be applied carefully every night and morning, so that no sore surface is left exposed to the air, the patient will then have everything done for him which is requisite, save injection of morphia. As to whether bed is the best place to put him in I am in doubt. It is, I think, well for him to be up; but, of course, he will have to be kept in a warm room, out of draughts. As to medicines, I think, in this disease they are best avoided. Of course, it will be desirable to keep the patient's bowels regularly open daily, and if he or she be weak, to administer cod-liver oil, and perhaps steel; but with these exceptions I think medicines had best be omitted. The patient will now be ready for his injection, which will have to be administered in all severe cases, both in the morning and evening,—in the morning, after breakfast, before rising; and in the evening, after supper, when the patient has retired to rest, or even oftener in special cases.

In no case, or at least in extremely few cases, should the patient be injected at first with a larger dose than $\frac{1}{6}$ of a grain, that is, with ♏ij of the solution of hydrochlorate of morphia already referred to. It will be soon seen whether he can bear more than this; if so, we can gradually increase it to $\frac{1}{4}$, or even

to ½ a grain, if necessary; but it is always essentially necessary to be cautious in administering morphia by the skin. The question may be asked, Where shall we introduce the morphia? In answer to this, and in keeping with the supposition that the nearer it is done to the pain the better for the patient, I am disposed to say, Inject either two or three inches above or below the line of pain when there is an herpetic eruption present, and directly in the line when this affection is absent. Whether it be done near the spine, or in the middle line of the body, does not seem to make any difference; therefore I generally take up a median position, and I inject about midway between the two. In this matter, of course, you must be guided by the point attacked. Thus, if it be at the level of the breasts, you must, of course, avoid those structures. But, as a general rule, it may be said that the nearer it is done to the affected spot or line the greater will be the relief obtained. Such is certainly the result of my experience, however difficult it may be to account for the view.

I do not know that anything more need be said as to the treatment, for I have not found many cases which were not sooner or later re-

lieved and cured by subcutaneous injection of morphia. Of course, there are some cases in which the *herpes* remains—at least, such are reported—but I doubt whether in those instances the hypodermic injection of morphia had been sufficiently attempted. At all events, I have not had any cases of lumbago under my care, even including those forms in which herpes was present, which were not almost all, sooner or later, permanently arrested by subcutaneous injection of morphia, I therefore commend it as the remedy of the first and highest importance.

Lumbago is generally found in middle life. Thus, though it may in rare cases be found in persons below twenty, it is most generally seen in people whose age varies from twenty to sixty, and oftener in those from thirty to sixty than from twenty to thirty. Further, it is a disease far more often met with in men than women; certainly in these countries it is found twice as often (indeed, I might almost say three times) in the male as in the female subject. It is found most frequently among the poor, for, as might be expected, their state of nourishment is low, and their amount of exposure to cold and wet is very great indeed. Hence it is a frequent disease in the "out-patient" room of an hospital, where every

form of it may be seen in the course of a very few years. Nevertheless, it is a disease not at all uncommon among the wealthy. And those who are otherwise healthy, stout, and strong, may become victims to it. Gentlemen who are fond of hunting and of horse exercise generally are those of the better class, among whom it is most frequent. Next to these come those old patients who are striving to live on, and who often pass ten or more years of their life almost within doors. This class is particularly liable to lumbago; and they constitute, as might be expected, the very worst class of cases. Among the poor we find the street-labourer, the mason, the hod-man, the railway-guard, and engine-driver, the cabman, and the postman among the most frequent victims. In fact, all who are exposed to cold or wet back and shoulders.

What, now, are the causes of this disease—are they different from those of sciatica? I consider they are identical. The same cause which in one case may be productive of sciatica may in another give rise to lumbago, and *vice versâ*. There is just a slight tendency of sciatica to attack the younger, and lumbago the elder subject, but it is extremely slight. I have known cases where the two forms

have been met together, and cases where lumbago has succeeded sciatica; but all that I have observed goes toward proving that the two diseases are of the same origin, and merely differ in attacking different sets of nerves, or a different portion of the body. And, as they are alike in their nature, so are they similar in their cure; and both are relieved and healed by the hypodermic injection of morphia.

Case 1.—W. C., a man, aged 45, has been in good health for the past two years till about a fortnight before coming to consult me. At that time was in low health, that is, was easily knocked up by exertion, and was unable to eat heartily. Otherwise was in a good condition. Suddenly felt, about a fortnight since, a sharp pain in the neighbourhood of the back. Since then pain has come round more to the front, and the district attacked is on the right side, and below the ribs. The pain is now almost intolerable, it keeps him awake nearly all night. His bowels are regular, and, save some slight indigestion, there seems nothing wrong. In this case I injected ♏ij. of my solution (eq. to gr. $\frac{1}{6}$) into the right side, just where the pain was most severe, and the result

was almost immediate relief. Next day the pain had returned. Indeed, it had come back before this, so that I immediately determined to give him the dose twice daily. The result was very satisfactory. At the end of a week I discontinued the injection, and apparently with good results for the first day or so, but, after that, the pain returned, and, if anything, was worse than at first. A little disappointed, I nevertheless took him in charge again. I commenced the injection of ℿiij twice a day. This I kept up, without intermission, for at least a fortnight, at which time I concluded that he was cured. This time it happened I was right. He went away quite recovered, and he has not since had, so far as I know of, any further attack.

Case 2.—G. A., a woman, aged 30, married, and has children. Was confined about four months before being seen, and was then nursing. Complains of very severe pain under left shoulder, which comes round almost to her breast. She is a thin, sickly, delicate woman. She is constipated, bowels being rarely opened oftener than three times a week, occasionally only twice. Has not had her "courses" since confinement. I ordered her at once to stop nursing, and put her upon

℞ Infus. Quassiæ ℥j.
Liq. Ferr. perchlor. ♏xx. ter die,

and the following pill to be taken one every night at bedtime :—

℞ Resin. Podophyll. gr. ¼.
Ext. Hyoscyami gr. ij.
Saponis q.s. M. Make into one pill.

I did not try injection, as I thought the pain was simply the result of nursing on a weak system. In the course of a week she was decidedly better and stronger, but she still complained of the pain, although I fancy it was more beneath than it was before. I therefore resolved to keep her for another week on the iron mixture and the pill. At the end of the second week she came in, looking greatly improved, and feeling much stronger and better, but she complained of the pain, as though it was even worse than the last time. I then resolved to try the injection. A dose of ♏ij. was therefore injected into the back, just under the shoulder. (The first injection failed, because the needle, not being screwed on tight enough, allowed nearly all the solution to escape externally. The second, done immediately afterwards, succeeded.) Next day she said it

relieved her for some little time, but she was rather sick after it was done. In point of fact she seemed to dislike it. Nevertheless I again injected her, this time using ℿiij. of my solution, and advised her to go home at once (not far) and eat a good meal. I may mention that I still kept up the pill and iron solution. She came next day, and said she was decidedly better, the pain was more bearable and easier. This time, feeling the necessity for having a meal before the injection, she had taken her luncheon before coming, and had eaten well. I therefore resolved to try a larger dose. I injected into the back ℿiv. of my solution, and directed the patient to go home at once and lie down. I did not see her again for two or three days. When she came she said she was immensely improved. I then injected her again, and told her to come to me in three or four days. She came, much better than before. I then reduced the dose, and in the course of four more injections she was completely healed, and was quite a different-looking woman from the person who first presented herself. I may mention, further, that her courses came on, though, as might be imagined, rather imperfectly at first.

Case 3.—H. N., an elderly gentleman, aged 65, has been accustomed to a great deal of horse exercise, in fact, horse-riding has been his "hobby," for he has been in the habit, in summer, of rising before five in the morning, and going out to ride till eight or nine, and then commencing after luncheon, and riding till dinner. Has had no other disease. In fact, he keeps himself most regular, both as to his bowels and as to his hours. But he has had this attack of pain across the back on the right side, and to near the sternum in front, just above the lower ribs, for some time, perhaps six months of it, on and off. It has not continued during that time, but he has had it twice or thrice during that period. Since then it has got worse, and he has been obliged to give up his habit of riding, as it makes him worse. This has been a very great drawback to him, and has, I think, done him more harm than good. No affection of kidney or liver, digestion excellent, and urine quite healthy. Sleeps little now at night, and the pain, though at intervals it comes on extremely severe, is on less or more all day and night. He has had advice, and been recommended plasters, liniments, baths, and so forth. Each of them gave him, at first, some little ease

but no ultimate relief from pain. I determined at once to try the hypodermic method. I therefore injected ℥iij. of my solution, and told him to go home and remain quiet, for he was an extremely nervous, excitable man, quick in speech and action. Next day he came, and admitted that he had felt much relief, and had slept somewhat better in the morning than usual. But the pain had come on again. I then injected him with ℥iv. of my solution, and repeated the advice to go home and remain quiet. He did so, and the next day he told me he was much relieved, and had slept better than for months before. He complained of slight irregularity of bowel, for which I gave him a pill to take every night :—

℞ Pil. Col. Co. gr. iv.
Ext. Podophyll. gr. ¼ ft. pil.,

and repeated the injection, and my advice to him. On the next day, however, he came, much worse, and complained that the pain was agonizingly severe, and that it sometimes came in momentary shocks, which were dreadfully severe. I suspected *herpes*, and made him strip till I examined him. However, I found no mark. I therefore repeated the injection, and sent him home. Next day,

however, the *herpes* had, as I imagined, developed, and there were three or four groups of very small pimples, and also very considerable pain. The pimples I painted over with *Collodium flexile*, and at the same time repeated the injection, and ordered him to remain at rest, and not to go about, and to avoid draughts of air, &c. Next day the herpetic eruption was of course worse, the former clusters of pustules were larger, and several others were present along the line towards the back. I continued the painting with *Collodium flexile*, and repeated the injection. This was continued for a week, at the end of which time the eruption had almost disappeared, and the patient was very much better. In ten days more I pronounced him perfectly recovered. The herpes had quite gone, of course leaving its usual marks behind, and the patient was absolutely free from pain. He then recommenced his horse exercise, and has been since (twelve months) very well indeed.

Case 4.—B. Y., a man, aged 35, has had sciatica about two years ago, is in general bad health, has disease of the heart, not severely, but still such as to prevent his taking ordinary exertion. His bowels are opened regularly, but there is, nevertheless, very

distinct stomach affection, not exactly gastritis, but approaching it closely. Suffers much from wind. Complains of acute pain on the left side, just below the ribs. The pain is not constant, but "comes in darts," which are terribly severe. At first this looked less like a case of lumbago than a heart affection, but a little attention to the symptoms showed that it was lumbago. For example, exertion did not in any way increase it, and when he sat down in that position which relieved his heart most, the pain was worst. Then, again, it had come on recently, and suddenly. The patient had suffered before with sciatica, and the position and direction of the pain from behind forwards, below the heart's position, all showed the affection to be lumbago. The only question, and it was one of some weight, was whether, considering that heart affection was present, I should be justified in giving hypodermic injection of morphia. Following Dr. T. Clifford Allbutt's advice, I determined to apply the injection, but, to be perfectly safe, I determined, at first, to try a very small dose. I therefore injected him with the $\frac{1}{12}$th of a grain of the hydrochlorate of morphia, and kept him by me for half an hour, to watch the effect. The pain was very slightly diminished,

indeed, I doubt whether it was affected at all. The heart's action, however, was; but, indeed, the effect was an excellent one. It had been beating quickly and feebly before; it now beat somewhat slower than previously, but apparently with more force. The man felt the effect, and liked it. I was convinced that no harm had been done, and I therefore sent him home, and on the morrow I injected him with double the dose, *i. e.* with ℥ij. of my solution. In a few minutes he was relieved of pain, and the heart went on all right. Next day he told me that the injection had removed the pain till near that morning, when it had returned. I therefore injected ℥iij. This injection was then kept up nearly every day for three weeks, at the end of which time the man was discharged, completely relieved of his lumbago. Though he was a month under treatment, he suffered hardly any pain save at first, as the morphia completely banished the suffering. I may mention that I also gave him, to relieve his flatulence, the following mixture, which we use at the hospital:—

℞ Sodæ Bicarb. gr. 10.
Liquor Ammoniæ ℥viij.
Pulv. Cretæ Aromat. gr. 20.
Infusi Caryophylli ad ℥j. M. Dose ℥j. ter die.

Case 5.—W. M., aged 23, a cabman, has not had this disease or sciatica before; was taken recently with pains in the shoulder, which gradually came around on the right side just below the right breast. Then they became regular sharp pains every eight or ten minutes, which were exceedingly unbearable. General health good, but bowels exceedingly irregular, being often confined for more than four days; appetite very fair. At first he was ordered

℞ Magnesiæ Sulph. gr. 120.
Magnesiæ Carbonat. gr. 20.
Aquæ Menthæ Piper. ad ℥ij.

Dose ℥ij.

to be taken every morning till the bowels were opened regularly once a day. The mixture had to be kept up in diminished doses during the whole time of treatment. At first I injected him in the back with ♏ij. of my solution. Next day he came in hardly any better. I injected him with ♏iij. He came in a couple of days after, complaining that the injection had made him quite giddy, and unable to do anything, and inclined to be sick. So I was obliged to reduce it again to ♏ij., with which I then injected him. He came in a few days, saying he was much better, and asked me to inject him again. I did so, and the next time

he came he was still improving. But, strange to say, he never after turned up; and, as I didn't know his address, I couldn't find out anything about him. Hence, this is an uncompleted case; but I think I may fairly imagine that if he had persevered he would have been cured as the others were, who regularly underwent treatment with the morphia.

Case 6.—G. T., aged 43, a mason, a tolerably robust man, has not for years been ill with anything but sciatica and lumbago, both of which he has had before. Has not been attacked by either for more than two years. About a week ago, when working, got rather wet and cold, and omitted to change his clothes. Next morning he was attacked by pains in the right side immediately below the ribs, which, from a former experience, he took to be lumbago. He remained at home for a week, and tried various local remedies, such as blisters and irritating liniments. Then he came to me much worse than he had been. There was acute pain in the right side, a little below the ribs, starting from behind and coming round toward the mesian line. This pain came on almost every five or ten minutes, and was, indeed, very severe, so much so that

the patient absolutely held his breath when the pain came on. Besides these acute pains there was less or more constant agony, and the parts were regularly sore, so that very slight pressure increased the suffering. Of course I looked for liver disease. There was constipation of the bowels; but the liver was neither enlarged nor contracted, nor was there anything like dyspepsia. Indeed, the patient's digestion had gone on excellently, except when he had these attacks of lumbago or sciatica. I ordered him to take two ounces of black draught—

℞ Magnesiæ Sulph. gr. 120.
Liquoris Ammoniæ ♏x.
Extract. Glycyrrhizæ gr. 20.
Infusi Sennæ ℥ij. M.

every morning, so as to keep the bowels open regularly, and I commenced injection into the right side of ♏iij. of my solution. I usually begin with ♏ij.; but this case was so severe, I tried the ♏iij. The man was almost instantly relieved. Next day, however, I found that the relief had not lasted more than four or five hours. I saw, then, that as the morphia did not produce any but a good effect, this was a case that would be benefited by a

double daily dose. I therefore injected him then with ɱiij. of my solution of morphia, and made arrangements for his injection at nine at night with the same dose. This case got on admirably. At the end of a week it was only necessary to inject him once a day. After another week, it was done twice in the seven days; and at the end of that time he was discharged perfectly recovered. While, during the period of his illness, he suffered very little pain, and that only for an hour before the injection was about to be made, when, in fact, the last dose had ceased to have any effect.

Of course, I have had many other cases, some of which were, I must confess, not quite so satisfactory; but the most by far of which were similar to those above. In all cases there was distinct evidence that injection of morphia did real good.

BRACHIALGIA.

PART IX.

By this term is involved pain in the upper extremity, whether the arm or forearm, or both, which is essentially connected with the nerve, which is at first unassociated with any muscular change, which is not necessarily connected with any other affection whatsoever, and which continues for some time. It may come on after a strain, but it generally appears of itself alone, and it is most frequently present in those whose general health has been ill, or whose minds have been submitted to a considerable deal of mental irritation and trouble, which has extended over some great length of time. It is a disease most frequent between twenty and forty, and its frequency approaches the twenty rather than the forty years. It does not come on so suddenly as sciatica or lumbago, but it appears slowly. First the patient, most frequently a male, complains that, after he has been at work for

a long time, the arm aches less or more, and is incapable of exertion. Then, after a while, he complains that, even when he is not at work, it pains him; and, finally, if the case is a bad one, he will tell you that the pain is very severe all along the inner and upper part of the arm, extending at times vaguely into the forearm; that it is always painful, and that it prevents his having anything like proper rest at night. Even though he does sleep, he complains that he is more or less awake, and is conscious of what is going on about him. The pain may persist for months, and, if it attacks the right arm, renders work absolutely impossible. For all this the patient's appetite may be good, and his bowels regular, and his general health perfectly unimpaired.

As to its nature, I consider it is allied closely to sciatica, and that it consists of an affection of the same portions of the nerve, viz., the terminations. This may or may not be correct, but that is unimportant as to the method of treatment. Very possibly as powerful arguments might be brought against this hypothesis as there are in its favour, but at present I do not see anything to disturb my view, that it is the termination rather

than the main trunks of the nerves that is affected.

I have said that it is generally unaccompanied by any other affection, but still its diagnosis is not of the simplest character. For example, a pain not unlike it may result from aneurism, either of the brachial artery or of the subclavian. Aneurism of the brachial would tolerably soon be discovered, but subclavian aneurism is not so easy of recognition. It will be well to be assured, in dealing with a case, at the very first on this point. I know of a case of brachialgia which one or two very eminent country surgeons imagined was due to the presence of an aneurism which they could not discover. They even gave this diagnosis of it to the patient, who was thereby very considerably alarmed. They apparently were unfamiliar with brachialgia as a disease, and could not account for the pain in any other way than by assuming that the nerve was pressed upon either by a bony growth or an aneurism, and chose the latter as the more probable.

It will, therefore, be well for the physician to examine his patient very carefully, and to sound the heart and great vessels, and make a minute examination of the arm, and inquire

into the previous health and habits of the patient for the few years previous to his investigation. If there is no heart or vascular disease, the affliction is most probably brachialgia. The existence of any outgrowth must soon be detected, and the presence of any of the syphilitic pains is not only rare in the arm, but will be soon detected by the previous inquiry, if properly carried out.

The pain is generally felt down the inner and fore-part of the arm, but it may be continued into the forearm, or, in some instances, into the hand even. Again, it may attack the upper part of the arm; in which case it starts from the head of the bone as a centre backwards across the shoulder and forwards across the clavicle. In the latter case pectoral examination for the detection of aneurism, if present, will be essentially necessary. It is rare that the back portion of the arm is the part affected, but of course it may be the only part attacked.

It is hardly so frequent an affection as sciatica is, but it is by no means so rare a disease as we should be led to expect, by its absence from most of our works on general medicine. And in all respects the causes of its appearance are the same as those which precede sciatica

—that is, lowness of the system, wet and cold. And those who are most subject to this affection are those who, being weak in health, have their arms and shoulders much exposed to the weather. Still, however, it is not unfrequently met in cases in which there is nothing in connection with the ordinary habit or mode of life to account for its presence. And indeed such cases render the physician's task, in so far as the discovery of the cause is concerned, an almost hopeless one.

In regard to treatment, there is little to be said. Rest, of course, is essential; and for this purpose the limb had much better be placed in a sling, as by that means not only is its use prevented, but those occasional movements are avoided, which are sometimes extremely injurious. As regards the part of the arm where the pain is situate, that is of little matter in reference to subcutaneous injection. This operation must be performed usually in the same part, and this is the upper and front portion of the arm (*not* the forearm), at the upper and outer part of the biceps muscle. Here there is a definite space in which the operation can be carried on, for months if necessary, and in which there are no large vessels or nerves to be interfered with.

The dose of morphia will be the same as has hitherto been spoken of, and of course it may have to be increased, and more frequently given in some cases than in others. The physician must be guided by the sufferings of his patient, and by the patient's ability to tolerate the influence of the opium. A second dose of morphia must not be administered in a less space of time than eight hours. Of course there may be special circumstances which will counteract this order, but they are too peculiar to be noted as generalities.

The state of the patient's bowels will have to be looked to, as they are often found constipated. It will be well to have them opened every day. In addition, it will be useful to administer cod-liver oil and iron if the patient is at all thin, and with a feeble appetite. If the oil cannot be taken, at least the iron can; the salt I am most in favour of is the *Liquor Ferri perchloridi*, in doses of from ♏x. to ♏xx., in an ounce or a couple of ounces of water. The best period for injection will be after breakfast and after tea. And this reminds me that in this affection, as in the preceding two, tea and coffee had best be avoided, cocoa or milk being taken instead. In fact, the general statements I have made regarding

sciatica will almost all hold good in reference to brachialgia.

The following three cases are selected from my list, as they give a fair idea of the whole :—

Case 1.—J. L., a gentleman aged 29, has had sciatica a couple of years ago, and is, generally speaking, an eminently neuralgic subject. The pain came on at first very lightly in the left arm, not interfering with his ordinary occupation. Then, after a while, it became severe when the arm was used even in the very slightest exertion. This was so bad that he put the arm in a sling. Still, however, it pained him, the pain becoming worse, and extending down along the outer border of the biceps, and occasionally into the fore-arm, and to the thumb of the hand. He was an active, energetic man, and the pain caused him a great deal of anxiety and trouble. I at once put him under the hypodermic system, and injected the arm with the usual dose of morphia. Five minutes after, he said he was perfectly well. I knew, however, that this would not last; and so next day he came and complained of the pain, which he said was as bad as, if not worse than, ever. I injected him again, with the same result as before, and he went

away quite rejoicing. However, next day it was the same story, viz., that in about seven hours the pain began to come on again. I therefore determined on injecting him twice daily, *i.e.* once in the morning, and again in the evening. Meanwhile I kept him taking podophyllon pills, and perchloride of iron—he could not tolerate the cod-oil,—while I each day went through the operation twice. A week, however, was quite enough of the double operation. At the end of eight or ten days he only required the injection once every day. He had then considerably improved. In all, I think I injected him for about six weeks, at the end of which time he had completely recovered. And of course this, though a long time, is quite different from the same period under any other treatment, for during almost the whole of it he had been kept free from pain. He suffered a little from the stomach, but a more careful diet soon put that to rights.

Case 2.—Z. C., a shoemaker, aged 50, of a lethargic habit, slow circulation, and a yellow, bilious appearance, complained of pain in the right arm and shoulder. Curiously enough, pain is occasionally felt in the hand, though it leaves the forearm intact. It is, how-

ever, in the shoulder that most pain is situate, or rather at the junction of the shoulder and arm, and in the upper and inner part. He has a bad appetite, and even if he had a good one, could not get nutritious food, because he has a large family to support. Bowels are costive, being moved only about twice a week. I put him on cod-liver oil (ʒiij.) and perchloride of iron (ɱxx. of the liquor), and ordered him our usual hospital senna mixture to be taken every morning. Meanwhile I commenced by injecting him in the arm with the usual amount of morphia. The next day I saw him he said he was a little stronger, but the pain had not been altered in the least degree. I injected him again, and told him to continue his medicines as before, his bowels being now opened nearly every day. I found out from him that he was a desperate tea-drinker—in fact, he took tea four, and sometimes five, times a day. This, of course, I had to stop, and afterwards saw with the best results possible for my patient, whom I also prevented taking beer. It is wonderful how in such cases as these the mere habit of beer and tea-drinking, carried to excess, is injurious—the beer and tea are both bad, and therefore most innutritious.—Next day I saw

him, and he confessed that, though he felt "a trifle better," the morphia had not any effect upon him. I therefore doubled the dose, and injected him as before. I was glad to find, when I saw him next, that the result was good —he had completely lost the pain. This case was under my care for nearly seven weeks, during all of which, save the last four days, he had the increased dose of morphia injected; and I may say that the patient went away perfectly well as regards his arm, and stated that he hardly suffered any pain during nearly a month of the treatment. In other respects the health was far from being satisfactory.

Case 3.—E. T., a woman aged about 24, a housemaid, says that after cleaning some windows, outside which she was seated for nearly an hour on a winter's day, her left arm began to ache. This went on increasing for about a fortnight, when she came to the hospital. She is a fair girl, but looks very much pulled down; is very irregular, and has little more than "whites" when anything does appear. Bowels are regular, and appetite is not bad, while digestion appears good. I put her at once on ℥xx. in water of the Liq. Ferri perchlor., *t. d.*, and injected her arm in the usual spot with the ordinary injection. The pain was most in

the flexor muscles of the forearm, and it was in nearly all of them. Next day she said she was no better. Iron and injection continued. When she next came she seemed a little better, but it was very little indeed. She continued under treatment for quite two months, and at the end of that time got a place somewhere in the country which suited her better. Hence I did not see her again. However, I have no doubt that she was very much better, though not quite well. Even in this unsatisfactory case, the morphia had undoubtedly considerably relieved the pain. Of course the case was not completed when she left the hospital.

THE LITERATURE OF SCIATICA, LUMBAGO, AND BRACHIALGIA.

PART X.

THERE is no profession whose literature approaches that of Medicine, in the one respect of vastness. This may seem unaccountable to some, who fancy that medicine has, notwithstanding, done very little; but it is somewhat explained by the fact that not a few of the annual additions to our literature are made solely for the purpose of bringing their authors before the public. But be this theory as it may, it is unquestionable that Sciatica alone has had no less than six hundred medical men who have devoted their attention to it. Of course, of these six hundred, a certain number considered the other subjects, Lumbago and Brachialgia, but Sciatica has had the vast majority. How strange, then, it seems that, at the present day, we should know so very little about its pathology, notwithstanding the number of able and

eminent men who have given the subject their consideration. The reader does not, it is to be hoped, expect that we are to deal with all those who have directed their attention to the disease on which we have written for, were we even to attempt it, we should have as much space and time as the late Dr. Copland had when he wrote his valuable dictionary. A recent French writer on Sciatica, Dr. P. A. Lagrelette, has taken the trouble to compile a list of writers on the subject, and he has covered more than twenty pages of large octavo with the mere names of the authors and their essays. It is a very long range in medicine from the opinions of Hippocrates down to those of Handfield Jones. Yet the above-named author has attempted the almost Herculean task of reviewing them. We shall not follow his example, being content with having pointed out where so interesting a labour may be seen and studied.

In fact, we do not see that we are warranted in doing more than considering a few of the more modern writers on the subject, as they alone are the ones who have really, that is, on praiseworthy grounds, attempted a solution of the pathological mystery which Sciatica and its allies offered—and, we are sorry to add, still

offer—to the profession. We hope, therefore, we shall be excused if we merely devote ourselves to three views of the origin of these diseases, and these, three purely English opinions. Leaving out of all consideration the ideas of M. Lagrelette, who appears to favour hydropathy; of M. Eulenburg, who has recently given serious consideration to the subject; of M. Mauriac, who has lately considered the relation of reflex neuralgias to blennorrhagic orchi-epididymitis, and of many others, who have each, in his own way, added to our literature, we shall consider the opinions of three English writers, those of Dr. Anstie, Dr. Fuller, and Dr. Handfield Jones, as all three have specially written upon the disease in question.

Of Dr. Anstie it is but justice to say that he has gone into the subject of neuralgic — presumably facial neuralgic — pathology as fully and patiently as almost any other English authority. His book,* just published, is a veritable *chef-d'œuvre* in all that relates to the pathology of neuralgia, and he has taken care to deal fairly with all authorities, whether English or foreign. But it is,

* "Neuralgia, and the Diseases that resemble it." By F. E. Anstie, M.D. London: Macmillan. 1871.

to our minds, little better than an hypothesis, and that a very wild one, which the author supports. It is but justice to say that Dr. Anstie's book must be read by those who desire to form an ultimate opinion on the subject, for it would be impossible to give, in this short space, anything like a full account of his researches; but we think that his opinions are the views of a carefully-trained, scientific mind, which is not content to linger in darkness, but must have some opinion or other, even at the risk of its being untenable. Dr. Anstie holds the belief that Neuralgia, and by this term he includes sciatica, lumbago, &c., is distinctly a disease of the central nervous system, first attacking those portions of nerve-root which are connected with the sensitive nervous system, and then spreading through the cord to the motor centre, where it does its final mischief. And we may ask, on what foundation does he rest so serious and grave an hypothesis of a disease which so remarkably few are known, ultimately, to die of. Let us see what the author says himself on this point, for we shall not endeavour to give any minute account of his view ourselves.*

* Our reason for saying so is that we have failed, in many instances, to discover Dr. Anstie's exact meaning.

"I am inclined to explain all the congestive complications of trigeminal neuralgia on the basis of vaso-motor paralysis. And I further believe that the cause of that paralysis is a direct extension of the original morbid process from the sensory root to the motor, affecting the origin of fibres in the latter, which are destined to govern the calibre of ocular and facial vessels. These fibres I suppose it is that Meissner succeeded in dividing when he partially cut the trigeminus, and got nutrition and vascular change without anæsthesia. There must be more than this, however, to account for the whole of the *trophic* phenomena; for there is a great body of evidence to show that mere vaso-motor paralysis does not produce any phenomena of such an actively morbid kind as those we are endeavouring to explain. The phenomena on the side of *secretion* might indeed be possibly explained by vaso-motor paralysis, consisting, as they do, (*a*) in the great majority of cases, of a mere outpour of what seems little more than the aqueous part of the secretion; and (*b*), in a few cases of arrested secretion,

This, of course, may be due to some fault of ours, and not of his, but, at all events, it renders it the more necessary to give the exact passage to which we are referring.

a phenomenon otherwise by no means unfamiliar as the result of sudden passive engorgement of glands. But the mere cessation of vaso-motion will not account for such facts as the *rapid* and *simultaneous* development of erysipelatous inflammation, of corneal clouding and ulceration, of iritis and glaucoma, of nutrition changes in hair and mucous membrane. I must, for the present, be content to believe it probable that there is a special set of efferent fibres in the trigeminus, emanating from the motor root, whose office it is, in some unknown way, to preside over the equilibrium of molecular forces in the tissues to which the nerve is distributed; trophic nerves, in fact, though *not* active dilators of bloodvessels."

We really do not know whether Dr. Anstie puts this theory forward as having any support in fact, but, if he does, we must say that we fail utterly to see it. If it be put forward as an idea or hypothesis, and rather by a physiologist than a practical physician, of course we can let it pass. It may help to fill up a gap in our knowledge, and may make the further path less difficult, whilst of course it may, at any time, be swept away, like many an abler and better sustained idea. But, if it is urged

upon us by a calm and rational physician, as what we should believe as to the cause of neuralgia, we must at once utterly reject it. And we do so simply from the fact, which we should have thought must have been apparent to its able author, that it is nothing better than a speculation. However, the facts of neuralgia proper may suit it, and, in our opinion, they go, as far as evidence legitimately can, directly in opposition to it; it is clear that no such line of reasoning can, with calm justice, be applied to a case of pure sciatica.

But, even were we to admit, as remotely possible, such a line of causes as operating in the production of facial neuralgia, we could not possibly allow of their promoting such diseases as Sciatica, Brachialgia, or Lumbago; for we very rarely find that these affections are accompanied or followed by any sort of paralysis whatever. And, not only so, but the fact that different branches of the nerves are affected from time to time is opposed to the view. Thus, in Sciatica, it is not unfrequent to have the pain in one set of muscles for a few days, then in another set, and so on, while the situation of the pain or tenderness lends nothing to so extreme an hypothesis as injury

to the cord. We see nothing whatever to incline us to the belief that these three varieties of nervous pain have any connection with disease of the central system. And, even were we to accept it as an hypothesis, we should still have a difficulty in explaining the subsequent effects. For it is most remarkable that all of these affections are curable, and yet, if we were to suppose them of *central* origin rather than of *peripheral*, we should not perceive so clearly why it was that so severe a disease of the central nervous system should so frequently, in fact so generally, be completely banished. It seems to us that Dr. Anstie is impatient of research. He cannot await the time when the subject of the disease will be made perfectly clear, and for this reason he is compelled to make a very imperfect and unsatisfactory hypothesis do duty for the time. For example, let us take his remarks on a peculiar form of neuralgia.

"Nor are we likely to reach a different conclusion if we test the matter by the consideration of a rarer, but still sufficiently common kind of case, such as I have described in Chap. I., in which a very strong peripheral influence [traumatic] produces neuralgia,

accompanied by vaso-motor and secretory phenomena, and by anæsthesia, but *not in the district of the painful nerve, but in the territory of a quite different nerve.* How can we doubt, in the case, *e. g.*, of a trigeminal neuralgia thus complicated, the exciting cause of which was a wound of the ulnar nerve, that the morbid influence travelling inwards from the lesion would have passed over without any special consequences [as happens in thousands of such nerve wounds], had it not, in its passage along the medulla, encountered a *locus minoris resistentiæ* in the roots of the trigeminus? It seems *impossible to account for the phenomena on any other theory.*"

We find it very difficult to imagine how any one conversant with our present great ignorance on the subject of nervous physiology, could lend his mind to so wild an hypothesis as that expressed in the above quotation. Not that it is not laid down skilfully, and with that knowledge of the whole history of facial neuralgia which the author shows the possession of so abundantly. But we cannot understand how a calm, clear reasoner can be so completely mastered by an hypothesis as Dr. Anstie appears to us in the present instance. How does Dr. Anstie prove

his first proposition, that the trigeminal neuralgia *was directly caused* by the wound of the ulnar nerve? We certainly fail to see any reasoning at all satisfactory on this point. And if there is none—as we believe—how wrong it is to speak of a nerve-current travelling along in so strange a fashion. Would it not be better to say we have certain facts, which, with our present knowledge, are to us perfectly unsatisfactory, than to put forward such an hypothesis as that Dr. Anstie has presented us with, because, indeed, we cannot account for the phenomena in any other way? Is it not better at once to make the honest confession of ignorance, to say these are the facts, and the only explanation we can put on them, is so exceedingly improbable that we infinitely prefer leaving them aside for the present, in the hope that, in the future, we may be able to build thereon some hypothesis which will be more creditable to science than the present one?

For ourselves, we must confess that, having carefully read Dr. Anstie's book, and having learned much from it, in all that relates to modern research in neuralgia, we are yet utterly unsatisfied by the reasons he adduces in support of his idea of the cause of the

disease. We are, therefore, left to conclude that we are still as far off as ever from a knowledge of the pathology of the various diseases which form the subject of this volume, for Dr. Anstie's book is the latest and one of the ablest essays which have appeared on the question of facial neuralgia. We must, therefore, leave the subject still in the hands of pathologists, and hope for better results to come. Meanwhile, we have found a certain cure for the three forms of neuralgia which form the subject of the present volume, and this cure is the subcutaneous injection of morphia, regularly and constantly administered till the pain has completely left.

The next treatment which especially demands our attention is that of Dr. Fuller, whose work on "Rheumatism, Rheumatic Gout, and Sciatica" is so well and deservedly known. As might have been imagined, Dr. Fuller classes sciatica as a rheumatic disease. He admits here and there that there are cases which do not exhibit much of a rheumatic tendency, and which are not specially relieved by rheumatic treatment; but these he considers rare, or, at least, as compared with the rheumatic affection. Still, he attempts an investigation of their pathology; and we may

say at once that he is neither more clear nor comprehensive on this one point than any of those who have gone before or who have followed him. He has a distinct belief in some cases of sciatica which are caused by pressure on the nerve, or in the course of which pressure on the nerve makes its appearance. His reasoning on this problematic question is most unsatisfactory, but not more so than that of all others who have touched the same question. Here is what he says upon the point:—

"If thickening or effusion be present, then is there not only local pain, but numbness and partial paralysis of the limb, as the natural and characteristic result of pressure on the nerve. The nerve being compressed, its function is impaired, and the symptoms alluded to necessarily ensue. Hence, when a patient who is suffering from sciatica complains of *a dull, aching and benumbing pain in the limb, causing it to feel swollen*, when this sense of numbness and increased bulk has succeeded to pain of greater intensity, accompanied by cramp and startings of the limb, and when more especially, in addition to these symptoms, there is more or less inability to move the limb—inability resulting from loss of power, and not as a result of excessive pain—pressure on the

nerve may be inferred, and steps should be taken to effect its removal either by mechanical or medicinal means."

Now this is Dr. Fuller's view of the pathology of a certain number of cases of sciatica; indeed, of nearly all cases of what we should term pure sciatic pain; and he takes measures for relieving it in strict accordance with the theory above laid down. But, we may ask, on what is the hypothesis founded that there is pressure on the structure of the nerve? Is it sufficient evidence to satisfy the mind which has not got any other view to offer? We think not. To us it seems simply this—as we have already explained: that the muscles have, from the disuse into which they have come, on the one hand, and the *constantly* contracted state in which a certain portion of them has been kept, on the other, got into a state of disease and bloodlessness, on the one side, and of hyper-contraction on the other, which renders exertion after some continuance of these conditions an almost impossibility. Indeed the waste which ensues in many cases would be proof of this. But what proof have we of a compression of the nerve? None whatever, that I can see, further than imagination. Why, if the nerve was much compressed,

we should expect absolute paralysis—a state of things not readily recoverable from, as sciatica (pure and simple) undoubtedly is. What I should like to ask for is, the evidence that, in any case of sciatica, the sciatic nerve is compressed by fluid secreted within its coats. So far as I can see, there is not a shadow of reliable evidence in support of such a proposition, and yet that this view is pretty general is absolutely unquestionable.

But if we leave the pathological field of inquiry, and come to the more purely therapeutical, we find much more of valuable material in Dr. Fuller's volume. In fact, we see that the author has by his treatment recognized that he has been dealing with different diseases. We find that he admits that there are various forms of sciatic disease —those, for example, attended with febrile symptoms, heat and redness, or the truly rheumatic disease; and others whose principal symptom is simply pain in the neighbourhood of the sciatic nerve. With the former we shall not deal, as we consider them not to belong to purely sciatic pain at all; therefore, with the author's method of treatment we have nothing whatever to do. It is with Dr. Fuller's treatment of unquestionably sciatic

pain that we have to deal. And, in the first place, we must give him the very great credit of being almost the first to advocate the use of hypodermic injection of morphia as a remedy in this disease. We are somewhat surprised to find, however, that he has, in addition, profound faith in cupping, leeching, and blistering, in sciatica proper. Dr. Fuller professes to have seen great relief follow this method of treatment—a fact which we cannot understand, if the cases were those of sciatica proper. If they were other forms of disease, we could readily appreciate the method. But in our hands, bleeding, cupping, blistering, and such-like remedies, have been invariably attended with a subsequent renewal of pain, which was generally of far greater intensity than at first. There is one condition which may modify the blistering very materially, and which leads us to account for Dr. Fuller's preference for this mode of treatment: it is the fact that in most cases the blistered surface was "sprinkled daily with powdered morphia"—a fact of the utmost importance, as it brings the limb nearly into the condition which is so much better attained by subcutaneous administration of the self-same drug.

Dr. Fuller's experience of *acupuncture* seems to have been somewhat satisfactory. It has not been so with us. He has seen one case immediately cured by it, and two others more slowly relieved; but he says no more of successful results, from which we draw no very favourable conclusion. On the general treatment, the author says nothing at all about electricity; but on the medicinal part of the subject he observes that his mainstay is opium. With this opinion we heartily agree. Indeed, there is no one who has treated sciatica with whose opinion we so fully concur as Dr. Fuller, and on this point especially, that while he recommends other medicines as having uses of their own, and as being sometimes advisable, he, above all others, leans on opium as the special remedy of the disease. Hyoscyamus and Conium, Cannabis indica, Stramonium, and Belladonna, he speaks of as having each of them special virtues; but it is upon opium that he rests the cure of his cases of sciatica pure and simple.

It is much to Dr. Fuller's praise that he, at so early a period as the publication of the work entitled "Rheumatism, Rheumatic Gout, and Sciatica," [1860,] should have recommended subcutaneous injection; and though he speaks

of it as affording "too often temporary relief from suffering," it is evidently because he had hardly become accustomed to its frequent use, and to the fact that it must necessarily be constantly administered, and for a considerable length of time in some cases. It is to be regretted that he gives only one case treated by subcutaneous injection; but as that one was most successful, it is, at all events, satisfactory, and we doubt not, if Dr. Fuller's opinion were now published, it would be, at all events, favourable to subcutaneous injection of morphia in this disease. In any case, it is unquestionable that the opinion expressed in the work to which we have referred is most favourable to opium and morphia as remedies for sciatica, and that it puts the two very far above all others in the treatment of this affection—an opinion in which we entirely coincide with Dr. Fuller.

With regard to other methods of treatment which Dr. Fuller has found useful, we may mention the frigorific mixture of Dr. James Arnott, the sulphur method of Mr. R. W. Wallace, and also baths and nitro-muriatic acid. Of the first we have little or no experience. Dr. Fuller has been bold enough to attempt it in two or three cases, but without any very satis-

factory result. At least, in the one case in which he thought it might have operated well, the "patient was taking medicine internally at the same time, and it is difficult, therefore, to estimate precisely the influence exerted by the external application"—an opinion in which we thoroughly concur. The sulphur method, which consists in wrapping the patient's limb up in flowers of sulphur, and keeping it so wrapped up till the sulphur was in great measure absorbed, seemed in one or two cases to have produced good results. But the experience of the remedy is manifestly too small to enable the author to pronounce a definitive opinion on it. The baths appear to have returned the author the same results that have been reached by most English physicians; viz., unsatisfactory in the extreme as a remedy for pain, but useful as an adjunct. As regards the nitro-muriatic acid, Dr. Fuller's experience is somewhat peculiar. He says that in some cases in which there is nervous irritability and languor, and which are attended with the discharge of a clear, bright, and plentiful urinary flow, there is, nevertheless, a considerable quantity of acetate of lime in solution. This, of course, can be detected by microscopical examination

of the urine; and it is alone got rid of by the use of nitro-muriatic acid. The author's explanation of the process is not satisfactory, but we cannot doubt the result, which is most beneficial to the patient. The cases of this kind are, however, we should suppose, rather rare than otherwise.

We may then conclude our notice of Dr. Fuller's valuable volume, merely remarking that on the practical point of treatment we thoroughly agree with the wise remarks of this most distinguished physician.

Dr. Handfield Jones's* views are the last that we shall notice in treating of the affections with which this book is associated. But we may as well state at the outset that the space at our disposal is out of all comparison small in proportion to the nature of the task attempted. Most certainly Dr. Jones's work is the most important, as it is certainly the most advanced, work which has yet appeared in any language on the subject of the pathology of neuralgia. It is, therefore, a work which, however we may differ from it in some of the views it expresses, we are compelled to differ

* "Studies on Functional Nervous Disorders." By C. Handfield Jones, F.R.S., Physician to St. Mary's Hospital. London: Churchill. 1870.

in extreme doubt, and with every desire to alter our views as the subject becomes more cleared up. We say this because Dr. Jones is one who has given years of most careful attention to the subject on which he has written; because he has had ample opportunities of studying the diseases in question throughout his long experience, and because we ourselves know of the immense care and studious attention which he gives to every case which comes under his care.

From all these circumstances, it is a matter of some pleasure to find that the author does not consider sciatica a disease of the central nervous system, but rather, so far as we can gather from him, a malady much as we ourselves view it, of the extremities of the nerve. And if this view be correct, it is of the utmost moment, for it is diametrically opposed to opinions like those of Dr. Anstie, which place the disease rather in the centre than the circumference. We disagree with Dr. Jones on some of the points in minute anatomy, which he, however, accepts rather because they are the results of recent works than, we presume, from any actual knowledge. We refer more especially to his allusion to Herr Pflüger's views as to the minute anatomy of the salivary

glands. There is, we firmly believe, no such arrangement of the nerves as that figured by Pflüger, whose researches, if we were to judge by his plates, have been carried out with a resolute minuteness. But this is unimportant, for it affects Dr. Jones's views in the slightest way possible. In the main history of the disease he will be found to hold opinions which are very like our own. Of course he has carried his researches into the functions of the sympathetic system, upon which he gives vastly more information than can be obtained from any similar work. And we think that in doing so he has been right, for we are convinced that it has far more to do with all sciatica and lumbago pain than is generally supposed. But he has not carried his researches so far that further investigation will not be useful. It seems to us that he has, as it were, opened the first few leaves of a vast work, which must be more thoroughly studied if we are ever to obtain a perfectly clear and satisfactory account of the nature of neuralgic pain. Still he has done much towards clearing the pathway of the useless rubbish of previous hypotheses and other material, in no way really related to this disease, which may be termed, as he has done, "non-organic or immaterial

neuralgia." His remarks on this part of the subject occupy some sixty or more pages, and though we cannot dilate upon them here, they will well repay those who are engaged in the study of the pathology of neuralgia generally. Of course he himself confesses the great difficulty of arriving at a knowledge of the position of the weakened or injured part in diseases, such as those described in this volume. And we can heartily feel with him when he says that "in a very large number of cases, I fear it must remain problematical where the real seat of the disorder is." Yet we gladly thank him for the multitude of cases and citations he has brought forward in support of his views.

One or two of the cases he reports seem to us especially interesting, as they tend to show that a purely local effect may produce intense pain, of such a nature that we think others who hold different views of sciatica might, if they were ignorant of the origin, readily attribute to some malady of the central nervous system. One of the cases was originally [1862] recorded in the *Dublin Quarterly Journal of Medical Science*. It was one "of embolism of the right common iliac, femoral and lower arteries. The symptoms were sudden acute pain in the calf of the leg, which was so tender

that the patient shrieked when it was touched, loss of motion in the limb, and loss of sensation from the knee downward, with remarkable diminution of the temperature." Now in this case it was clear, so far as the evidence goes, that the part of the nervous system affected was the part confined to the limb. Another somewhat similar case is recorded from the practice of Dr. Fuller, in which pain of a severe character in the limbs was attributed to exactly the same cause.

Dr. Jones's remarks on the action of local remedies for sciatica are most reassuring, and they certainly point rather to the disease being local than to the supposition that it is a central nervous disorder. Of course there is the supposition of a transplantation of the stimulus; but, after all, this is only hypothetical, or, at least, it is not supported by that large amount of real evidence which is essential to the establishment of theories in medicine. But in any case, no matter whether the idea of transplantation be correct or otherwise, the view which the author takes of the common sciatica cases is clearly that which is so far supported by genuine facts, and it is, so far as we have been able to see, by no means in opposition to the opinion we have formed.

Of course Dr. Jones admits that some cases

of neuralgic pain appear to be central in origin; but, on the other hand, he believes "that pain in a nerve may really indicate by its situation the seat of the irritation, or rather morbid action." This, he goes on to say, "is a conclusion of some importance to the local treatment of neuralgia. It justifies our empirical habit of applying sedative remedies as near as possible to the seat (apparent) of pain." Of course Dr. Jones gives the facts also, which would tend to support the central idea, but he clearly adheres, less or more, to the view expressed above.

With regard to Dr. Handfield Jones's opinions on the treatment of these affections, we find that he countenances a general mode of therapeutics, varying his treatment with the previous history and nature of the case. Still, of all remedies, it seems to us that he has obtained more marked results from morphia than from any other medicine; at least such appears from the cases he has published. It is immensely to be regretted that Dr. Jones did not follow up the morphia treatment persistently, as we believe that if he did so he would have arrived at a therapeutical result nearly identical with that which we have almost invariably found. Indeed we find this

to be the nearly constant result of our reading, viz., that authors who have attempted subcutaneous injection of morphia, and have found it useful, mention the fact, but do not appear to have persisted in its use for a sufficient length of time. In hardly any case that we have seen reported where subcutaneous injection of morphia did not permit a cure, was the injection carefully and fully persisted in, doubtless because the physician saw that its effects passed away so soon, and possibly feared to go on with so troublesome a remedy. Of course there are some exceptions to this statement, but indeed they are extremely rare.

With regard to Dr. Jones's advice, so frequently given, to administer cod-liver oil and iron, we cannot too cordially agree with it; and, as the reader will have already perceived, it is a rule which we almost invariably follow. But where we differ entirely from Dr. H. Jones is as to the following statement, in reference to subcutaneous injection:—"In most instances, however, its effect is temporary, *and has to be seconded by* internal remedies." With the first statement of course we agree. There can be no doubt whatever that the action of hypodermic injection is

temporary; but with the second we are thoroughly at issue. We do not believe that in the great majority of cases it requires any substitute. As we have said, iron and cod-liver oil may both be administered; but still, without the injection, the pain will continue. It is then to be kept up even twice a day, or oftener, if the pain is extremely severe. The agony must be kept under so long as it exists, and while this is done by injection the patient is increasing his appetite, and by means of the iron and cod-oil is getting up strength, which would not be obtained if constant pain and agony existed.

In reference to hypodermic injection, Dr. Jones speaks of atropia as well as morphia, but he does not lay stress on either in the treatment of sciatica or lumbago, though, as we have said before, the records of his cases speak volumes in favour of hypodermic injection of morphia; and we hope that when the next edition of Dr. Jones's splendid volume occurs, he will have reason to speak more encouragingly of this remedy in the peculiar diseases to whose cure we may be said to have devoted it.

RESULTS OF SUBSEQUENT EXPERIENCE.

PART XI.

When this book on the subject of sciatica, lumbago, brachialgia, and their cure by means of the syringe, appeared, a certain amount of doubt was expressed as to the results which I then brought forward—not, of course, to the positive cases which I furnished. Of these there could be not the smallest doubt. But some there were who fancied that those cases which had not been successful had not been alluded to, which I most distinctly aver was not the case. Now, I have had more than seven years' experience of the results of the subcutaneous injection of morphia, and I have seen more than one hundred and eighty cases of these forms of nerve-affection — some of them excessively bad cases,—and in but very few did this treatment prove a failure. That is to say, that subcutaneous injection of morphia invariably gave relief—in most instances complete relief, — and that by means of this

relief the patient was enabled to eat or drink with comfort, and by help of perchloride of iron, and in some cases by cod-liver oil, he was thus enabled to put up flesh rapidly, and to repair the waste of tissue under which he had been labouring. And here I would mention that a remedy which is most valuable as a restorative in these cases is the hypophosphite of soda. Indeed, I think it as good a mode of administering phosphorus as any other. But in hospital cases it is questionable whether it can be beneficially employed, for we all know that the present system of administering drugs in many of our hospitals is most objectionable and faulty. It must be confessed that we owe our knowledge of this drug and its valuable effects in great measure to the recommendation of Dr. C. B. Radcliffe, to whom indeed, I think, we may give all the credit of introducing the phosphorus into the medical treatment adopted in this country.

It is as a means of relieving the pain that I administer the morphia—not, as some have erroneously imagined, as a means alone of curing the disease. And while the patient is painless there must be, as I have already laid down, every attention paid to his feeding, his

walking, his warmth, and his *ease of mind:* to this last above all, for, be assured, a patient whose mind is kept constantly in a condition of worry cannot be improved in bodily condition by any mode of treatment whatever.

Of course the salt I still employ is that of the muriate of morphia dissolved in pure distilled water alone. Take five grains of this salt, and add to them a single drachm of water, then heat the mixture over a spirit-lamp, and a perfect solution will form. This will, on cooling, in winter assume a rigidly solid crystalline condition, and in summer, save in very hot weather, will be unfitted for injection if cold. And here it is necessary to say that most muriate of morphia, as got at the local chemists, is worthless. I have tried at many houses, where I have obtained other drugs in a comparatively pure state, to obtain pure muriate of morphia, but in vain. It, when so obtained, was found to dissolve with excessive difficulty, to form a muddy instead of a perfectly clear liquid, and to leave a certain amount undissolved. Hence I have for years obtained the morphia I use from Messrs. Hopkin & Williams, of Cross-street, Hatton-garden, of whom, it is perhaps needless to say, that I never obtained any but

the very purest salt, which was readily and completely soluble in warm water.

With regard to injection, I may say that a further experience has borne out my remarks of four years ago—viz., that it is of importance to make it as close to the seat of pain as possible. It would, of course, be utterly out of my power to attempt any explanation of this. Indeed, as far as physiology is concerned, the facts would appear to be against this view. But I simply say that my experience—and it is derived from many trials on my patients—points to this, that to allay pain most successfully by subcutaneous injection of morphia, we must, as a rule, inject as close to the seat of pain as possible. As a fact, that likewise is opposed by some physiological reasoners, we may mention the circumstance that the best treatment of acute bronchitis is the production of an irritation of the surface of the chest. This is well known by the medical man, but it cannot be explained by certain physiologists, who therefore suggest that counter-irritation in any other direction would be equally efficacious. But we know that it is not.

And as to needles. I have had considerable experience, having made many thousand

punctures with their aid; and I have come to the conclusion that, as the instrument is made nowadays, in most cases it is utterly and entirely wrong. I will not say that the instrument makers are to blame for this; but assuredly, whoever first ordered the gigantic instruments, considerably over two inches in length, that are generally appended to a subcutaneous syringe case, made a grievous mistake, and, furthermore, committed an error which, in its results, falls on both the patient and the practitioner. On the former it tells by the production of occasional abscesses, which we know are produced sometimes if a needle is introduced to a depth of two inches beneath the skin; and also by the fact that the drug is not so rapidly absorbed, for any one with the smallest knowledge of microscopic anatomy is aware that the portion of the integument immediately beneath the "zone of indifferent tissue" is loaded with minute blood-vessels, while further in you have merely loose connective tissue, with, of course, larger vessels, but not anything like the numerous vascular parts you have got above. Then, secondly, it tells against the physician, for, if he has many injections to perform, we may put down as a moderate allowance for breakage

at least one needle in three weeks. And these two or three errors may be easily avoided by using a needle of not more than half an inch in length. My own needle barely measures three-eighths of an inch long, yet the last one that I obtained from Mr. Maw * I have used in at least seven hundred instances, and it yet shows no symptom of yielding. It is as firm as when it left the maker's hands. And here I must offer a piece of advice to the beginner. In the first place, you should always use silver wire for plugging your needles with when they are put in the case, and invariably employ plain steel needles—firstly, because they are less easily broken than gold; secondly, because they are finer in make; thirdly, because they retain their points exceedingly well, which gold does not; and fourthly, and most important, because they are driven in with one-fourth of the pressure that is required for a gold needle. And I may mention that the judicious practitioner will invariably

* Here I may mention that the practitioner who requires a syringe, and does not want to pay an absurdly high price for it, had best go to Maw & Sons, the wholesale instrument makers of Aldersgate Street, E.C. There he will see ample varieties, and any changes he requires in the needles can be effected in a comparatively short space of time.

cleanse his syringe before laying it aside. This is essential in the case of morphia injections, for if it be not done the instrument will be unfit for use on the next occasion. It is easily effected : just draw up enough pure water to fill the instrument, then force half of it through the nozzle, and next, partly unscrewing the needle, and closing the point with the finger and thumb of the right hand, inject the remainder of the pure water through the screw part that unites needle and cylinder. Then place the wire in the needle, and your instrument is ready for its case, and will be immediately fit for use when required again. These directions may seem trivial, but those who follow them will not be of that opinion.

With regard to the quantity of morphia solution that may be injected, I have had since the publication of this treatise on sciatica some peculiar experience. I mean that I have met with some cases in which such a small dose produced such excessive vomiting that at first I thought I should have had to give up this method of treatment. And, indeed, I should have desisted giving the injection had not the patients invariably declared that, notwithstanding the illness it occasioned, they would still persist in having

the injection, because, as they alleged, it so greatly diminished the pain even forty-eight hours after it was done,* while for some hours it absolutely prevented it. In three of these cases the largest dose that could be given subcutaneously without the infliction of vomiting was the one-twenty-fourth of a grain, so that in each of them I was compelled to make a specially diluted solution, as it would have been difficult to estimate that proportion in case my own solution were employed.

And now I have to consider some few points in connexion with the subject of injection which have not been dealt with before. And firstly, of the question, Does bleeding from the wound inflicted by the syringe tend to render the absorption of the morphia more rapid than it would otherwise be? On this point Dr. J. Harley expresses a distinctly negative opinion; but I am sorry that I must decidedly differ from him, though in a quali-

* In regard to this peculiar inequality in the results of doses, some very interesting observations will be found recorded in Dr. J. Harley's classic treatise, "The Old Vegetable Neurotics," a work published some few years since by Macmillan & Co. Dr. Harley has found the examples in women; our experience is precisely identical.

fied sense. I am distinctly of opinion that, when a small vein—a very minute one, of course—has been opened in the course of injection, a much more rapid absorption of the morphia takes place than usual. It is not felt at the pit of the stomach sooner than usual, for that peculiar sensation is experienced in most cases almost before the withdrawal of the syringe. But when a vein has been opened you have symptoms—though they do not always take place then, but they occur in no other instance—which, in the case of a tyro at subcutaneous injection, are apt to occasion considerable alarm. In the course of half a minute in such cases the blood swarms to the head and face; the eyes are bloodshot, and the face assumes a hue that is almost crimson. The heart and great vessels may be felt beating by the patient—who is somewhat confused—with great distinctness. The action of the blood-current is not accelerated, but the beats of the heart are given with a greater degree of force. But this condition is of but transitory occurrence; it does not last for more than from three to five minutes, and it is rapidly got under by the application of cold water in spongefuls to the head and face.

As I have said, this occurrence does not take place often, even when a good deal of blood is spent, but I have never seen a case where it has occurred unless a vein has been punctured. The circumstance of the patient having eaten not half an hour beforehand does not, either, appear to influence it; though I may here mention that it is always advisable that the patient should have eaten a good meal at least half an hour before the injection, as thereby much of the soporific effect of the drug is prevented.

Another point of interest—though we are not so well able to account for it, unless hypothetically—is the fact that frequently there is no enlargement of the lymphatic glands, but occasionally that these glands are very much swollen. Now, this enlargement has no connexion whatever with the bleeding, for very often, when the hæmorrhage is not stopped for five minutes after the puncture, no lymphatics whatever are swollen; while in other cases, in which we may say there has been no bleeding at all, the lymphatics become swollen to an extraordinary extent. I have noticed these swellings both in the arm and leg, and in some cases, where the quantity injected did not exceed two minims, there was an amount

of swelling of the lymphatic glands, which, I confess when first I saw it, occasioned me some alarm. This generally occurs at about five or seven minutes after the injection has taken place, and it extends in all directions, sometimes at a distance of even five inches from the puncture. It exhibits a series of irregular-shaped swellings of a whitish appearance, at different distances from each other, sometimes large, sometimes small, circular, oblong, and variously shaped, not being in a line, but in different directions around the puncture. As a rule, too, there is no apparent connexion between the puncture and the nearest swelling. They are somewhat like the marks produced by a flea-bite on a person whose skin is thick, but they are often as numerous as though an entire colony of fleas had been at the assault. However, they seldom give rise to any irritation, and then it is extremely slight; while they disappear in from half an hour to an hour.

Morphia, when it has been injected, often produces, as its first effect, a peculiar sensation in the stomach and intestines which it is difficult to explain. A sound may be heard by the injector before he withdraws the syringe, as of *borborygmi*, or motion of the

intestines, accompanied by the passage of gas from one part to another, which gives rise to the so-called "rumbling of the guts." But besides this there is a well-marked feeling of contraction of the stomach, together with a sense of emptiness, and an intense desire for food. This, however, only occurs when the stomach is empty or nearly so at the period of injection. The sense of hunger that is then felt is acute, and is at once relieved by taking food. It is, perhaps, needless to remark that, in such instances, where the injection has been taken fasting, the action of the drug is intensified, but in an especial manner: it operates more particularly on the head, first producing excitement, soon sleepiness, whilst its action is more shortly at an end, and the relief it affords is thus less satisfactory than when the morphia is administered about an hour after the ingestion of a good meal.

And now I must mention an effect of subcutaneous injection of morphia which has occurred in but two of the cases I have seen, and which, till I read Dr. J. Harley's very interesting work, I had thought I was the first to observe; but I find Von Graefe was before me. It is the effect upon the eye; and

in one case it was the right eye, in the other the left one, that was affected. The vision has been perfect before the injection; there has been no difference in the vision of the two eyes; but about five to twenty minutes after the operation one of the eyes may be observed to have its pupil more contracted than the other one; and after about an hour, the two eyes, which had equal pupils before injection, have now two perfectly unequal irides —the one being contracted to this degree, that the two bear the proportion to each other of $1\frac{1}{2}$ to 1. This contraction may last for twelve hours, or may disappear in two. It seems a perfectly normal contraction, being quite uniform. But there are other changes in the eye besides this one. The vision appears to be all right with the two eyes open; at most there is a slight indistinctness of distant objects. But on causing the patient (both patients are males) to close the uncontracted eye, it at once becomes apparent that vision is most seriously affected. He cannot see either near or distant objects distinctly; in most cases he cannot even read a book. And here comes a difference between Von Graefe's cases and mine. He

states* that he had a small number of cases which were affected by morphia injection in a manner similar to those which I have stated. But here is the difference. These cases of Von Graefe's were simply affected after the injection of morphia with shortsightedness, which was immediately relieved by the use of doubly concave glasses. And here I may diverge a little to explain Von Graefe's experience. He states that he made experiments on these as on other cases, and that he found an exact antagonism between morphia and belladonna, or rather atropine. The change of vision produced by the two was totally opposite—which, of course, we might imagine, from one dilating and the other contracting the pupil. But what I wish particularly to indicate is, that he noticed no other effect produced. It was simply that long sight or short sight was caused,† and these could be completely remedied by the use of either convex or concave glasses.

But in my cases the effects are totally different. Here the morphia is introduced at

* There is a brief record of his experience given in the *Medical Times and Gazette*, May 18, 1861.

† The effect he supposes to be caused by antagonistic actions of the two drugs on the tensor choroideæ and the fibres of the iris.

a distance—through either thigh, the effect is the same,—and yet it operates unequally on the two eyes; and on the one that has its iris most closed, not only is vision affected as regards its being lengthened or shortened, but it is completely for the time impaired, so that glasses are not of the slightest value. Neither convex nor concave glasses have any improving effect on the vision. In fact, it would seem that in these cases, which are to my mind most extraordinary ones, vision is sometimes doubled in the one eye, singular as that may appear. Suppose the patient be desired to look at any object,—suppose it to be the name of a shop, for instance. He will tell you that, on looking with both eyes, he sees the name pretty distinctly, but that on gazing at it with the affected one alone, he can see the name perfectly blurred, the letters being arranged in a kind of double fashion, one set pale and the other dark, the former lying behind the latter.

This effect comes on in different degrees at different times, although in one of the cases the patient has been using precisely the same amount of morphia on every occasion. Sometimes it does not appear at all, sometimes it will last for eight hours or more. At

others, half an hour or an hour will terminate the sensation. On some occasions it will render him practically blind of one eye, for he cannot read a line of the newspaper with the affected organ. At other times the effect produced is but slight; and I am bound to confess that I do not yet clearly understand the reason of this singular phenomenon, though I am at the present moment making further experiments on the subject. But of one thing I am sure, and that is, that Von Graefe has not worked out the question thoroughly. And this leads me to consider another subject —the influence of atropia in curing sciatica, —because the action of atropia was found by Von Graefe to be antidotal to the influence of morphia.

And in considering the action of atropia, I must first say a word or two on Dr. J. Harley's experience of this drug. I consider, from the record he has given of his experiments, that they were most thoroughly conducted, and as they were made in a vast number of cases, there is no doubt we must regard them as tolerably conclusive. In this respect it may be remarked that Dr. Harley's conclusions differ in the most decided manner from those of Drs. Mitchell, Moorehouse, and Keen,

(*American Jour.*, vol. i., page 74), and also from those recorded by M. Erlenmeyer (*Archives de Méd.*, 1866). These gentlemen have all studied the effects of morphia and atropia when given simultaneously, and they have arrived at a conclusion—which is still pretty generally believed in in Great Britain,—that the two drugs are absolutely antagonistic. Dr. Harley comes to a conclusion vastly different. Those who are interested in the subject will do well to take up his book, and read the voluminous evidence it affords of the truth of his doctrine that these drugs are not antagonistic. For myself, I may state that I have tried but a few experiments on the subject, but they were conducted on men who knew they were being experimented on. The result of these trials was to convince me of the truth of the view entertained by Dr. Harley, that they are not in the least way antagonistic drugs in their general effects on the body. They may differ in their effects on the pupil; and this, it appears to me, is dependent on which of the drugs has first been engaged in action—that is, if morphia is first injected, you will have contraction of the pupil; and if atropia is first you will have dilatation produced. In other respects there is no opposi-

tion between the drugs—at least, no such antagonism as would justify their being regarded as antidotes one for the other.

But in regard to the sciatica patient, it will be asked, What is your experience of atropia? Is it beneficial? and, if so, how does it compare with morphia? And in answering these queries I must distinctly state at the outset that my experience of atropia is distinctly against its use in cases of sciatica, lumbago, &c. I have tried it in a certain number of cases, and the consequence has oftentimes been painful to witness, whilst under the most favourable instances of its action the result has been far from satisfactory as compared with morphia. In the first place, morphia produces disagreeable effects in an exceedingly small proportion of patients; it generally stimulates the person to whom it is given, so that he absolutely hungers for his ordinary dose. Atropia always produces unpleasant sensations in the head, and a sense of fulness and giddiness. And it also accelerates the action of the heart. This is a fact which I think Dr. Harley merits the credit of having pointed out distinctly. Then as to its action in relieving pain. Who that has had any experience in sciatica can think for a moment of comparing

the effects of the two drugs? The one (morphia), save in a remarkably few cases, produces extreme ease where before there was pain; at the same time it promotes the appetite, and it may induce comfortable sleep in a short time. Does atropia act likewise? Far from it. It does certainly give some relief, but, as compared with morphia, not one-tenth of the amount. Then, again, it disturbs vision, acts on the brain in an unpleasant manner, and produces a feeling of thirst which is the "thirst of the Israelites" compared with the slight dryness of the mouth produced by morphia. There is not observed in the patient who has been injected with atropia any desire for food; indeed, it is generally the opposite. The kidneys are affected, too, by atropia—which, as Dr. Harley has proved, is passed out *entirely*, curiously enough, by the secretion of these glands—whilst it is very seldom indeed that they are influenced by morphia when introduced by the skin.

The only difference that would count in favour of the atropia is the fact that it does not appear to affect the bowels. Morphia we know, in many cases does do so. This is the only respect in which we would prefer atropia to morphia. But when it is remembered that

a compound colocynth pill, with one-eighth of a grain of podophyllin, given at night, will in all cases remove any constipation that may have been produced, this at once removes from the morphia every objection that could be raised against its use.

As to the quantity of morphia that may be endured, in some cases it is certainly extreme. But these are not cases of sciatica, they are cases of cancer, in one of which I have given as much as fifteen grains a day in a series of five injections. And I have heard of another somewhat similar instance, under the care of a professional brother, in which as many as twelve grains of the hydrochlorate of morphia were injected at once; and this was kept up for many months, with the great blessing of nearly perfect daily ease for the poor sufferer. In sciatica, however, it is better to give frequent injections (two, three, or four per diem. in extreme cases) and small doses, than large doses and few injections. The object of the practitioner must be merely the removal of pain, and not the production of heavy sleep. I have rarely had to give more than a grain of morphia, even in cases which have gone on suffering for months before coming under treatment.

Here a word must be said on the subject of death from subcutaneous injection of morphia. It is an extremely rare occurrence; and, so far as I have been able to gather the cases, there is not a single one which has occurred where my precaution is employed—*i.e.*, never to give an injection to a patient *for the first time*, save and except he or she has taken a good meal at least half an hour or an hour previously, and never to exceed in such instances one-sixth of a grain. There have been cases in which a foolish practitioner has given a grain, or even more, of morphia in the first injection, with fatal results; and there have been some instances in which patients who inject themselves * have occasionally—either intentionally or not—committed suicide. Then there is an instance (published in the *Lancet* of December, 1876) of a woman who, through self-injection, produced sores upon her body, which resulted in bringing on traumatic tetanus, of which she died. But surely this is not an argument against the method, whilst

* And here I must most urgently entreat general practitioners never to allow patients to perform injection on themselves. If they be too poor to afford the medical man's fee, let them go to a hospital. In no case should they be permitted to inject themselves.

it enforces the necessity of the medical attendant insisting in every instance on performing the operation of injection either himself or by one of his assistants.

With reference to the general treatment of sciatica, I can hardly say more than I have urged pretty strongly on the reader, in the chapters specially devoted to the subject. I may, however, here repeat that it is essential in all cases to look to the state of the health generally; to keep the bowels open; to see that the patient takes abundance of exercise without producing increase of pain; that he or she is kept thoroughly warm, avoids all excesses, and limits him or her self to cocoa, or chocolate, or milk, instead of tea or coffee, and to spirituous liquors instead of malt or vinous ones. And in concluding this part of my subject, I must say a word on the question of diet. It will be remembered that I laid great stress on the necessity of eating. Here I may say that it is one of the remedies next to subcutaneous injection that I consider of most value. The only objection to it is the difficulty in many cases of carrying it out; and, indeed, this difficulty amounts in some instances to absolute impossibility. It is therefore with much satisfaction that I ob-

serve that a German medical man, Herr Dr. Preltz, of a town in Bohemia (Sutinsky), who, like myself, had suffered from the malady of sciatica for some six months, states that he obtained the best results from keeping the stomach continually at work. He had observed—what, of course, every sufferer from this class of disease has noticed—that immediately after a meal the pain was less. Therefore he thought that by taking a small meal every two hours, night and day, he should find a considerable reduction of pain; and he did so, and was immensely relieved, and the result was a complete cure of his disease in the course of a couple of months, though he suffered afterwards from a chronic gastritis, which he supposes was brought about by the treatment. I also learn from the *Wiener Med. Presse* that he has since had two or three cases which have been similarly successful.

I have not learnt whether Dr. Preltz used cod-liver oil and iron, but I have little doubt that he employed either or both. As a *matter of course* I recommend the two, and *insist* on the use of the liquor ferri perchloridi in from twenty-minim to thirty-minim doses ter die. But on this point enough has been said already.

And now, in conclusion, I must make a few remarks on the treatment of sciatica and lumbago by injections simply of ordinary cold water. In this mode of operation I have not the smallest faith—firstly, because I have never seen an instance of relief by it in others, though I have attempted it in various cases; secondly, because I have tried it upon myself without the least effect. Possibly the reader will say that the reason in the latter case was that "you knew the difference between the two cases [viz., that in which morphia had been administered, and that in which it had not been given], and thus that the mental effect was prevented." But this was not so. I specially took care that the syringe was filled by a second person, who completely concealed from me whether mere warm water or water containing morphia had been employed. Yet in each case I was enabled to tell exactly, in the course of from five to eight minutes, whether the morphia or simply water had been used. Indeed, I could detect the difference at once, before the syringe had been well withdrawn, but I waited after each injection in order to be certain of the actual state of the case; and in no instance did I fail in my judgment.

It has been the same with patients who have been accustomed to the use of morphia subcutaneously, all of whom can tell in the course of a few minutes whether the injection has been morphia or water—nay, they can soon tell you whether you have given them the ordinary or a larger dose. An instance of this, which bears on the case, occurs to me. It was that of a hospital patient, whom, in the hurry of work, I had had injected at about 1 p.m. by one of my clinical assistants. He had been in the habit of receiving daily injections, but on this occasion he came back to me at 3 p.m., and complained that, though the injection had produced a good deal of pain, it had given him no relief whatever. On this statement being made, I asked the assistant who had operated how he had performed the injection, to which he replied that he had done it perfectly well. However, being a little sceptical, I examined the syringe, and found that it leaked badly; so that, in fact, the two or three drops employed did not go into the patient at all, but went out through the side of the syringe. I then injected him myself with my own instrument, and he thanked me warmly, saying, five minutes after the injection, that he felt the effect of the morphia.

Now, this is a fair example, and I could quote many others.

Still, Dr. Lebert, a French physician, and Dr. S. H. Dessau, an American practitioner, state that they found wonderful results from the subcutaneous injection of pure cold water. And this has been not only in neuralgic cases, but — most extraordinary — in those of bad articular rheumatism. In one case, which is recorded as occurring on March 9, 1876,* the patient was one suffering from rheumatic gout, and this disease, which he had had before, was now in a very severe form. "He complained of great pain, both when the joints were moved and at rest." Yet, most strange to tell—especially to those who have had experience of rheumatic gout cases—the physician "injected several syringefuls of cold water" in the immediate neighbourhood of *the joints of the phalanges.* Well, and with what result? Why, simply "*to make the patient feel quite comfortable in about five minutes*"!

As a matter of course, it would be extremely unfair of me to express a belief that this case never had any real existence such as the author makes out. To say such a thing would be ex-

* *New York Medical Journal,* 1876, p. 605.

tremely discourteous—nay, more, it would be absolutely wrong. But as one who is extremely sceptical as to such results, it will not astonish my readers if I say I have a disbelief in its existence. These two conditions are totally opposite—in the one I should have a definite faith; in the other I have no faith, either for or against. And with these few remarks I may now leave the subject of sciatica and its congeners, trusting that we shall find a greater faith in the employment of morphia subcutaneously than I have yet found, although it must in fairness be admitted that the hypodermic injection of morphia is vastly more popular than it was some seven years since.

It may be asked why I have not published an additional series of cases. The answer is short enough, they have all been—with a few exceptions, already referred to—very much alike, and those reported in this volume sufficiently explain the mode of dealing with them and their general histories. I have the reports of about two hundred different examples: some Sciatica, some Brachialgia, and others Lumbago and affections of the thoracic nerves—of the latter many being followed by *Herpes zoster*. But inasmuch as they are instances less or more like those already pretty

fully stated in this volume, I have deemed their reproduction here a needless task. This, however, I must say, that apart altogether from private cases, the experience of nearly ten years in the out-patient department of a large Hospital has forced on me more and more every day the conviction of the great importance of subcutaneous injection of morphia as a remedy for the affections I have dealt with in the foregoing pages.

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