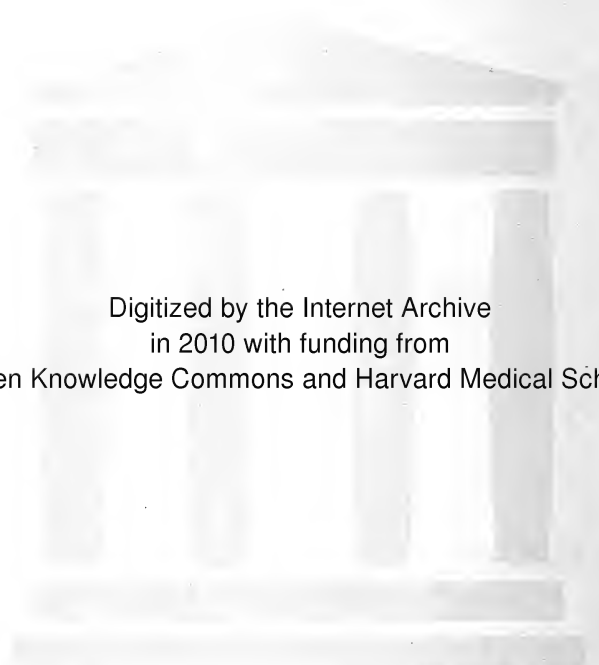




19 of 81.



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SCIATICA



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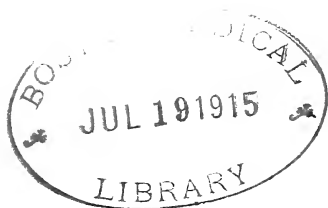
A FRESH STUDY

BY

WILLIAM BRUCE, M.A., LL.D., M.D. (ABER.)

WITH NOTES OF NEARLY 700 CASES

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In Memoriam.

PROFESSOR PETER REDFERN,

OF BELFAST,

QUONDAM LECTURER ON ANATOMY, KING'S COLLEGE
AND UNIVERSITY, ABERDEEN;

ALEXANDER KILGOUR, M.D.,

PHYSICIAN, ROYAL INFIRMARY, ABERDEEN;

AND

WILLIAM ANDERSON GAVIN, M.A., L.R.C.S.E.,

STRICHEN, ABERDEENSHIRE;

WHO TAUGHT ME THE RUDIMENTS OF ANY
SMALL KNOWLEDGE I POSSESS OF THE
SCIENCE AND ART OF MEDICINE.



PREFACE

WITH considerable diffidence, but with implicit belief in the truth of the views as to the real pathology of sciatica which I shall endeavour to explain, I present this short treatise to the attention of my medical brethren. I am well aware of the difficulties I shall have to encounter in trying to convince them that the current explanation of the symptoms of the disease is wrong, and the one which I suggest right. Heresy must ever be unpopular. The human mind, once broken loose from its accustomed moorings and tossed about on the wide waters of discussion, may drift anywhere. A new pathology necessarily implies a different line of therapeutic application, and treatment from a fresh standpoint. It naturally tends to demolish well-established indications, and to unsettle the ideas of the ordinary steady-going practitioner and consultant. The iconoclast must be wary of attempting to break down accepted theories as to the essential nature of the disease he is discussing, unless he can show on solid

substantial grounds the reason for his faith. And, further, he is sure to be met by the objection: "Your views are correct enough as regards a certain limited class of cases, but they do not cover the whole ground. Your explanations are sufficient so far, but they account only for a small number of selected examples of the complaint you are asking us to consider."

Moreover, I cannot claim to have entered on this investigation with an altogether unprejudiced mind. I doubt if, on inquiry as to facts, any of us can quite be sure to have his mental field of vision a *tabula rasa*. All I can say is, I have striven to give an impartial account, as far as it goes, of my observations, leaving nothing out and adding nothing to the real facts as detailed. Though I claim to found my deductions on more than a thousand observed cases of sciatica, I am free to confess the evidence does not entirely confirm my conclusions. I may safely say, however, that the history of the cases of which I have records does go a long way towards such proof.

I do not arrogate to myself special claims for more wisdom than my neighbours. But I may remind my critics that, in the course of a long professional life, to quote a few outstanding instances, I have seen typhus and typhoid placed in separate categories; Addison's disease imported

into our nomenclature ; and appendicitis, as a special complaint, fully recognized and systematically looked for.

I venture, then, to plead for a careful study of the physical evidence of sciatica. I have no doubt the result of such investigations will sooner or later—it may be rather late than soon—confirm the truth of the opinions held by the present writer.

I am glad to take this opportunity of expressing my sense of the obligations I owe to many kind friends in connection with this attempt to explain my views on sciatica. In particular, I wish to mention the names of Drs. Galbraith and Middleton ; Professor Robert Reid and Dr. Calder ; my brother, Dr. Mitchell Bruce, London (for his final revision of the context) ; my sons Alexander and William ; and especially Mr. Watt, who has revised the text and corrected the proofs. I have also gratefully to acknowledge the kind permission of the editors of the *Lancet* to make any use I thought proper of an article by me as published by them on August 22, 1903.

I am also indebted to Messrs. Churchill for a similar favour in connection with the work of Dr. Lawson, and specially to the veteran Sir William Gowers for his leave to make such extracts from his writings as I cared to quote.

With regard to the long tale of cases in Appendix II., after much deliberation I have thought it best to give a list which includes every single case I have met with since my attention has been specially directed to the subject of sciatica.

On the other hand, I quite recognize the want of negative evidence. I have, so to speak, put all my cards on the table, so that an impartial student may have a full opportunity of seeing for himself the evidence on which I have been led to the conclusion as to the true pathology of sciatica. The ultimate verdict I leave, with full confidence, to the judgment of the profession.

WILLIAM BRUCE.

DINGWALL, N.B.

August, 1913.

CONTENTS

CHAPTER I

	PAGE
HISTORICAL SURVEY - - - -	I
SIR W. GOWERS' VIEWS - - - -	2
DR. LAWSON'S BOOK - - - -	12
VARIOUS MEDICAL THEORIES - - - -	26

CHAPTER II

MY OWN THEORY - - - -	32
HILTON ON "REST AND PAIN" - - - -	33
METHODS OF EXAMINATION - - - -	42
THE SCIATIC NERVE - - - -	44
PROFESSOR REID ON THE NERVOUS ARRANGEMENT OF THE HIP-JOINT - - - -	45
CASES TABULATED - - - -	46
DIAGNOSTIC RESULTS - - - -	48
DR. IRONSIDE BRUCE ON X RAYS IN SCIATICA -	58

CHAPTER III

TREATMENT OF SCIATICA - - - -	71
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APPENDICES

I. ANATOMY OF SCIATIC NERVES - - - -	79
II. CASES - - - -	89
BIBLIOGRAPHY - - - -	174

SCIATICA: A FRESH STUDY

CHAPTER I HISTORICAL

THE term "sciatica" implies that the complaint we are considering is connected with particular nerves—viz., the greater and lesser sciatic. I have therefore thought it advisable, in order to help my readers to follow the discussion as to the precise nature of the disease, to give an account of these nerves, with illustrations, supplied to me by my friend, Dr. Calder, Assistant Professor of Anatomy in the University of Aberdeen. (See Appendix I.)

In dealing with my subject, I shall, by way of introduction, proceed to give a résumé of the views of the best-known authors who write upon it, and shall begin with Sir William Gowers, the acknowledged chief authority on diseases of the nerves, of which sciatica, as the name implies, is almost universally believed to be one.

The following is Sir W. Gowers' account of sciatica, somewhat abbreviated ("Diseases of the Nervous System," third edition, 1889, p. 101) :

"As the word 'sciatica' is commonly used, it is a general designation for all affections of which the chief symptom is pain in the region of the sciatic nerve. In a stricter use of the word, however, it is applied to painful affections of the nerve not due to any morbid process outside it ; thus limited, it practically corresponds to inflammation of the nerve. Two varieties may be distinguished, however, according as the process in the nerve is excited by primary disease in its vicinity : 'secondary' sciatica, and 'primary' sciatica, when the pain is the expression of disease beginning in and relating to the nerve itself. Primary sciatica is sometimes regarded as a neuralgia. This view is, in the main, erroneous ; the vast majority of cases of sciatica are really cases of true neuritis.

"Underlying most cases of sciatica is either the state of definite gout or that rheumatic diathesis in which the fibrous tissues suffer, especially those that are connected with the muscles—a form closely connected with common gout by co-existence or descent. It occurs frequently in those who are themselves gouty, who present the personal characteristics of the disease, and have fostered it by their mode of life. It occurs also in those of gouty inheritance, but who themselves have been abstemious, and sometimes present a weakly constitution—thin, pallid, neurotic. The latter have often suffered from acute articular rheumatism in earlier life.

"It is among them that the most severe cases are met with, in which the inflammation spreads to other nerves, or involves the sheath of the sciatic with other structures,

and that it develops early in life—during, for instance, the second fifteen years. This constitutional state, with all its effects, is sometimes met with when there is only trifling evidence of inheritance. Some unknown influence seems to determine its development in intense degree as a congenital tendency, manifested by rheumatic troubles, various and severe, early in adult life—the sporadic occurrence of that which is usually inherited. There is no evidence of a direct causal relation to other constitutional diseases. Syphilis has been supposed in some cases to give rise to it, but the cases are rare, and the common cause can seldom be excluded.

“An exciting cause is to be traced in many of the cases. Exposure to cold is the most frequent. It is usually local exposure, as by wet boots, standing in water, etc. ; sometimes, however, a general chill of the body determines an attack. The exposure to cold may be even more direct, as by sitting on wet grass. Draughty water-closet seats are answerable for some cases. The neuritis often arises by the extension of an adjacent rheumatic affection of the fibrous tissue, especially of that form of ‘lumbago’ which involves the fibrous attachments of the muscles at the back of the sacrum, less commonly in its ordinary lumbar seat. This affection passes down from the sacrum, extending along the fasciæ, to the nerve sheath in the neighbourhood of the sciatic notch ; or passes forwards, over the crest, to the front of the iliac bone, and spreads in the tissues above the lumbar plexus, and descends to that which covers the mass of sacral nerves from which the sciatic proceeds. (The fact is of much interest, because it shows that this form of fibrous rheumatism, of which we have only a very vague pathological conception,

must be regarded as inflammation, since positive neuritis results from it.) The rheumatic pain has usually existed for a few days only before the extension occurs ; but sometimes a chronic affection, after existing as such for several weeks, spreads acutely.

“ Mechanical disturbances sometimes excite the disease, and often co-operates with other influences. The pressure of the edge of the chair, in those who sit much, is the most frequent. Muscular over-exertion, suddenly compressing the nerve in the thigh, is occasionally effective. If the nerve is already tender, a strong contraction of the muscles in the back of the thigh, especially when the knee is flexed and the muscles can freely shorten and widen, may produce acute pain in the nerve, evidently by its compression. This cause is probably effective only in a predisposed person, or when there is already commencing neuritis.

“ Various morbid processes within the pelvis may cause sciatica by compressing the sacral plexus, or by exciting inflammation, which invades the nerve. Rectal and other tumours give rise to progressive pressure, and the inflammation excited descends the nerve, resembling the primary form. It may be an early symptom of a growth springing from the bone, as an enchondroma arising at the sacro-iliac synchondrosis. Pelvic inflammation and injury during labour are occasional causes. A loaded rectum may be the excitant, but is a rare cause, although apt to be recurrent when once effective. Lastly, the sciatic nerve may be secondarily involved in mischief that is outside the pelvis. The most frequent cause of this is disease of the bone, as disease of the hip-joint, especially senile rheumatic inflammation.’ (Gibson.)

“The proclivity of the fibrous tissue of this nerve to suffer primarily is due to its position and the exposure this involves, and to its connections, which facilitate the passage of inflammation to it. But there are cases with a strong disposition for fibrous rheumatism to fix itself in the tissues of the pelvis, sacral, and lumbar regions; the nerves cannot escape implication. Whether the sciatic suffers early or late, in what degree, depends on secondary conditions; but it is specially liable on account of the anatomical relations of its origin. The mass of the ‘sacral plexus’ is prolonged into it, and the membranes covering this and its branches, including the lumbo-sacral cord, are very liable to be the seat of such inflammation, widespread, fixing itself irregularly on the various nerves, but in special degree on the sciatic. In these cases the pain is extensive and often severe in the front of the thigh, but the symptoms of descending neuritis are prominent chiefly in the sciatic.”

Symptoms.—The two nerves suffer with nearly equal frequency, but Gibson found, in his extensive series, that the left was a little more liable, in the proportion of 48 to 44 per cent. In about 7 per cent. both were affected simultaneously—a striking indication of the smaller relative part played by the general blood-state compared with polyneuritis and the preponderant influence of local excitants. The chief symptom of primary sciatica is pain along the course of the nerve trunk, often also along that of its branches. Pain in the area of its distribution is sometimes subsequently developed. The affection may begin suddenly, especially in cases of rheumatic origin—as suddenly as lumbago. Some movements seem to excite but there has usually been slighter rheumatic pain in

the neighbourhood for a day or two, generally about the hip or sacrum. More frequently the onset is gradual ; slight pain is felt along the back of the thigh, on movements and in postures that make the nerve tense or cause pressure upon it. This pain, due to a slight degree of inflammation, has generally existed for some weeks, increasing in degree until a considerable severity is attained, or suddenly becoming intense under the influence of some exposure or over-exertion. At last the patient is easy only when at rest, and when the leg is in a certain posture. Any movement that makes the nerve tense causes pain, and to avoid this the knee, in walking, is kept slightly flexed, and the leg held stiffly so as to avoid stretching the nerve. As the pain on movement increases, spontaneous pain is added, at first chiefly felt in the nerve trunk, but soon spreading to its branches and distribution. It is usually most intense in certain parts—(1) Above the hip-joint, near the posterior iliac spine ; (2) at the sciatic notch ; (3) about the middle of the thigh ; (4) behind the knee ; (5) below the head of the fibula ; (6) behind the external malleolus ; (7) on the back of the foot. The pain may radiate over the whole distribution of the nerve, but it is often so distinctly limited to the course of the trunk and branches that the patient points these out with exactness when he indicates its course. The chief intensity of the pain is usually down the back of the thigh. It may be dull or acute, is often burning in character, and worse at night. It may seem to dart downwards, starting from the highest point. As the pain on movement increases, the nerve trunk becomes extremely tender to pressure. Even before the tenderness becomes considerable in the thigh, pain may often be produced in the

following manner: Let the patient lie on a chair, with the knee at a little more than a right angle, and the body bent forward, so as to lengthen the course of the nerve at the hip- and knee-joints. If the finger is then pressed into the popliteal space, so as to make the nerve a little more tense, a pain is felt in the course of the nerve at the back of the thigh, or above the sciatic notch, and behind the hip. It is due to the sensitiveness of the nerve to tension, and is a very useful test, especially when the part inflamed is high up within the pelvis. It may reveal the affection of the nerve here, by making it more tense, when there is no tenderness to pressure at the back of the thigh.

“Abnormal sensations other than pain are often felt in the area of distribution of the nerve—tingling, formication, and the like; and in severe cases there may be diminished sensibility on the back of the thigh, on the leg or the foot. The affection of sensibility at the back of the thigh indicates that the disease extends up the nerve, above the sciatic notch, to the origin of the small sciatics, or that this is involved in a simultaneous neuritis. In severe cases the muscles supplied by the nerve become flabby, tender to the touch, and sometimes distinctly weak and wasted. This is chiefly noticeable in the calf muscles and in the group supplied by the external popliteal nerve. A tendency to cramp in the muscles is often very marked. There may be an alteration in the electrical irritability, usually a slight increase to each form if it is considerable, and amounts to a distinct degenerative reaction only in very severe cases. Slight fever and corresponding constitutional symptoms may attend an onset that is acute, when the inflammation is

intense. Chronic cases, however, are usually not attended by elevation of temperature.

“The duration and severity of the affection are extremely variable. They depend on its intensity and on the amount of rest given to the limb in the early stage, and on the constitutional state of the patient. The inflammation may be trifling in degree, causing pain on *movement* only, which may pass away in the course of a few weeks. On the other hand, the spontaneous pain may be so continuous and intense that sleep can be obtained only by the help of narcotics, and the disease may continue for many months, and even for a year. In most cases that last more than a year there is partial recovery and relapse. Improvement is shown first by the subsidence of spontaneous pain, followed by the slow diminution of the pain on movement, and then of the tenderness of the nerve. The muscular wasting, which occurs in severe cases, may last long after the active stage is over ; fibrillary contractions in the muscles that have been affected may continue for years, and are often accompanied by a strong tendency to cramp, which may be excited by voluntary contraction. Occasionally a secondary neuralgia is set up, which may be very enduring, may involve the entire length of the nerve, and may be wide in distribution, extending outside the sciatic area.

“The disease is prone to relapse, and still more prone to recur after recovery. A second attack may occur in the same or in the other leg, but both legs are scarcely ever affected at the same time. At last the tendency of the sheath to be inflamed seems to become exhausted, and the liability to relapse to cease.

“The cases of secondary sciatica, depending on disease outside the nerve compressing or irritating it, differ, in some respects, from the primary form. The early pain is felt less in the nerve trunk than in its distribution, especially when the nerve suffers first by pressure; interference with the conducting functions is more conspicuous in the early stage. The primary form may be afterwards closely simulated, because secondary inflammation may descend the nerve and induce the same tenderness of the nerve trunk. The course of the secondary cases is mostly progressive, but it depends on that of the original disease.”

Sir William Gowers insists that sciatica is essentially a neuritis, believing that, as a rule, the disease first attacks the muscular and fibrous structures, and then spreads to the sciatic nerves. The mischief, he says, is usually due to the bad effects of local colds, as by sitting on wet grass or on draughty water-closet seats. He goes on to state that muscular over-exertion compresses the nerve in its course; various swellings in the pelvis, he considers, lead also to pressure on the nerve, such as retained *fæces* or fibrous rheumatism, already spoken of, by implicating the mass of the sacral plexus. He allows that some movements develop the pain, and makes much of the presence of special points in the course of the nerve which show tenderness on pressure. Finally, he quotes some second-hand evidence of the morbid

anatomy of the disease. A careful study of his views must, I humbly think, lead an unprejudiced mind to the conclusion that they do not rest on solid pathological grounds. Are there any really settled facts to prove that there is here a genuine "neuritis"? Gowers' account of the state of the nerve as observed during operations is very vague, and surely not sufficient to warrant a complete and satisfactory pathology. Then, again, granting the presence of fibrositis, is it not more likely that this degenerative process is the result of the diseased action rather than its cause? It is not easy to see how this condition, when formed, is likely to spread to the nerve.

One well may be very doubtful of the supposed bad effects of local cold, etc. I have the best anatomical authority for asserting that the sciatic nerve is carefully and abundantly protected from such injuries. We must remember that the lay mind is too prone to accept such probable explanations. Its mental horizon in judging the relation between cause and effect is necessarily too limited to be trusted.

Again, Sir William Gowers' confident statements as to compression of the nerve by certain violent muscular actions are not at all convincing. On the face of it, they are highly unlikely to be correct. It is almost an insult to Nature to sup-

pose them to be true. While, for reasons which we shall see farther on, certain movements cause pain in the nerve ; yet, on the other hand, pain with the limb at rest is often very decided. Here also I wish to point out that experiments on the cadaver prove that only extreme flexion of the hip-joint causes any stretching of the nerve.

Reverting to the question of neuritis, and Gowers' reference to certain definite points which show tenderness on pressure, I am quite willing to allow he may be correct when he says these are common ; I have rarely found the tender points of the books, and as a rule I have searched for them. There need be no doubt that irritation steadily passing along the trunk of a nerve may in time cause some form of temporary inflammation or a "neuritis" of a kind. But I say again, Where did this irritation originate ? That is what has to be settled.

Further, it is allowed that the reaction of degeneration in the muscles is very uncommon. In histories of attacks of sciatica, likewise, there is no evidence of permanent disability of the nerve (unless it has been stretched purposely), and improvement in the symptoms is often rapid and generally complete, which is surely unlikely if the inflammation of the nerve structures has

been at all protracted so as to produce a genuine neuritis.

Dr. Lawson in his book ("Sciatica," etc., second edition, 1877, part i., p. 3) says :

"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 generalization, 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 often 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 *a 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 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, 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.’

“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.

“In describing the general characters by which the affection may be recognized, 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 minds 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 another. 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 unendurable ; but these alterations, 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 portion 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 worse at night, but a little careful observation will dispel the idea. I would dwell on this point, 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 circumstances 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 have become 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 recognized, 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 2 to 4 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 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.

"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 'etiology' 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 twenty and sixty. Nevertheless, I have met with one case of pure and well-marked sciatica in a boy of fourteen, 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 forty as the pivot of the scale, it will be observed that the majority of instances occur between twenty and forty, and the minority between forty and sixty. Sex presents another determining condition of sciatica. Women are far less subject to this affection than men : I should say pretty nearly in the ration of 1 to 3. The type of female constitution in which sciatica is oftenest met with 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 condition relieves the pain in the direction of the nerve. Under a course of chalybeates and proper injections the case usually gets well, *quoad* menstruation, and the general health 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 es-

pecially 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 *a 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 from '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 sciatic cases the nerve sheath is inflamed, swollen, and filled with a gelatinous fluid. But is this fair? It is less absurd than the generalization of that proverbial Frenchman, who, finding the barmaid of an English hotel red-haired, immediately wrote down, ‘English women 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 that physician who 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."

Dr. Lawson, himself a victim of severe sciatica, makes the strong statement that "the history of the complaint is the record of pathological ignorance," and that sciatica "is often confounded with other maladies."

"Being connected with a supposed degenerate condition of the nerve trunks, it has, with questionable justice, been grouped with that vague class of diseases, neuralgia." He goes on to say that "the starting-point of the pain is mostly at the upper portion of the sciatic," and disputes the statement that the pain is worse at night.

He asserts that flexion of the leg is apt to

become chronic, and that forcible extension would lead to serious rupture of the tissues. Tenderness on pressure over the nerve itself is mostly declared at its upper third, and "will lie along a line of from 2 to 4 inches. Spinal tenderness has not been found to be present.'

Wasting of the limb, he says, is only found in protracted cases, and this atrophy is due entirely to disease of the leg, and is not dependent on the state of the nerve.

He has seen "*very great flattening of the buttock on the affected side.*" "When the patient is made to lie on his belly, the difference will then be *apparent almost at a glance.*" He thinks there is a diminution of sensibility in the affected side, and that this is due to faults in the circulation of the blood.

He goes on to say that improper food is a frequent cause of the complaint. He is very strong in maintaining that the mere fact of the nerve being examined in one or two examples of a not uncommon disease falls very short of proving that it is the rule that "the sheath is inflamed and filled with a gelatinous fluid." "He would like to know that physician who knows when he has reached and perforated the sciatic nerve."

I would beg to draw special attention to what he says of wasting of the buttock on the affected

side as an important confirmation of my own experience, as shown in the illustrations; also that the pain starts in the upper third of the nerve.

He is wrong, in my opinion, in asserting that atrophy of the local muscles is not a striking characteristic of sciatica. To my mind, it shows the intimate connection between the nerves of the hip-joint and those that supply these muscles. Many years ago I had noticed this atrophy in affections of the joint and in fractures in the lower animals. The constant tonic contraction from irritation prevents rest on the part of the muscles, and thus interferes with their proper nourishment.

A study of Dr. Eccles' able book* does not help us to any further knowledge of the pathology of sciatica. He is an implicit follower of Gowers. Neither is anything new to be found in Harburd† nor in Harris's paper,‡ nor indeed in Fowler's.§ All these authors stick to the same well-beaten track of "neuritis," "perineuritis," and so on. Dr. B. Bosanye|| gets out of the difficulty by limiting sciatica proper to cases where there is no hip

* "Sciatica," 1893.

† *Medical Press*, September 28, 1904.

‡ *Clinical Journal*, January 13, 1909.

§ *Practitioner*, 1904, vol. lxxviii., p. 410.

|| *Lancet*, November 24, 1906, p. 1472.

trouble, which he allows is a restricted class. Dr. Verebély refers to swelling of the nerve sheath, and notes the presence of uric acid in the effusion, as also of fat! But the result is scarcely worth referring to, being an example of the sloppiness too common with writers on sciatica. Adam,* in his "Pathology," attempts to take a philosophical view of sciatica; but, I fear, however plausible his explanations when he tries to account for the pain, he fails to leave us with any clear idea of what, after all, one wants to know: What starts the pain? It is inconceivable, if it be really central, that it should come and go as it does, and why there should not be in ordinary cases some distinct physical evidence of local disease in the cord.

Mr. Bowlby,† in a very interesting lecture on pain, refers to sciatica in the following terms: "There is one diagnosis due to referred pain, of which I am even more suspicious than I am of rheumatism — viz., sciatica. What numberless diseases have been lumped together under that misleading title! and how extraordinary it is to see over and over again that so long as a pain can be given a name that is commonly recognized, the patient seems to be perfectly satisfied!" And he

* "Pathology," 1909.

† *Clinical Journal*, February 24, 1904.

goes on to quote a series of cases where the real seat of the pain was not in the sciatic nerve, but outside the nerve altogether.

Wilson, in his "Handbook of Medical Diagnosis,"* after describing the anatomical arrangements of the sciatic nerve, gives the accepted view of the pathology which has been already referred to.

Dr. Shoemaker of Philadelphia, in a lecture on sciatica,† quotes the case of a man of fifty-five years of age, and deals with its pathology, etiology, and treatment in the orthodox manner.‡ "Goldthwait's disease," as it has been called, opens up a new line of inquiry in connection with sciatica. In so far as the symptoms of the complaint in stout, obese women is due to relaxation of the pelvic ligaments, it may be allowed to be present as a rare affection, and one necessary to be kept in mind in examining cases of sciatica.

Three years ago Dr. Welford Harris read a paper before the Medical Society of London on the diagnosis and treatment of sciatica, in which he discussed, in the accepted style, the disease as neuritis of kinds, taking his pathology for granted.

* 1909.

† *Monthly Cyclopædia and Medical Bulletin*, Philadelphia, July, 1909.

‡ *Hospital*, December 11, 1909.

He proceeded on this assumption to classify the complaint as acute and chronic. Once started with a good-going hypothesis, explanation is easy, and the treatment of symptoms can be readily adapted to correspond.

He makes little reference to the physical condition of the affected limb, and I doubt very much if he troubled to make any systematic examination of the part affected. His praises as to the advantage of the use of an air or water bed are much to be commended. The after-discussion elicited no fresh points, and need not be referred to.

Brindley James's plan of treatment belongs mainly to the usual category.

Coming to still later writers of authority, Aldren Turner, and Grainger Stewart's "Handbook of Nervous Diseases,"* may be shortly referred to. They allow that the pain of sciatica is a common accompaniment of osteo-arthritis of the hip-joint, as (they say very truly) brachial neuralgia is frequently associated with a similar affection of the shoulder-joint. They adopt the accepted opinions as to the pathology and etiology of the disease, and likewise of its diagnosis. They speak of altered electric excitability of the muscles, and refer without particulars to the use of the Röntgen rays as bearing on the latter question.

* 1910.

They make a pregnant remark where they say they have seen "sudden turning in bed bring on a relapse more severe than the original affection." Then they go on to recommend the best forms of treatment.

Dr. Alfred Gordon* of Philadelphia, in a very able paper published lately, proceeds to analyze the causes of pain in sciatica, and quotes two cases, differentiating between what he calls "classical" sciatica and "radicular" sciatica. In the latter variety, he says, the distribution of a sensory root in the skin does not at all correspond to the mode of distribution of a peripheral nerve trunk; a lesion within the canal, such as tumour, pachymeningitis, or disease of the bone, may affect only one of the roots of the nerve trunk. Should the sensory root alone be involved, the sensory disturbance will follow a special root or radicular disturbance. Holding these distinctions in mind, he goes on to say they led him to look for the morbid process "not in the sciatic nerve, but higher up towards the sacral plexus." A careful examination of one of these cases led to the discovery of a slight but undoubted enlargement of the sacrum on the affected side, "which evidently compressed and irritated the sensory

* "Diseases of Nervous System," 1908.

branches of the posterior division over the integument of the gluteal region of the sacrum."

I have given Dr. Gordon's views at length, because if they were applicable generally, my main contention as developed at length farther on would fail to be proven. But he must be alluding to a very special, and, I hold, an exceedingly rare, form of sciatica. Referred pains must still be taken as the fair and proper indication both of the precise route and the real origin, through their proper centres, of the pains to be investigated.

Up to this point I have tried, I hope successfully, to give a fair account of sciatica as described in the ordinary textbooks of the practice of medicine, and dealt with in special treatises. I come now to closer quarters with my subject, and proceed to state, as succinctly as I can, the views I hold, and to give the facts and arguments which, in my humble opinion, bear out my contention as to the correct pathology of the disease being essentially *Trouble in the hip-joint*.

CHAPTER II

MY OWN THEORY

SCIATICA is a comprehensive term, and one familiar — perhaps too familiar — both to the patient and to his physician. So much is this the case that I fear many medical men are content with the subjective evidence, and neglect the objective aspects of the disease. Indeed, I can only thus explain the present persistent ignorance, if I may be allowed to use such a phrase, as to its real nature, which seems universally to prevail. It is one of many examples of the dangers of generalizing too much, and of the mistaken idea that if we are able to label a complaint with an appropriate name, we, as a matter of course, know how to cure it. No belief could be more fatal to sound practice, not only in this case, but—I may be pardoned for saying—in that of almost every ailment which affects humanity. In my early days I was content to accept what was the general rule, the patient's or his medical adviser's diagnosis, and without any special local examina-

tion of the affected limb to proceed to treat sciatica by the usual round of waters, baths, and massage.

The first clear indication for treatment I came to see as being imperative was the necessity for rest, and the bad effects resulting from insisting on or allowing exercise or very rough or excessive massage of the limb. I was struck with this peculiarity in a disease which was supposed to depend to a large extent on mental conditions, and which distraction of any kind should usually alleviate. Having thus become convinced of the absolute need for rest, I began to consider whether *sciatica might not be an affection of the hip-joint*. About this time I came across some remarks of a great surgeon, unfortunately no longer with us and science, Sir Jonathan Hutchinson, who was of the opinion that a certain number of cases of sciatica were really due to "trouble in the joint." The next step in the history of the evolution of my opinions was naturally the careful examination of the limbs of patients affected with sciatica.

Following out these views, my mind reverted to a book which had impressed me in my early days more than any other treatise in the whole range of surgical literature—viz., Hilton on "Rest and Pain." I made a careful study of his writings, and became still more convinced that sciatica had its real origin in trouble within the hip-joint. I

cannot do better than quote his weighty remarks. They may not always directly bear upon the subject, yet in spirit they are particularly apposite to my argument, and I trust I may be excused for giving them at some length :

“Pain in any part, when not associated with increase of temperature (the local symptom of local inflammation), must be looked upon as sympathetic pain caused by an exalted sensitiveness of the nerves of that part, and it is to be regarded as a pain depending upon a cause situated remotely from the place where it is felt. In availing ourselves of these so-called sympathetic pains (and no doubt they are in a sense sympathetic pains), I should like to displace, to throw aside, the term ‘sympathetic’ as something too ideal, and would ask you to consider such pains in their obvious, intelligible, and more natural relation. I would ask you to regard them as resulting from some direct nervous communication passing between the part where the pains are expressed, and the real and remotely situated cause of the pain.

“Now, external pain, or pain upon the surface of the body, if properly appreciated, may be considered as an external sign of

some distant derangement. If the pain persists — when it does not depend on any transient cause—it becomes necessary to seek the precise position of the pain ; and, as soon as we recognize the precise position of the pain, we are enabled, by a knowledge of the distribution of the nerve or nerves of that part, to arrive at once at the only rational suggestion as to what nerve is the exponent of the symptom. By following centripetally the course of that nerve, and bearing in mind its relation to surrounding structures, we shall, in all probability—indeed, most likely—be able to reach the original, the producing, cause of pain, and consequently to adopt the correct diagnosis.

“In order to bring in a comprehensive and definite form before you this fact, which is so important on anatomical, physiological, and pathological grounds, I will state it thus :

“The same trunks of nerves, whose branches supply the groups of muscles moving a joint, furnish also a distribution of nerves to the skin over the insertions of the same muscles ; and, what at this moment more especially merits our attention, the interior of the joint receives its nerves from the same source.

“This implies an accurate and consentaneous physiological harmony in these various co-operating structures.

“I shall be able hereafter to trace nerves derived from the same trunk supplying the joint and muscle.

“The object of such a distribution of nerves to the muscular and articular structures of a joint in accurate association is to insure mechanical physiological consent between the external muscular or moving force and the vital endurance of the parts moved—namely, of the joints—thus securing in health the true balance of force and friction until deterioration occurs. If this point of balance or adjustment be over-reached during exertion, pain—Nature’s warning prompter—is induced within the joint, and suggests the necessity of diminishing or arresting exertion. This cessation, or this reduction of exercise, or friction, and pressure upon the articular structures, must be effected by the muscular apparatus of the joint, either through the will, or immediately by its own instinctive efforts, called into play by means of the nervous association. The muscles appear to be told, through the medium of the nerves of the interior of the joint, that its articular

structures are overtasked ; and the antagonistic muscular forces of the joint being thus involuntarily excited, the joint is at once rendered rigid and stiff, for the purpose of keeping it at rest.

“ Without this nervous association in the muscular and articular structures, there would be no intimation by the internal parts of their exhausted function. There cannot be any doubt that it is when this period of functional exhaustion in the internal parts has been reached, and articular friction is nevertheless continued (notwithstanding the structural and functional prostration), that the mischief to the articular structures commences, and disease of the joints, as we term it, starts into existence.

“ Again, through the medium of this muscular and cutaneous nervous association, great security is given to the joint itself by those muscles being made aware of the point of contact by any extraneous force or violence. Their involuntary contraction instinctively makes the surrounding structures tense and rigid, and thus brings about an improved defence for the subjacent joint structures.

“ This articular, muscular, and cutaneous, or peripheral, distribution of the nerves is, in

my opinion, a uniform arrangement in every joint of the body.

“When the interior of the joint is in a state of inflammation or of irritation, the influence of this condition is carried to the spinal marrow, and thence reflected to the various muscles of the joint through the medium of the associated motor nerves, the muscles being supplied by the same nerves that supply the interior of the joint.

“The joints of the human body which are the least likely to suffer from internal injury, or from over-exercise or fatigue, are also the most free from disease. This indicates a probable relation between their freedom from external injury, or from over-work, and their immunity from disease.”

He goes on to say :

“I shall not dwell upon the anatomy of the hip-joint, except to remind you that its muscles perform their functions in groups, that each group has a trunk nerve of its own, and that each nerve contributes a branch to the hip-joint itself. A branch of the anterior crural nerve passes to the hip-joint, a branch of the obturator going to the capsular ligament and to the ligamentum teres, and a branch

proceeding to the posterior aspect of the hip-joint from the sacral plexus, which supplies the gemelli, the quadratus femoris, and the obturator internus. This anatomy should be borne in mind, because it explains how it happens that the remote and sympathetic pains associated with an inflammatory condition or chronic disease of the hip-joint are not always found at the same part of the limb. We all know that in some cases of hip-joint disease one of the earliest symptoms is remote from the actual seat of mischief—namely, pain within the knee or on the inner side of the knee-joint; and we are familiar with the explanation of it—namely, that the obturator nerve, which contributes a branch to the ligamentum teres, sends a branch to the interior of the knee-joint, to the inner side of it, and sometimes even lower down. The inflammation or a diseased condition of this ligament necessarily involves the little branch of the obturator nerve, and a sympathetic pain is produced at the other end of the same nerve, on the other side of the knee or within the knee-joint. As it is frequently with the obturator, so it ought to be sometimes with respect to the other nerves of the hip-joint; but the frequency of this knee

pain, whether within the knee-joint or on its inner side, indicates that the ligamentum teres is the most common seat of early disease."

And again :

"Now, suppose the anterior part of the capsular ligament (which receives a branch from the anterior crural) is inflamed. Applying the same law you will see how it may happen that a patient with a diseased hip-joint may have pain on the front of the knee or on the inner side of the ankle, because the anterior crural nerve sends branches to these particular spots. *Or if the inflammation or injury begins at the posterior part of the capsular ligament, which receives a branch or branches from the sacral plexus, then the patient may have a sympathetic pain actually at the heel or in the foot.* I repeat these remarks in reference to the nervous supply, because an impression, I think, is abroad that the sympathetic pain of hip-joint disease is always on the inner side of the knee-joint, and that this local symptom is essential to a correct diagnosis. This, it seems to me, is not true. I admit its greater frequency, because, as has been already intimated, the ligamentum teres is, perhaps, the part where hip-joint disease in

reality most commonly begins, and this corresponds with the frequent observation of the 'sympathetic' pain on the inner side of, or within, the knee. To put this point more strongly, it sometimes happens in hip-joint disease that there is no pain in the knee-joint at all. (I have seen several such cases.) This local pain, therefore, must be considered as a fortuitous, not a constant, symptom, and not always to be relied upon as indicative of diseased hip-joint."

So much for Mr. Hilton.

In patients the subjects of sciatica, wasting of the muscles of the hip in nearly all cases of the complaint is very decided. Indeed, this atrophy is often as plain as it usually is in tuberculous morbus coxæ, and so, fortified by Hilton, I became still more convinced that the associated set of symptoms known as "sciatica" were the result of reflex irritation originating from troubles in the hip-joint.

Another proof of hip trouble also very frequently present was marked tenderness on pressure over the capsule of the joint, more especially at its upper and back part.

Altogether, I felt justified in a systematic attempt, by close examination of the articulation,

to find out whether my surmises would hold water. So with this view, *I proceeded to examine every patient* I came across *and to keep notes*, which I have printed in an appendix. These are an exact transcript of what I wrote down at the moment I made the examination.

The next step in my investigations was to find out the effect of passive movements in the articulation. For this purpose I carefully scrutinized, and recorded the results, by a deliberate process of local examination, as I shall now proceed to explain.

In examining a patient the subject of sciatica, there is a certain routine which I have found from a lengthened experience to be best, and I would venture to recommend my professional brethren to follow the same method. Ask the patient to lie down, fully dressed, on his back on an even, firm couch; then bending the affected limb at the knee, perform the passive movements of flexion, external rotation, internal rotation, and extension, by Thomas's method, at the hip-joint of the affected leg. If the case be at all recent, one or more of these movements will cause pain, very often sharp pain, as the patient's countenance frequently reveals. Having carefully noted these signs, then ask him to undress, and proceed to inspect the gluteal region. With the patient lying flat on his face and relaxing his muscles,

you note whether there is wasting in this region, or a diminution in the original number of the folds of the nates; and on comparing those of the opposite hip, and the two thighs also together, I venture to confidently predict that in almost every case of sciatica you will discover softening, or wasting and flattening, of the hip muscles, and more or less obliteration of the natal folds of the affected side. With the patient lying on his sound side, you then proceed to inspect the capsule of the hip-joint. In some cases you will find it more prominent on the affected side, and in a very few (but very seldom, for obvious reasons) you may be able to discover that there is increased heat over the joint. The position of the articulation is best made out by making sure of the exact relation of the anterior superior iliac spine and the highest point of the trochanter corresponding to the joint you suppose to be affected. The next thing to do is to examine carefully and without prejudice the presence or absence of tenderness on pressure over the capsule. This investigation has to be gone about keeping in view the fact that the patient is not an impartial witness, so to speak. He is very apt to confound symptoms with signs, and his mind has been so intent on the suffering, say, in his foot, that he refuses to help you in your attempts to discover

the important sign you wish to make out—*i.e.*, whether coxal tenderness be present or absent. When it is considerable, you are independent of his preconceived ideas. In many cases moderate pressure with the point of the thumb over some parts of the capsule causes so much pain that he winces unmistakably. Of course, to make yourself certain, you compare the two sides, and by all means follow the line of the sciatic nerve, and try to discover whether there is, or is not, tenderness on pressure along its course.

On the hypothesis, then, that the true cause of sciatica is trouble in the hip-joint of the leg affected, and that the pains complained of are referred or reflected pains, the following description of the nerves involved, as given me by Dr. Calder, will show by what routes the irritation, starting in the diseased articulation, may travel.

POSSIBLE PATHS OF REFERRED PAIN IN SCIATICA.

1. The pain may be referred from the hip-joint along the articular branch of the nerve to the quadratus femoris, which comes from the fourth and fifth lumbar and first sacral spinal cord segments, back to the cord, and thence along the musculo-cutaneous branch of the external popliteal nerve,

which comes from the fourth and fifth lumbar and first and second sacral spinal segments, to the peroneal region of the leg.

2. It may be referred from the hip-joint along the articular filaments of the great sciatic nerve, which come from the fourth and fifth lumbar and first sacral spinal cord segments, along the branch of the posterior tibial nerve, which comes from the first and second sacral spinal cord segments.

By the great kindness of Professor Reid I am able to quote his weighty statement of the anatomical details of the nervous arrangements of the hip-joint. He says :

“ Suppose the disease [sciatica] is an affection of the hip-joint, associated with rheumatic deposit in the region of the upper and hinder part of the acetabular border, I can quite conceive that the pain in such a case may be a referred pain brought about thus. An articular branch of the hip-joint leaves the fourth and fifth lumbar and the first sacral spinal cord segments. On its passage to enter the back of the joint it lies close to the hind border of the acetabulum, and might easily get involved in mischief there. From the fifth lumbar and first and

second sacral cord segments, cutaneous nerves are divided for distribution in the skin over the peroneal region of the leg. Might not the pain be referred from the articular nerve to those cutaneous filaments? Again, as to the pain in sciatica felt on the skin over the back and inside of the heel, this area has sensation supplied by the calcaneo-plantar nerves, offsets of the posterior-tibial nerves, but ultimately derived from the first and second spinal cord segments. Might not this pain also be referred from the articular branch mentioned above to those cutaneous twigs?"

The series of tables which follow give the result of my observations on certain specified points. As to other particulars, I am sorry I cannot bring forward evidence on the question of employment or profession ; but even if I did, the figures would hardly afford a fair criterion, as naturally only those who could afford to visit a health resort like Strathpeffer would be included, while the poorest class of sufferers (perhaps the most commonly attacked) would be left out. Neither have I evidence to offer as to which leg is the more liable to be attacked, nor, which is really a highly important fact if noted, the presence or absence of lameness of the affected

limb. But in the latter respect inability to make perfect use of the leg may be taken for granted. Lameness is a symptom which is universally allowed to be almost invariably present.

Table I. gives the broad result of 676 cases of sciatica. All came under my direct cognizance, and most of them under my own care and treatment, in the course of twenty-three years' practice. The numbers may appear large, but Gibson has a record of 120 cases seen in Buxton Hospital during a single year.

TABLE I.

Ages.	Males.	Females.	Total.
20-29	17	13	30
30-39	34	30	64
40-49	58	62	120
50-59	100	91	191
60-69	111	62	173
70-79	40	28	68
—	360	286	646
Ages and sex not recorded			29 cases
Grand total			675

It may be remarked that more than half the special cases, and 48 per cent. of 293 not specially noted, showed signs of rheumatism or gout. My impression is that the majority of these were examples of gout ; and so that fact, if

established, points to the conclusion that sciatica is a trouble connected with a particular joint, seeing that gout so frequently affects joints in that way, apparently for the reason that the circulation in these parts of the body is so readily disordered as the result of repeated shocks. The buffer, the interarticular cartilage, proving insufficient to protect the vessels supplying the joint from pressure, the result is slowing of the blood-circulation and a tendency towards deposit of uric acid salts. I take it as undoubted that there is in gout an excess of uric acid in the system, whether from over-formation or from defects in the elimination of this product of metabolism.

TABLE II.

DIAGNOSTIC RESULTS OBTAINED FROM 125 SPECIALLY OBSERVED CASES.

Result of Observations.	Cases.	Per Cent.
Gout or rheumatism	65	52
Lumbago	28	22
Pain on flexion	49	39
Pain on external rotation	48	38
Pain on internal rotation	51	41
Wasting of glutei	49	39
Incomplete natal folds	37	30
Tenderness over capsule	69	55

One or other of these signs was observed in 100 cases, or 80 per cent.

In 39 per cent. (Table II.) there was pain on flexion, in 41 per cent. pain on rotation inwards, and in 38 per cent. on rotation outwards. In only a very limited number was there found manifest distension of the capsule, say, 1 per cent. ; and in a still smaller number—0·25 per cent.—was there any evidence of heat discovered over the joint. In 52 per cent. of the cases there was evidence of gout or rheumatism in other joints, and in 22 per cent. there was evidence of the occurrence of lumbago. In 80 per cent. of the cases taken altogether one or other of the above symptoms was present. A small number of cases which had begun as sciatica had gone on to ankylosis of the joint, and would have been set down as examples of rheumatoid arthritis of the hip.

The ratio shown of males to females is about 4 to 3. The preponderance of males is not nearly so much as I find stated by other observers. For instance, in 124 cases reported by Valleix, the proportion of males is 72 to 52, while Fuller gives as many as 61 to 14. As regards age incidence, I find that the greatest number of cases occur between fifty and fifty-nine years of age, followed closely by those from sixty to sixty-nine years, though no age except the very earliest is exempt from the possibility of attack. With regard to position in life, my own impression is

that it is as frequent amongst the poor as amongst the rich. It would not give fair results to quote my own statistics on this point. This opinion would be decidedly confirmed if we include cases of rheumatoid arthritis of the hip-joint, sciatica being, I believe, merely a preliminary stage of this crippling disease, and one from which the poor, from plain reasons, are likely to be greater sufferers than the rich.

In studying the natural history of sciatica, I was much struck, early in my investigations, by its frequent association with "lumbago." This coincidence will be apparent to the reader who takes the trouble to examine the cases detailed in Appendix II.

What is the explanation of this coincidence? I believe the reason to be this: When trouble begins in the hip-joint the tendency on the part of the patient is to throw the weight of the body off the joint, so as to relieve the pressure in the affected articulation. In this way we get a partial scoliosis, but at the expense of the lumbar muscles, which suffer from the constant strain, and show that they do so by inducing the well-known symptoms of lumbago. And here I may also call attention to the reason why the position of greatest tenderness on pressure over the joint is almost always situated at the upper edge of the acetabulum. It is so

because this is the region where the shock of the weight of the body, when thrown on the hip-joint, falls most strongly, and where also, on long-continued standing, undue pressure is most continuously exerted. We see instances of the former class in the frequent occurrence of sciatica amongst carters and cabmen, and of the latter in the case of architects and artists. Doubtless, also, sciatica in women is often due to the fact that busy matrons have to be for hours almost continuously on their feet.

So much for each of the signs I have brought forward in proof of my contention that the cause of sciatica is trouble in the hip-joint. The reasons are strong individually, but, surely, when taken collectively they are still more cogent. On the assumption that the pain and other symptoms are the result of neuritis, I hold there is a want of physical evidence. There is scarcely any plain proof. At best, though generally accepted, it amounts to very little more than a plausible hypothesis. On the contrary, the fact that in sciatica there is found, as the rule, a set of well-established signs of disease in the hip-joint sufficient to account for the symptoms, is enough, in my humble opinion, to decide the question in favour of this latter contention as against the former. It may be said, "Yes, you have shown that many

cases of sciatica are due to diseases in the hip-joint. But are you justified in affirming that all cases of sciatica are due to this cause?" I believe when it is found that so large a proportion of cases is due to hip-joint trouble, it is philosophical to assume that the remaining cases also belong to the same category. Other explanations are insufficient, and, as I have said, hypothetical. It would be too much to expect that every diseased hip-joint in its *early stages* would show manifest signs under examination so that one could affirm the positive presence or absence of such mischief. Before, however, going on to mention ordinary typical cases, I may be allowed to give a note of what I consider an instructive instance of so-called sciatica. The patient had been ailing for four years, the disease beginning with pain in his back, shooting down his thighs. He consulted a bath physician, took waters, and was systematically douched, with improvement. By-and-by he saw another spa doctor, who cursorily examined him and prescribed some medicine; and so matters went on until he came to me. I had him stripped and properly examined, when I found he could flex his right thigh on the abdomen only to the extent of 90° , rotation was entirely gone, the natal folds were much obliterated, and the glutei wasted, with some wasting also of the muscles of

his thigh. There was still present slight but sufficiently well-marked tenderness on pressure over the capsule of the hip-joint on that side. As regards the left leg, the buttock was much firmer, there was a limited amount of circumduction, flexion being fairly full. Tenderness on pressure over the hip-joint could be easily elicited. Now, here was a man practically lamed for life. I do not hesitate to affirm, from a large experience of such cases, that this double arthritis of the hip-joint, and consequent ankylosis, with a steady course of massage and regulated passive movements, might, if not cured, at least have been greatly stayed in its terrible progress. Why were not these proper means used to secure a happy result? Not, certainly, because the two previous doctors were not as fully competent as myself, perhaps they were more competent, but simply because they had not taken the trouble to examine the patient systematically and thoroughly, misled by an erroneous pathology, and leaning on words, mere words; trusting to books and not to their own brains to keep them right.

But while here the history is plain enough, I think I am entitled to enter a "caveat" that it would be too much, as I have said, to expect that every diseased hip-joint in its early stages should show manifest signs under the various heads pre-

viously mentioned. Sciatica—and this remark, as I have said, applies to other rheumatic joints, such as the knee and shoulder—is apt to come and go after an erratic fashion ; probably this coming and going depending on the varying amount of effusion in the joint.

Another point in favour of my contention is the good effect of rest, on the one hand, and well-directed massage on the other. These are allowed to be infallible indications for the proper treatment of inflamed joints, according to Mr. Hilton. Sir James Paget, at a later date, strongly advocated the same principle. Certainly they ought to be guides in dealing with sciatica, and so far they favour the view that the complaint is arthritic.

So accomplished a physician as Osler advocates very strongly the need for rest to the affected limb, and even goes the length of insisting, in very severe cases, upon the application of the long splint to the affected leg. One wonders how he did not take one step more and come to see that such a support fixes the hip-joint, and by so doing relieves the pain, giving the articulation (just as in so-called strumous disease) the best chance for recovery.

We have seen that there is no proof of any real neuritis of the sciatic nerve ; that there are ample means of communication between the ex-

tremities of the nerves in the joint and the surface of the skin of the leg ; that movements of the joint are often either limited in extent or cause pain, or both ; that the muscles most closely connected with the hip articulation become atrophied ; that there is very often tenderness on pressure over the capsule of the hip-joint, and even some swelling, and occasionally—but rarely for a manifest reason—a feeling of heat imparted to the surgeon's hand ; that sciatica is universally admitted to be related to gout or rheumatism in most patients ; and, lastly, that gout and rheumatism are actually simultaneously present in other articulations.

Most important of all is the fact that in almost every case of sciatica there is lameness of the limb affected. The patient constantly limps when walking. It is true that in a minute percentage of those I have recorded the sufferer has felt better when taking exercise. This can easily be explained on the same principle as that on which properly applied massage gives relief. Does not the surgeon in every other case of lameness of the lower extremities—and, indeed, in every affection of the movements of the upper limb—proceed primarily to consider which of the joint surfaces are diseased ? If, on careful examination, there is found no clear evidence of any trouble anywhere but in the hip

joint, while there is such to be found in that articulation, are we not justified in assuming the cause of the lameness to be connected with this joint, and in considering that sciatica means trouble in the hip-joint, and, as a rule, nowhere else ?

Seeing, then, that trouble of a gouty or rheumatic kind in the hip-joint *does* account for all the signs and symptoms of sciatica, is there any necessity to look for other explanations of the pains ? We have seen that there is no pathological evidence of the presence of neuritis. Neuralgia is too vague a term to found a decision upon. By way of illustrating my contention, may I add that in the course of my studies of the disease I have come across the following cases given by Fuller forty years ago (six in all) in his well-known treatise on "Rheumatism," where, I think, he unconsciously proves that the view of sciatica as originating in the hip-joint is the correct one :

In the first case the patient was "easy when lying down, but the least attempt at motion invariably caused actual pain in the hip, thigh, and leg. The acts of coughing, sneezing, or laughing were also productive of an attack." In the second case "the acts of coughing, sneezing, and the least attempt at motion in bed brought on a paroxysm (and so also did pressure, however slight, in the

course of the nerve)." In the third case (sciatica in both legs) "any attempt at motion gave rise to involuntary starting of the limb." In the fourth case "his easy position was lying on his back in bed with his knee slightly flexed. There was not any tenderness of the nerve on pressure." In the fifth case "the pain extended from the left hip down the ankle, but no specially tender spot could be discovered in the course of the nerve. The pain was of a dull, wearing character, but was much increased by motion and every act of straining, as in coughing, sneezing, and the like." In every case the origin of pain in the joint seems a complete explanation of the symptoms. It is true that he says in one of the cases tenderness on pressure over the nerve was present, though in two cases he says it was absent. That the extremities of the nerves supplying the skin over the course of the main nerve should have been excited, so to speak, in this one instance is surely not to be wondered at, even if the starting-point was in the hip-joint.

In further support of my views as to the real source of the pains in sciatica, I venture to insert the substance of a paper read by my son, Dr. Ironside Bruce, before the Medical Society of London in March, 1905, and published in the *Practitioner* in April of the same year :

“THE RELATION BETWEEN SCIATICA AND
DISEASE OF THE HIP-JOINT.

“In order to obtain such evidence, with a view to demonstrating the truth or otherwise of Dr. Bruce's contention, I have taken from time to time, as opportunity offered, radiograms of the hip-joint in cases of sciatica. Briefly I may say that, in most of the cases offering typical symptoms of old-standing sciatica, I have found demonstrable changes in the joint.

“It must be remembered, however, that the X-ray shadow of the head of the femur and acetabulum being in profile, a radiogram will only show changes in the outline if these changes are present at the upper or lower aspects of the joint. Changes in the anterior or posterior aspects of the joint, if not extending to the upper or lower parts, would therefore not be recognized by this method of examination. In early cases also, when the changes are confined to some inflammatory thickening in the synovial membrane, or to slight deposits of calcareous material or uric acid salts, the alteration in the structure of the joint might be so slight that a radiogram would not clearly demonstrate it. Thus a certain number of cases submitted to examination (early cases of arthritis, or those cases in which the alterations in the structure

of the joint are slight) would not offer clear evidence of an arthritis, which may still, however, be present.

"In order to demonstrate the excellent evidence of chronic arthritis which may be obtained by the use of the Röntgen rays, I wish to draw your attention to a radiogram of the hip-joint of a woman aged thirty-five. The case is one of arthritis deformans, which had presented difficulties in diagnosis.

"The radiogram (Plate IV., Fig. 1) is the joint on the unaffected side; and the radiogram (Plate IV., Fig. 2) is the diseased joint. If the two figures are compared, an appearance of translucency is seen in the latter over the head and upper part of the neck of the femur, which is limited externally by a sharply defined circular margin. This appearance is often seen in similar cases; the diminution of normal opacity is due to rarefaction of bone. There is marked lipping of the acetabulum, and the shortening and thickening of the neck of the femur are well seen. Surrounding the joint there is a certain amount of opacity, which may be accounted for by supposing that there is some infiltration of the capsule and ligaments, opaque to the rays.

"Arthritis of gouty origin may often be demonstrated by the aid of the X ray.*

* Extra number of the *Practitioner* on "X Rays in Diagnosis," Plate XV., Fig. 2.

“Thus it will be seen that chronic arthritis in a deep-seated joint, such as the hip, may be demonstrated in a radiogram, and that gouty as well as other chronic inflammations may be discovered in this way.

“*First Case.*—The first case is that of a man, aged fifty-six, admitted into Charing Cross Hospital under Dr. Abercrombie. He worked as a boiler stoker in a large hotel, and came into the hospital complaining of pain in the left leg, which prevented him from working, and which he described as a burning, shooting pain affecting the whole limb, but particularly the posterior aspect. It was sufficient at times to prevent him from sleeping at night. The pain gradually got worse, and was always worse at night. He could not turn in bed, and even the weight of the bedclothes caused him distress. He said that the only way in which he could get relief from the pain for some time before he came into hospital was to walk with a weight in his left hand. The pain was felt on the surface of the limb over the gluteal region, down the posterior aspect of the thigh, and along the posterior and outer aspect of the leg as far as the ankle-joint. When he was admitted, a diagnosis of sciatica was made, and treatment for this complaint was carried out.

“On examination the muscles of the gluteal

region and thigh were found to be wasted, the patient walked with some eversion of the foot, and was distinctly lame. Passive movements of the hip-joint were free, but semiflexion with rotation inwards and extreme flexion were accompanied by pain. Pressure over the sciatic notch and in the popliteal space gave acute pain, as also did deep pressure over the head of the femur anteriorly.

“Radiograms of both hip-joints were taken. The radiogram (Plate V., Fig. 1) is the joint of the sound side. The outline of the bones forming the joint is clearly defined, and offers a great contrast to the condition seen in the radiogram (Plate V., Fig. 2) which is the joint of the affected side. There is the same appearance of translucency, limited externally by a circular border, which is seen in the radiogram of the case of arthritis deformans (Plate IV., Fig. 2). At the lower part of the outline of the head of the bone, the normal rounded appearance has been replaced by opacities with an irregular outline. Along the upper outline of the joint another opacity is seen in a position corresponding with the margin of the acetabulum, indicating new deposits of bone or other material very opaque to the rays. The digital fossa, instead of being clearly outlined is filled up with opaque material. Ultimately the condition of this patient, owing to

the continued pain, was such as to justify excision of the head of the femur. This operation was carried out by Mr. P. Daniel at the Metropolitan Hospital, and the portion of bone removed shows those changes usually associated with arthritis deformans.

“*Second Case.*—The second case is that of a man, aged fifty, living in extremely good circumstances. He had frequently suffered from attacks of gout in his shoulder. Suddenly one night he was attacked with pain in the region of the right hip, which gradually spread down the whole of the back of the thigh and leg. He compared the character of the pain with toothache affecting the whole limb. While the acute pain lasted, he was quite unable to move even in bed; he could not sleep, and was prostrated by the severity of the pain. Later, as the acute pain subsided, he was able to walk, but with some difficulty. Standing about playing a game like croquet had the effect of greatly increasing the pain. The pain was always worse at night. As a rule he could best obtain relief by sitting down and raising his legs with his feet higher than his head.

“On examination, there was found slight wasting of the muscles of the gluteal region and of the thigh. He walked with a distinct limp, keeping his knee bent. Pain was observed on pressure

over the sciatic notch and in the popliteal space. No pain was caused by deep pressure over the head of the femur anteriorly. The movements of the joint were free. The pain was felt on the surface of the limb along the posterior and outer aspects of the thigh, and over the posterior, external, and anterior aspects of the leg, as far as the ankle-joint. For the purpose of comparing normal with abnormal, refer to the radiogram (Plate VI., Fig. 1), which is that of the normal joint; and Plate VI., Fig. 2, that of the affected joint. In the latter along the upper outline of the joint there is a sharp-pointed excrescence directed upwards from the head of the femur, which nearly reaches the edge of the acetabulum (marked \rightarrow). Opposed to this, from the edge of the acetabulum arises a slight projection of less opacity than the bone from which it springs. The apparent translucency of the outer part of the trochanter is a photographic phenomenon.

“The *Third Case* is that of a charwoman, aged sixty-two, who attended at the Charing Cross Hospital as an out-patient for electrical treatment for sciatica. She stated that she suffered at various times from rheumatic pain in the joints, and lately had been troubled with increasing pain and lameness of the right leg. These pains had been gradually increasing in severity for six months ;

they were always worse after much standing ; they were worse at night, and often prevented sleep ; rest relieved the pains. She also stated that the limb was inclined to give way under her, and that the skin on the outer side of the leg occasionally felt numb.

“On examination, the muscles of the gluteal region and thigh were found to be wasted. Pain was elicited on pressure over the sciatic notch, in the popliteal space, and also over the head of the femur anteriorly. The movements of the joint were quite free. The position where pain was felt was stated to be the posterior and outer aspects of the thigh, and the posterior and outer aspect of the leg below the knee. In this latter position the patient experienced the numbness previously alluded to, but no area of anæsthesia could be demonstrated.

“The radiogram (Plate VII., Fig. 1) shows a normal hip-joint, while that of the affected joint (Plate VII., Fig. 2) shows an obliteration of definition of the normal outline of the head and neck of the femur. The digital fossa is filled up with some opaque material ; and the capsule of the joint is apparently infiltrated with some form of deposit, which is opaque to the rays. There are evidently very considerable changes in the joint.

“*Fourth Case.*—The next case is that of a woman,

aged thirty-two, who attended at the Charing Cross Hospital as an out-patient. She lives in fairly good circumstances, earning her living as a house-keeper. In her history she states that eight years ago she suffered from rheumatic fever. Since that illness she has been on several occasions laid up, for considerable periods, with attacks of acute pain affecting the whole of the right lower extremity. These attacks were diagnosed and treated as sciatica. The present trouble commenced with pain, which at first was felt at the inside of the knee, and afterwards in the hips and groin. The pain gradually increased in severity, and ultimately affected the whole limb. She describes the pain as being throbbing and neuralgic in character. For two years she has walked lame, and has had difficulty in turning in bed and in going upstairs. The pain is always worse at night.

“On examination, the movements of the joint were found to be free, but semiflexion with rotation inwards gave pain. Pressure above the great trochanter, over the sciatic notch, and in the popliteal space, gave pain. The muscles of the gluteal region and of the thigh were wasted. The painful areas on the surface of the limb were the gluteal region, the posterior aspect of the thigh, and the outer and posterior aspect of the leg as far as the ankle.

“By comparing the radiogram of the normal joint (Plate VIII., Fig. 1) with the radiogram of the joint on the affected side (Plate VIII., Fig. 2), it will be seen how striking are the changes which have taken place. The normal outline of the head and neck of the femur has disappeared, and is replaced by an irregular mass of opaque material. Above, this mass is sharply limited internally, where it meets the overgrown rim of the acetabulum. The lower outline of the joint is also deformed in the same way. Considerable disorganization of the structures forming the joint has evidently taken place.”

The fifth case is a plain mistake in diagnosis.

Finally, is it not strange that there is little or no reference in surgical literature to special troubles in the hip-joint apart from those of a tubercular character and general disorders of a septic nature?

When we consider that of all articulations in the body the hip-joint must be the most susceptible of injury—even more so, perhaps, than the knee, seeing that the whole weight of the body is often unfairly thrown upon it—surely we might expect signs of mischief more frequently than is mentioned in the books.

May not the failure to detect disease in this case be due to the fact of the joint lying so deep,

as Hilton says, compared with the knee, of the troubles in which so much is made?

Indeed, on the other hand, if we try to account for the frequency of tubercular disease of the hip-joint, is it not most likely due to the many shocks the articulation suffers from violent impact between the acetabulum and the head of the femur? If this be so, then it is reasonable to assume that a similar injury in a different constitution will equally produce some amount of mischief in the joint.

I may be allowed to add that if there be any truth whatever in the account I have given of my observations in cases of sciatica, it is remarkable that the various writers on the subject do not even mention whether they examined the region of the hip on the affected side of their patient or not. To my mind it is quite clear that such an idea never entered into their heads. For a time my sciatic cases were photographed, with the almost universal result that patient after patient showed clear and unmistakable evidence of wasting of the hip muscles of the limb in which sciatica was complained of. It was, as a rule, quite as decided as one sees it in ordinary tuberculous morbus coxæ. If, then, I am justified in asserting that there was no attempt made to find out whether the hip-joint was affected or not, I think

I am entitled to hold, in the absence of evidence to the contrary, that the articulation *was* diseased. Referring again to rheumatoid arthritis, Dr. Ironside Bruce has shown how easy it is to confound that disease with sciatica. I am inclined to go farther, and to assert they are the same disease under different names. In its early stages, as I have already stated, it is labelled "sciatica," especially if it gets well; in its later, it is called "rheumatoid arthritis," when the X rays or pelvic deposits make the diagnosis unmistakable. In this connection neither Adams, nor, as far as I know, any writer on the disease, has ever attempted to give its complete life-history. How does the disease begin? Clearly the first stage is the most interesting period to scrutinize, if we wish to treat it in the hope of success attending our efforts to make a cure. As Hilton says, the nervous arrangements of the joints are made to warn us of danger. Are not the pains of sciatica just such signals? Take the case of an aged clergyman with acute pain in his hip, lame when walking, and, besides, sleepless from pains in his leg. It is put down as commencing arthritis in his hip-joint. Everything seemed then to point that way; and yet to my surprise the pain disappeared and the limb came to be as useful as ever. Of course, I mistook his case. It was one of sciatica, you say, and perhaps

I told the patient so ; but was not the first opinion correct ?—the explanation being that with rest and rational treatment the trouble in the hip-joint disappeared. Had my friend been a poor working-man, instead of a gentleman who could afford to lie up, and had not sought advice, but had gone on with some hard daily labour, I have no hesitation in saying that in the course of two or three years he would have been going about with one shoulder hunched up and his bad leg describing the arc of a circle instead of being propelled in a straightforward direction. For one ankylosed hip-joint amongst every hundred of the rich there are probably at least ten in every hundred of the poor.

Reverting once more to Hilton and his observations on the difficulty of diagnosing disease of the hip-joint on account of its depth from the surface, I venture again to assert if the poor man had suffered from an affection, shall we say ? of the knee, the chances of his escaping permanent lameness would have been ever so much greater, because, the articulation being so very much more superficial, means would have been applied in time to stop the progress of the mischief ; whereas in the former case, where there was no evident physical sign of disease, only pains coming and going in certain positions, it was allowed to go on unchecked, or worse, perhaps, encouraged to

progress more and more in the wrong direction—to ankylosis of the limb at the hip-joint. I do not wish to draw too lurid a picture of sciatica, but in the course of an unusually long professional life, no rule of conduct has impressed itself more on my mind than the mistaken kindness when dealing with real disease in not facing out the conclusions of a careful and, let me add, conscientious prognosis. That the quack for his own profit should assume the rôle of pessimist is no real reason why the honest practitioner should, instead of foolishly preaching peace when there is no peace, boldly tell his patient the truth, and at the same time warn him of the consequences of disobedience of orders. In this connection, as an old hand, I may be allowed to add that perhaps the most difficult of all rules to enforce is the simple regimen *Rest*, which, as I have said, is the golden rule, as we shall see farther on, in early sciatica.

CHAPTER III

TREATMENT OF SCIATICA

IF a study of the true pathology of sciatica implies some trouble in the hip-joint, then it almost certainly follows that the first indication in the acute stage of the complaint is to secure rest for the "inflamed" articulation. I have endeavoured to show that the irritation in the joint sets up a tonic contraction in the corresponding muscles. Unfortunately for the patient, this leads to a certain amount of restlessness and desire for change of position which is difficult to resist. Like the analogous state of things in the case of fractures, it may be necessary to oppose the spasmodic condition by the application of fixed splints, and by such a remedy as morphia, given by preference hypodermically. Of course, we must keep in view the objections to such a form of treatment. The drug must not be given in excess, which is a danger that need not be incurred, seeing it can be avoided by small and repeated doses. The drawback of inducing

the morphia habit must ever be present to the practitioner's mind, and yet experience has abundantly proved that it is *the* cure *par excellence* for the frequently intense pain suffered at the onset of an attack. Acupuncture and blisters may be used, and seem in some hands to have been beneficial. But with others these means have failed to be of decided benefit, and I confess to feeling personally doubtful of their good effects.

Massage and electricity, it is generally allowed, are contra-indicated at an early period of the illness, although the strongest advocates for the seat of the complaint being in the hip-joint must allow that when the inflammatory period is past these remedies are of the greatest service. In the way of constitutional treatment, antigouty and antirheumatic remedies are recommended equally from both points of view. The use of oil of turpentine has undoubtedly proved of benefit, some say for its purgative effects. But may not this be the result of its diuretic action? This would hold good whether effusion was present in the nerve-sheath or within the capsule of the joint itself.

Speaking of rest and relief from pain, I am inclined to think that of late it has been too much the practice to give the salicyl compounds too freely and those of opium too little. As I

have said, we all know the dangers of the morphia habit, and one cannot be too careful in using such a too-ready weapon in combating pain and yet making sure of due precautions and limiting its use to the surgeon's own hands, and *his alone*. Insisting on the absolute need of asepsis, there is no one remedy to compare with the hypodermic application of morphia for efficacy in this complaint. At the same time it is true that sufficiently large doses of salicylate of sodium (I have myself given 80 grains at one time without any bad effects) or of aspirin are often valuable. May I venture to recommend a combination of morphia, salicylates, bromide of potassium, and chloral, as a useful prescription? With such a jumble of remedies, we avoid the risk of giving a too large quantity of any single one of these dangerous drugs, though, of course, the formula errs, like many others, in affording us no clear indication of the real results of any one medicament in the lot.

With regard to the indications of treatment in the early or acute stages. What had best be done when the disease is less severe, and has become chronic?

First, the constitutional conditions have to be carefully considered; rest has still to be thought of, while a certain definite amount of exercise

must be arranged, and the diet has to be regulated. In connection with a proper diet, I wish to point out that in many, if not in most, cases of sciatica, as the tables I have given show, there is the predisposing element of the constitutional dyscrasia of gout or rheumatism, or both together. What these common complaints precisely stand for is a very moot point.

Speaking generally, they may be described as errors of metabolism, and we cannot be far wrong in assuming that of all the internal organs at fault the chief sinner is the stomach; and yet this viscus is more sinned against than sinning. And so the regulation of food and beverages should play a very important part in the treatment of sufferers from sciatica. Dogmatism on most disputed points is often only a proof of ignorance, and to no subject does this *obiter dictum* apply more frequently than in rules for diet. For example, it is said that much meat, more especially red meat, is to be avoided as an article of food in gout. A very intelligent butcher in one of the largest cities of the Empire told me he was acquainted with almost every fellow-flesher in the town, and that he did not know one single individual who suffered from gout! Add to this that I have seen much benefit from the so-called Salisbury diet in

rheumatic gout. Red meat *per se* is not injurious, but in my humble opinion red meat plus a too free use of starchy and saccharine substances, is frequently a genuine cause of gout. In other words, over-eating is bad. It is often a case more for regulating the *quantity* rather than the *quality* of the food to be allowed. Many years' experience gives me the right to be dogmatic on the question of stimulants. I do not hesitate to say that more gout is brought on, including attacks of gouty sciatica, by the use of alcohol than by all other general mal-influences combined. Therefore, I strongly advise that beer, wine, and whisky (they are injurious, perhaps, in the order I have named) be peremptorily forbidden.

When these matters are settled, then comes the question of drugs and mineral waters. Assuming that in the early stages the usual pharmacopœial remedies, whether tonic or alterative, have been administered *secundum artem*, then the question of having recourse to some health resort naturally arises. The particular spa to select has to be well considered. My experience would lead me to advise, in gouty or rheumatic patients, one of the many sulphur spas in our own country, or Switzerland in summer ; Helouan, or, it may be, those of the Cape or New Zealand in winter.

As regards baths, distinctly hot baths, preferably sulphur, peat, or mud, are often, I have found, of great advantage. Electricity, whether in the form of high-frequency or the continuous current, may prove of service, and ought to be tried in obstinate cases. The Faradaic form had best be avoided. Radiant heat is a highly potent remedy, open, however, to the objection that even when carefully applied it is apt to bring on general feverishness, which I have known to leave bad effects on a particular patient.

Although I have said that Sir William Gowers is too ready to assume the presence of fibrositis as likely to spread to the nerves, and so bring on neuritis, yet I am quite at one with Professor Stockman when he states that such a process or degeneration is apt to affect the muscular structures, more particularly those connected with diseased joints.

In the *Lancet* for April 13, 1913, p. 104, there is an annotation referring to the anatomical basis for the professor's views. It goes on to mention the researches of Mr. K. W. Goadby, who has found a probable microbic explanation of fibrositis.

I mention the contributions of these authors as valuable additions to a true pathology of chronic sciatica, because they afford logical ground for massage in that complaint.

For more than forty years I have been empirically of the opinion of the great value of that remedy in suitable cases of a chronic kind. In agreement with modern views as to the good effects of massage in recent fractures, and its application even when *rest* is absolutely demanded, we must now allow that massage may be carefully and cautiously applied to recent cases of sciatica. But much skill will be needed on the part of the operator, and all forcible manipulations strictly avoided.

As a parting word, I venture to predict that a calm, unbiassed consideration of the true principles of treatment in sciatica, combined with a study of the cases, the notes of which I have given as they were roughly written down at the moment, will go a long way to show, if not absolutely prove, that some trouble, great or small, in the hip-joint squares better with the facts as observed than the present orthodox view that sciatica is primarily a neuritis of the corresponding nerve.

If this be so, then we shall be able to found our practice on a sounder pathology, and be less likely to be led away by reports of cures, the results of over-hasty observations, and supposed to have been brought about by the use of remedies which really and truly had no logical connection whatever as cause and effect.

In conclusion, sciatica, with the exception of some of the commonest ailments, however bad it may appear at first, is, perhaps, the most susceptible of all complaints to the *vis medicatrix naturæ* when not foolishly thwarted but confidently trusted.

APPENDIX I

SCIATICA: ANATOMICAL FEATURES.

Cutaneous Nerve-Supply of Lower Extremity.

POSTERIOR ASPECT.

Gluteal Region.

Anterior portion down to
great trochanter
Middle and posterior por-
tions down to great
trochanter
Posterior portion ...
Lower portion ...

NAME.

{ 1. Lateral cutaneous branch of last dorsal
2. Iliac branch of ilio-hypogastric ...
3. External branches of posterior divi-
sions of upper three lumbar
4. External branches or posterior divi-
sions of upper three sacral
5. Small sciatic ...

ORIGIN.

D., 1, 2.
L., 1.
L., 1, 2, 3.
S., 1, 2, 3.
S., 1, 2, 3.

Thigh.

Outer portion from great
trochanter to middle
of thigh
Middle portion ...
Inner portion ...

1. Posterior branch of external cutaneous
2. Small sciatic ...
3. Internal cutaneous from anterior crural
4. Obturator ...

L., 2, 3.
S., 1, 2, 3.
L., 2, 3.
L., 2, 3, 4.

	NAME.	ORIGIN.
<i>Leg.</i>		
Middle portion to middle of calf	1. Small sciatic	S., 1, 2, 3.
Inner portion ...	2. Internal saphenous from anterior crural	L., 3, 4.
Outer portion ...	3. External saphenous from internal and external popliteal	S., 1, 2.
<i>Sole of Foot and Heel.</i>		
Heel and inner portion	1. Internal calcanean from posterior tibial	S., 1, 2.
Inner portion ...	2. Internal plantar	L., 4, 5.
Outer portion ...	3. External plantar	S., 1, 2.
<i>Toes.</i>		
Outer three and a half...	1. External plantar	S., 1, 2.
Inner two and a half ...	2. Internal plantar	L., 4, 5.
ANTERIOR ASPECT.		
<i>Thigh.</i>		
Upper and inner portion	1. Ilio-inguinal	L., 1.
Upper and middle portion	2. Crural branch of genito-crural	L., 1, 2.
Outer portion ...	3. Anterior branch of external cutaneous	L., 2, 3.
Middle portion	4. Middle cutaneous from anterior crural	L., 2, 3.
Inner portion ...	5. Internal cutaneous from anterior crural	L., 2, 3.

Leg.

	NAME.	ORIGIN.
Inner portion ...	1. Internal saphenous from anterior crural	L., 3, 4.
Upper and outer portion	2. External popliteal ...	{L., 4, 5. S., 1, 2.
Lower and outer portion	3. Musculo-cutaneous ...	{L., 4, 5. S., 1.

Dorsum of Foot.

Inner and posterior portion	1. Internal saphenous from anterior crural	L., 3, 4.
Inner and middle portion	2. Musculo-cutaneous ...	L., 5. S., 1.
Outer portion ...	3. External saphenous from internal and external popliteal	S., 1, 2.

Toes.

Inner side of first, and adjacent sides of second, third, fourth, and fifth	1. Musculo-cutaneous ...	L., 5. S., 1.
Adjacent sides of first and second	2. Anterior tibial ...	L., 4, 5.
Outer side of fifth ...	3. External saphenous ...	S., 1, 2.

Nerve-supply of Hip-Joint.

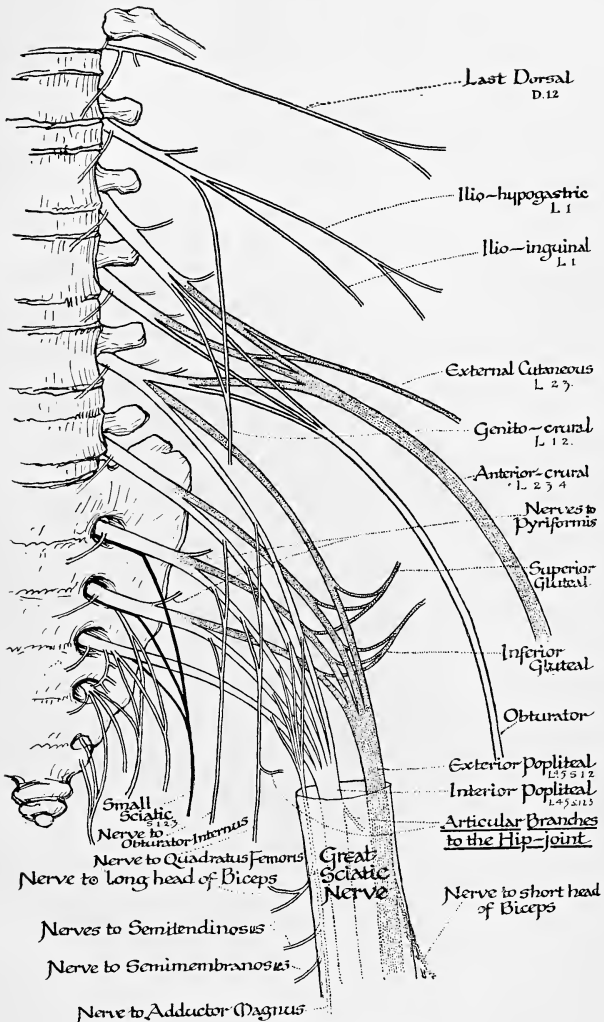
POSTERIOR ASPECT.

NAME.	ORIGIN.
1. Branch from the nerve to quadratus femoris, or direct from sacral plexus	L., 4, 5. S., 1.
2. Branches from the great sciatic nerve, or direct from the sacral plexus	L., 4, 5. S., 1.

ANTERIOR ASPECT.

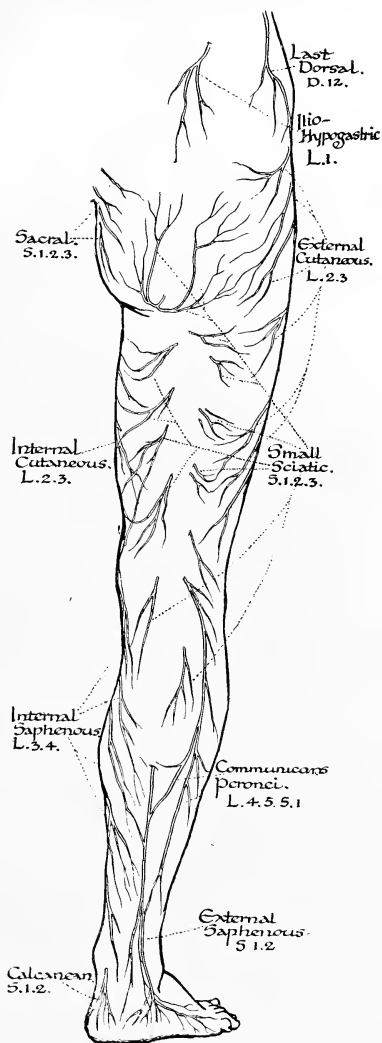
1. Obturator ...	...	...	L., 2, 3, 4.
2. Accessory obturator	...	...	L., 3, 4.
3. Anterior crural	...	...	L., 2, 3, 4.

PLATE I.



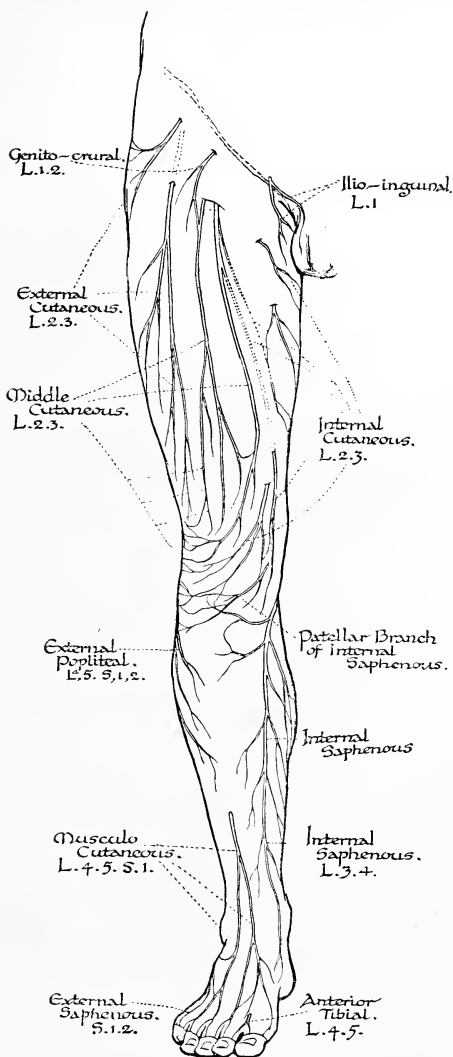
LUMBO-SACRAL PLEXUS

PLATE II.



CUTANEOUS NERVE SUPPLY : POSTERIOR

PLATE III.



CUTANEOUS NERVE SUPPLY : ANTERIOR

To show the connections between the cutaneous nerve-supply of the lower extremity and the nerve-supply of the hip-joint, a description of the origins of these nerves is necessary. As it is the posterior aspect of the joint and limb that concerns us here, we shall confine ourselves to the sacral plexus.

THE SACRAL PLEXUS

It is formed by part of the anterior primary division of the fourth lumbar, the whole of the anterior primary divisions of the fifth lumbar and the first sacral, and portions of the anterior primary divisions of the second and third sacral nerves.

Sympathetic Connections.

Each of these nerves is connected to the lumbar or pelvic sympathetic by grey rami communicantes; and white rami communicantes pass usually from the third and sometimes from the second and fourth sacral nerves to the pelvic plexus of the sympathetic.

Origin from the Spinal Cord and Canal.

These nerves arise from the spinal cord opposite the spines of the eleventh to the twelfth dorsal vertebræ, and proceeding downwards emerge from the spinal canal, the lumbar nerves at the intervertebral foramina between the fourth and fifth lumbar vertebræ and the sacrum, and the sacral nerves at the anterior sacral foramina.

Formation of the Plexus.

The branch of the fourth lumbar nerve appears at the inner border of the psoas magnus, internal to the obturator

nerve, and splits behind the iliac vessels into ventral and dorsal divisions. The anterior primary divisions of the fifth lumbar, after descending over the ala of the sacrum, divides into two also, the branches of the fourth joining them to form the lumbo-sacral cord. The first and second sacral nerves pass horizontally outwards and divide into ventral and dorsal branches, whilst the third sacral breaks up into upper and lower branches, the former alone entering into the sacral plexus. These all converge towards the lower part of the great sacro-sciatic foramen to form a broad triangular band, from the anterior and posterior surfaces of which the nerves to the neighbouring structures arise, and which is continued into the buttock below the pyriformis as the great sciatic nerve.

Distribution of the Plexus.

			ORIGIN.	
			Ventral.	Dorsal.
Nerve to pyriformis	...	...	—	S., 1, 2.
Superior gluteal	...	...	—	{ L., 4, 5. S., 1.
Inferior gluteal	...	...	—	{ L., 5. S., 1, 2.
Nerve to quadratus femoris and inferior gemellus			{ L., 4, 5. S., 1.	} —
Nerve to obturator internus and superior gemellus	...	...	{ L., 5. S., 1, 2.	} —
Small sciatic	...	...	S., 2, 3.	S., 1, 2.
Great sciatic	{ Internal popliteal		{ L., 4, 5. S., 1, 2, 3.	} —
	{ External popliteal		—	{ L., 4, 5. S., 1, 2.

Course of the Branches of the Plexus.

The *superior gluteal* nerve arises from the dorsal divisions of the fourth and fifth lumbar and first sacral nerves. It passes out of the pelvis at the great sacro-sciatic foramen above the pyriformis along with the gluteal artery, immediately dividing into a superior and an inferior branch. The former accompanies the upper branch of the deep division of the gluteal artery and supplies the gluteus medius. The latter crosses the gluteus minimus with the lower branch of the artery, and, after sending branches to gluteus medius and gluteus minimus, perforates the fore-part of the latter to end in the tensor fasciæ femoris.

The *inferior gluteal* nerve arises from the dorsal divisions of the fifth lumbar and first and second sacral nerves. It is closely associated with the small sciatic nerve at its origin. It emerges from the pelvis below the pyriformis, superficial to the great sciatic nerve, and divides up into a number of branches for the supply of the gluteus maximus.

The *nerve to the pyriformis* arises from the dorsal divisions of the first and second sacral nerves. It is occasionally double. It enters the deep surface of the muscle.

The *small sciatic* nerve arises from the ventral divisions of the second and third sacral and the dorsal divisions of the first and second sacral nerves. It passes out of the pelvis through the great sacro-sciatic foramen below the pyriformis. It descends beneath the gluteus maximus, along with the sciatic artery, down the back of the thigh over the long head of the biceps. It lies under the fascia lata till it pierces the popliteal fascia opposite the

knee-joint. Its terminal branches supply the skin of the calf, accompanying the short saphenous vein, and communicating with the external saphenous nerve.

This nerve is entirely sensory, supplying the skin of part of the perineum, lower part of the buttock, back of the thigh, and upper portion of the leg. Its *branches* consist of—

Gluteal are two or three filaments which turn upwards over the inferior border of the gluteus maximus to supply the skin over the lower and outer part of the muscle.

Perineal turn inwards below the ischial tuberosity to supply the upper and inner part of the thigh. The largest of these is the *inferior pudendal*, which curves forwards below and in front of the ischial tuberosity, pierces the fascia lata, and is continued on to the outer part of the scrotum, its terminal filaments communicating with the superficial perineal and inferior hæmorrhoidal nerves.

Femoral arise from both sides of the nerve beneath the fascia lata. They are numerous, and supply the skin of the back of the thigh.

The *nerve to the quadratus femoris* arises from the ventral divisions of the fourth and fifth lumbar and first sacral nerves. It leaves the pelvis through the great sacro-sciatic foramen below the pyriformis, and runs down in front of the great sciatic nerve, the gemelli, the tendon of the obturator internus on the back of the capsule of the hip-joint, to which it sends a filament, and ends in the deep surface of the quadratus femoris, after giving a branch to the gemellus inferior.

The *nerve to the obturator internus* is derived from the ventral divisions of the fifth lumbar and first and second sacral nerves. Appearing in the buttock at the lower

border of the pyriformis, it lies below the great sciatic nerve on the outer side of the pudic vessels. It gives off here a branch to the gemellus inferior, and then turns over the ischial spine, through the small sacro-sciatic foramen, with the pudic vessels to its inner side to enter the pelvic surface of the muscles.

The *great sciatic nerve* is the largest nerve in the body. It directly supplies the muscles of the back of the thigh and the hip-joint, whilst its branches give nerves to all the muscles below the knee, to the greater part of the integument of the leg and foot, and to the other joints of the lower extremity.

The greater part of the sacral plexus is continued into the great sciatic nerve, which divides at a variable level in the thigh into internal popliteal or tibial nerve, and external popliteal or peroneal nerve. In about 15 per cent. of cases these two arise independently from the plexus, and in these the external popliteal usually pierces the pyriformis. On removal of the sheath investing the nerve, the two branches can be traced up to their origin from the plexus, when the external popliteal is seen to arise from the dorsal divisions of the fourth and fifth lumbar and first and second sacral, and the internal popliteal from the ventral divisions of the fourth and fifth lumbar, and first, second, and third sacral nerves.

At its commencement it is a thick band about $\frac{3}{4}$ inch broad, consisting from within outwards of the nerve to the hamstrings, tibial, peroneal, and nerve to short head of biceps. Emerging from the great sacro-sciatic foramen between the pyriformis and the gemellus superior, it passes down to the thigh accompanied by the sciatic nerve, and comes nervi-ischiadic artery, which runs for some dis-

tance in its substance. It descends in the hollow between the great trochanter and the tuberosity of the ischium along the back of the thigh to about its lower third, where it divides into its two terminal branches.

In its course it rests on the ischium, the nerve to the quadratus femoris, superior gemellus, obturator internus, inferior gemellus, quadratus femoris, and adductor magnus. It lies deep to the gluteus maximus and the long head of the biceps, which is closely approximated to the lower edge of the former muscle. The nerve, therefore, is well covered and protected from dangers from without, such as the effects of exposure, cold, and strain. Experiments on cadavera have proved that it is only in extreme flexion of the lower limb on the abdomen that there is the slightest straining of the fibres.

Origin and Course of Nerves to Hip-Joint— Posterior Aspect.

1. The *branch from the nerve to quadratus femoris* is derived from the fourth and fifth lumbar, and the first sacral spinal cord segments. It leaves the nerve as it lies on the back of the capsule of the hip-joint beneath the external rotators of the thigh. This articular branch passes close to the posterior border of the acetabulum to enter the back of the joint. It may pass directly from the sacral plexus to the articulation.

2. The *branches from the great sciatic nerve* are also divided from the fourth and fifth lumbar and the first sacral spinal cord segments. They are filaments which arise from the upper and front part of the nerve near its origin, perforating the posterior part of the fibrous capsule. They often arise directly from the sacral plexus.

APPENDIX II

CASES OF SCIATICA OBSERVED AT STRATHPEFFER FROM MAY, 1889, TO OCTOBER, 1912

Notes of Cases Observed.

No.	Sex.	Age.	
1.	Female.	80.	Gouty condition of ankles ; eyes also affected ; much wasting of glutei ; slight wasting of muscles of thigh.
2.	Female.	66.	Pelvic deposit ; much wasting of glutei.
3.	Female.	70.	Free from pain on lying down, pain in going downstairs.
4.	Female.	50.	Polyarticular gout ; much tenderness on pressure over the capsule of hip-joint.
5.	Male.	68.	Gout in knees—family rheumatic ; fulness and marked tenderness over the hip-joint.
6.	Female.	46.	Arm also affected ; no limitation of circumduction, and no tenderness on pressure over the hip-joint ; cannot put a foot under her when bad.
7.	Female.	60.	Knees rheumatic ; tenderness on pressure over hip-joint.

90 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
8.	Male.	45.	Internal rotation at hip-joint markedly limited; wasting of glutei considerable; very distinct fulness over the articulation, and decided tenderness on pressure.
9.	Female.	73.	Internal rotation limited in extent; external rotation more so. Tension of the muscles in front of hip-joint.
10.	Female.	—	Lameness in affected leg after walking.
11.	Male.	71	Signs of gouty neuralgia from cold; external rotation of hip-joint limited; much wasting of glutei; slight tenderness on pressure over the capsule.
12.	Female.	49.	Rheumatic gout in arm and hip, and some wasting of glutei, and clear tenderness on pressure over the capsule of the hip-joint; an acute attack.
13.	Female.	41.	Rheumatism in shoulder and leg—mother rheumatic; external rotation of hip-joint slightly affected; marked wasting of glutei, with complete obliteration of the folds of the nates; feels as if she would like her leg pulled out.
14.	Male.	56.	Gout in other joints; flexion of leg at one hip-joint imperfect; no distinct wasting of glutei or obliteration of folds of nates in either leg; a little fulness on his right side. Pelvic deposits. Everts the legs, and cannot, though given to hunting, get on horseback; both sides affected. Double case.

No.	Sex.	Age.	
15.	Male.	46.	Toe-joint affected ; imperfect flexion of hip-joint ; marked tenderness on pressure over the capsule in front.
16.	Male.	56.	Some difficulty in rotating the limb internally.
17.	Male.	70.	Rheumatic ; has had gout in his left foot and knees ; some obliteration of folds of nates ; no tenderness on pressure over the hip-joint.
18.	Male.	62.	No history of gout or rheumatism ; never had lumbago ; some tenderness on pressure over the hip-joint.
19.	Female.	60.	Both legs affected. <i>Right</i> , flexion at hip-joint much restricted ; internal rotation not affected ; external much so ; great tenderness on pressure over the capsule. <i>Left</i> much the same ; external rotation incomplete, and some obliteration of folds of nates, but tenderness on pressure over hip-joint not so marked as on the opposite side.
20.	Female.	52.	Gout in fingers ; internal rotation distinctly affected.
21.	Male.	56.	No signs of gout or rheumatism ; slight affection of external rotation at the hip-joint ; no wasting of glutei ; no tenderness on pressure over the capsule. After sitting long must help the affected leg over its neighbour.
22.	Male.	55.	No notes.
23.	Male.	—	Flexion at the hip much affected.

92 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
24.	Female.	48.	Rheumatism in all her joints. Both sides affected to much the same degree; flexion at the hip-joints markedly so, especially on the left; also external rotation; marked tenderness on pressure over the capsule on both sides.
25.	Male.	69.	Mother rheumatic; no tenderness on pressure over the hip-joint.
26.	Male.	35.	Wasting of the glutei muscles, and considerable tenderness on pressure over the hip-joint.
27.	Male.	65.	Has had previous attacks of sciatica.
28.	Female.	56.	Rheumatic gout; mother gouty; occasionally attacks of sciatica.
29.	Male.	56.	Has had acute gouty sciatica five years ago.
30.	Male.	75.	Internal and external rotation of hip-joint much affected; must help bad leg over the other.
31.	Female.	31.	Grandfather on both sides gouty; never had lumbago. Has been in bed for some months. Cannot cross the affected leg over its neighbour.
32.	Male.	61.	Gouty for some years; has had lumbago. External rotation at hip-joint considerably affected; internal less so; flexion pretty complete; decided tenderness on pressure over the capsule.
33.	Female.	50.	Shoulders been bad; external rotation very deficient at the hip-joint; trouble getting into erect position.

No.	Sex.	Age.	
34.	Male.	34.	Flexion, internal and external rotation all right; distinct wasting of glutei, and tenderness on pressure over the hip-joint.
35.	Male.	60.	Rheumatic gout; external rotation at hip-joint very defective; flexion and internal rotation good; some wasting of glutei, and some tenderness on pressure over the capsule; complains of much pain.
36.	Male.	42.	Grandfather gouty and mother rheumatic; both legs affected. Now recovered.
37.	Male.	34.	Arms been troubled; great tenderness on pressure over the hip-joint.
38.	Male.	62.	Nails brittle, and has had lumbago; flexion at hip-joint deficient; some wasting of glutei, and considerable tenderness on pressure over the capsule.
39.	Female.	53.	Flexion and external rotation free; internal rotation rather deficient at the hip-joint; marked tenderness on pressure over the capsule.
40.	Female.	57.	Toes and knees bad; never had lumbago; movements at hip-joint free; slight tenderness on pressure over the capsule.
41.	Female.	40.	Some tenderness on pressure over the hip-joint.
42.	Female.	55.	No notes.

94 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
43.	Female.	66.	Flexion slightly affected ; internal rotation more so at hip-joint ; decided wasting of glutei and obliteration of folds of nates ; much tenderness on pressure over the capsule.
44.	Male.	67.	Flexion and internal rotation free. <i>External</i> rotation decidedly affected at hip-joint ; slight tenderness on pressure over the capsule.
45.	Male.	—	Gout in toe. Tenderness on pressure over the head of the rectus muscle.
46.	Female.	63.	Motions at hip-joint little affected ; slight tenderness on pressure over the capsule ; worse at night, bad also in the morning when she first gets out of bed.
47.	Male.	53.	Flexion and external rotation good, but internal rotation hampered at hip-joint ; some wasting of glutei, distinct obliteration of folds of nates, and decided pain on pressure over the capsule.
48.	Female.	65.	Some wasting of glutei and distinct obliteration of folds of nates ; no tenderness on pressure over the hip-joint. This case was described as neuritis, not sciatica.
49.	Female.	64.	No notes.
50.	Male.	47.	Arms and shoulders been pained ; flexion and internal rotation of hip-joint free, but external rotation much affected ; slight wasting of

No.	Sex.	Age.	
			glutei and considerable obliteration of folds of nates ; a little tenderness on pressure over the capsule.
51.	Male.	37.	No rheumatism, no lumbago ; flexion, internal and external rotation free ; distinct wasting of glutei and obliteration of folds of nates ; slight tenderness on pressure over capsule.
52.	Male.	55.	Both legs affected ; shoulder been troublesome ; has had lumbago. Flexion and external rotation fairly good, but external rotation bad on right and decidedly affected on left at the hip-joints. On the left side much wasting of glutei and obliteration of folds of the nates ; very decided tenderness on pressure over both hip-joints.
53.	Female.	51.	Flexion clearly affected, with some deficiency in internal and external rotation in hip-joints ; slight wasting of glutei and distinct obliteration of folds of nates, with some tenderness on pressure over the capsule.
54.	Male.	67.	Rheumatism in knees ; wasting of muscles of leg, and evidence of pelvic deposits ; has had lumbago. Flexion complete, but internal and external rotation deficient ; no wasting of glutei ; no apparent obliteration of folds of nates.
55.	Male.	72.	Has had lumbago ; hip-joint disease at age of 15. Marked tenderness on pressure over the joint.

96 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
56.	Female.	62.	Flexion and internal rotation deficient; external rotation free; great tenderness on pressure over the hip-joint; cannot move the leg at night.
57.	Female.	72.	Mild case—did well.
58.	Male.	61.	Elbow and knee been bad; marked swelling and pain when lying on the affected side.
59.	Female.	50.	Shoulders, knuckles, and big toe been bad; lies on her back with affected leg straight out and sound one flexed.
60.	Female.	47.	Has had lumbago.
61.	Male.	30.	Some wasting of glutei; distinct obliteration of folds of nates, with marked tenderness on pressure over the hip-joint. Pain on standing and when he lies on the affected side.
62.	Male.	56.	Neuralgia; has had lumbago. Circumduction perfect; wasting of glutei, and some tenderness on pressure over the hip-joint.
63.	Female.	50.	Has had lumbago; a little tenderness on pressure over the hip-joint. Slight case, one day ill.
64.	Male.	59.	Has had lumbago. Exactly the same as No. 62.
65.	Male.	60.	Rheumatism in arms and small toes. Has had lumbago. Faint tenderness on pressure over the joint.
66.	Female.	60.	Big toe-joint; leg wasted and lame.

No.	Sex.	Age.	
67.	Female.	70.	Has had lumbago. Flexion imperfect, external rotation slightly so; no tenderness on pressure over the hip-joint.
68.	Male.	53.	No notes.
69.	Male.	54.	Rheumatic; has had lumbago. Distinct wasting of glutei; slight obliteration of folds of nates; difficulty in tying his shoe-laces.
70.	Male.	65.	Shoulders troublesome; both hip-joints bad.
71.	Male.	61.	Hereditary rheumatism; has had lumbago. Cannot lie on the affected side.
72.	Male.	48.	Flexion much affected at hip-joints; considerable wasting of glutei; slight obliteration of folds of nates; much tenderness on pressure over the hip-joint. A gamekeeper; could not move in bed for two weeks.
73.	Female.	54.	Hand, arms, and shoulders affected; mother rheumatic; circumduction perfect; no tenderness on pressure over the hip-joint; never actually lame; came on suddenly, like tooth-ache.
74.	Male.	48.	Gout in shoulder; has had lumbago. Considerable wasting of glutei; great tenderness on pressure over the hip-joint; pain comes and goes quietly.
75.	Male.	60.	Ankylosis; great deposits on pelvis.

98 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
76.	Male.	76.	External and internal rotation markedly defective at the hip-joint; distinct tenderness on pressure over the capsule.
77.	Male.	60.	Has had lumbago. Internal rotation deficient; external doubtful at hip-joint; decided wasting of glutei, and obliteration of folds of nates; also distinct tenderness on pressure over the capsule, where also there is a local heat with decided fulness over the capsule in front.
78.	Male.	50.	Has had lumbago. Circumduction in hip-joint perfect; some wasting of glutei; tenderness on pressure over the capsule well marked; pain comes and goes quickly.
79.	Female.	50.	Flexion affected, extension and internal rotation still more in connection with hip-joint; distinct wasting of glutei, with well-marked tenderness on pressure over the capsule.
80.	Female.	52.	Slight case, cured by rest.
81.	Male.	60.	Has had lumbago, said to be rheumatism of right hip, one twinge nearly causing fainting.
82.	Male.	60.	Never had lumbago; lameness after a week's golfing; pain at level of trochanter.
83.	Female.	50.	Rheumatism in both arms; flexion, internal rotation affected at hip-joint; considerable wasting of glutei, and obliteration of folds of the

No.	Sex.	Age.	
			nates; very marked tenderness on pressure over the capsule.
84.	Female.	42.	Internal rotation of the hip-joint, much affected; very marked tenderness on pressure over the capsule.
85.	Female.	56.	Cannot extend her right elbow; circumduction of hip-joint not free (a little stiffness); wasting of glutei, with considerable obliteration of folds of nates; well marked tenderness on pressure over the capsule; cannot turn in bed, or put her feet in slippers.
86.	Female.	65.	Flexion at the hip-joint a little imperfect; internal and external rotation complete; some wasting of glutei, and distinct obliteration of folds of nates; no tenderness on pressure over the capsule. Interesting case; getting well before I saw her. Was quite cured.
87.	Male.	42.	Carpenter; marked wasting of glutei.
88.	Male.	50.	Both legs affected. Flexion; internal and external rotation at the hip-joint much affected; some wasting of glutei; well-marked tenderness on pressure over the capsule in both limbs.
89.	Male.	45.	Had rheumatic fever. Flexion and external rotation not much wrong, but internal rotation considerably affected; much wasting of glutei; distinct tenderness on pressure over the capsule.

100 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
90.	Male.	62.	Rheumatism in shoulders ; some wasting of glutei, and distinct obliteration of folds of nates, with considerable tenderness on pressure over the capsule.
91.	Female.	50.	Circumduction at hip-joint perfect ; marked tenderness on pressure over the joint.
92.	Female.	65.	Rheumatism in head and back ; some difficulty in flexion at both hip-joints, with a little change in the folds of nates, and slight tenderness on pressure over the capsule.
93.	Female.	56.	Has had lumbago. Flexion at hip-joint imperfect ; marked tenderness on pressure over the capsule. Has to help her leg up in getting into a carriage.
94.	Male.	65.	Some wasting of glutei, with obliteration of folds of nates ; slight tenderness on pressure over the hip-joint.
95.	Male.	45.	Flexion at hip-joint rather imperfect ; slight wasting of glutei ; some pelvic thickening ; pain in the back of leg ; improved by treatment.
96.	Female.	64.	Has had lumbago. Flexion and internal rotation at hip-joint much affected ; very marked tenderness on pressure over the capsule. Cannot put the right over left leg.
97.	Female.	65.	Sister gouty. Rheumatism in fingers and neck ; flexion imperfect at hip-joint.

No.	Sex.	Age.	
98.	Male.	56.	Has had lumbago. Rheumatism in arms and legs ; flexion and internal rotation affected at both hip-joints.
99.	Female.	60.	No notes.
100.	Male.	61.	Gout in fingers ; distinct tenderness on pressure over the hip-joint.
101.	Female.	52.	Flexion at hip-joint somewhat affected ; distinct tenderness on pressure over the capsule.
102.	Female.	66.	Has had lumbago. Some pain and resistance on rotation of limb at the hip-joint ; difficulty in lifting legs.
103.	Male.	60.	Rheumatism in shoulders and forearm ; internal rotation markedly imperfect, external less so ; flexion perfect at hip-joint ; much wasting of glutei, and obliteration of folds of nates, with marked tenderness on pressure over the capsule.
104.	Male.	40.	Rheumatism in arms ; has had lumbago ; considerable wasting of glutei, and obliteration of folds of nates ; some tenderness on pressure over the hip-joint.
105.	Female.	60.	Has had lumbago. Decided tenderness on pressure over both hip-joints ; double sciatica.
106.	Male.	60.	Heberden's nodes ; uric acid gravel ; at hip-joint circumduction perfect ; slight obliteration of folds of nates ; no tenderness on pressure over the capsule. A mild case.

102 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
107.	Male.	69.	Flexion impaired ; internal rotation more, and external still more, affected at hip-joint ; marked wasting of glutei ; some obliteration of folds of nates ; doubtful tenderness on pressure over the capsule. Had a limp, which he lost.
108.	Male.	63.	Father rheumatic. Some wasting of glutei, as also of muscles of thigh.
109.	Female.	67.	Circumduction at hip-joint nearly perfect ; decided tenderness over the capsule.
110.	Female.	39.	Has had lumbago.
111.	Female.	80.	Internal rotation at hip-joint affected, but not flexion or internal rotation. A doubtful case of sciatica.
112.	Male.	53.	Has had gout, but not lumbago. Slight deficiency of external rotation at hip-joint, with wasting of glutei and obliteration of folds of nates ; slight tenderness on pressure over the capsule. Regained complete circumduction.
113.	Female.	60.	No notes.
114.	Female.	52.	Sudden attack ; regained complete circumduction at hip-joint.
115.	Female.	62.	No objective sign of any kind.
116.	Male.	53.	Knees rheumatic ; pain on walking ; decided tenderness on pressure over the hip-joint.
117.	Female.	46.	Could not lift right hand ; pain

No.	Sex.	Age.	
			inside hip-joint ; flexion there affected to a certain extent, external rotation more so.
118.	Male.	58.	Has had lumbago. Flexion perfect ; extension painful at hip-joint, worse on getting into bed.
119.	Female.	72.	Flexion and extension both affected at hip-joint. Has been in bed six days. Got quite well.
120.	Female.	55.	Father gouty. Internal and external rotation at hip-joint somewhat affected ; some wasting of glutei ; some tenderness over capsule ; complains of pain in her buttock and difficulty in moving her leg.
121.	Female.	44.	Rheumatism in legs and arms. Slight difficulty in internal rotation at hip-joint ; marked tenderness on pressure over the capsule. Left much better.
122.	Female.	70.	Gout in toe-joint. Flexion at hip-joint distinctly affected with wasting of glutei and obliteration of folds of nates ; much tenderness on pressure over the capsule ; indefinite pelvic deposit.
123.	Male.	62.	Rheumatism in knees and ankles ; has had lumbago. Slight trouble in flexion at the hip-joint ; tenderness on pressure over the capsule ; numbness down the leg.
124.	Male.	75.	Much gout in knees and shoulders.

104 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
125.	Female.	62.	Rheumatism in left shoulder ; knuckles thickened. Flexion and internal rotation much affected at hip-joint, with wasting of glutei and obliteration of folds of nates ; marked tenderness over the capsule ; complains only of her knees.
126.	Female.	40.	Gouty eczema.
127.	Female.	70.	Has had lumbago.
128.	Female.	70.	Fourteen years ill. Both legs affected.
129.	Female.	54.	Diabetic ; has had lumbago.
130.	Male.	40.	Has had lumbago. Difficulty in turning over when lying down ; decided tenderness on pressure over the hip-joint.
131.	Male.	38.	Has had lumbago.
132.	Female.	60.	Gout in toes ; altogether lame.
133.	Female.	70.	Complains of weakness in her back.
134.	Female.	32.	Gout ; rides a good deal.
135.	Male.	40.	A baker ; shoulder rheumatic.
136.	Male.	35.	No notes.
137.	Female.	54.	Heberden's nodes.
138.	Male.	45.	Has had lumbago.
139.	Male.	65.	External rotation imperfect.
140.	Male.	57.	No improvement.
141.	—	—	No notes.
142.	Male.	57.	Brothers rheumatic. Decided tenderness on pressure over the hip-joint.
143.	Male.	41.	Two years ill ; will not take rest.

No.	Sex.	Age.	
144.	Male.	28.	Knees and ankle affected.
145.	Male.	63.	Gouty eczema.
146.	Female.	54.	Left knee rheumatic ; rheumatism in shoulders ; has had lumbago.
147.	Female.	40.	Distinct tenderness on pressure over the hip-joint.
148.	Male.	54.	Acute case.
149.	Male.	47.	Tenderness on pressure over hip-joint, which disappeared under treatment.
150.	Female.	75.	Rheumatic.
151.	Female.	52.	Been three years ill ; seemed to be a case of rheumatoid arthritis. Father and mother rheumatic.
152.	Male.	62.	Both legs affected.
153.	Male.	62.	Decided tenderness on pressure over the hip-joints.
154.	Male.	72.	Uric acid gravel ; decided tenderness on pressure over the hip-joint.
155.	Male.	54.	Both legs affected.
156.	Male.	56.	Both sides affected ; has had lumbago.
157.	Male.	30.	Been six years ill. Rheumatism in shoulders and neck ; marked tenderness on pressure over both hip-joints.
158.	Male.	56.	Gout in hands and feet.
159.	Male.	29.	Five years. Slight gout ; recovered.
160.	Male.	67.	Slight wasting of glutei ; no decided tenderness on pressure.

106 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
161.	Male.	40.	Has had lumbago ; operated on afterwards, and adhesions said to be found.
162.	Female.	53.	Rheumatic gout.
163.	Female.	53.	Nerve stretched fourteen years ago.
164.	Male.	38.	Considerable tenderness on pressure over hip-joint ; has enlarged lymphatic glands in neck.
165.	Male.	50.	Has had lumbago ; no evidence of gout. Nervous.
166.	Male.	70.	History of gout ; double sciatica.
167.	Male.	46.	Knees rheumatic ; distinct tenderness on pressure over the hip-joint.
168.	Male.	50.	Rheumatism in arms and pain in toes. Had eczema when a boy.
169.	Female.	55.	Marked tenderness on pressure over the hip-joint.
170.	Male.	40.	Shoulder and mucous membranes of nose affected.
171.	Female.	65.	Three months ill. Shoulder affected ; eczema last year.
172.	Female.	30.	Much wasting of leg ; distinct tenderness on pressure over the hip-joint.
173.	Female.	53.	Pain in walking.
174.	Male.	44.	Glutei much relaxed ; slight tenderness on pressure over the hip-joint.
175.	Male.	25.	Great wasting of glutei.
176.	Male.	36.	Great wasting of glutei ; no tenderness on pressure over the hip-joint ; pain below the knee in golfing.

No.	Sex.	Age.	
177.	Male.	43.	Toes swollen, and cannot shut his hands.
178.	Male.	70.	Lame.
179.	Male.	29.	Very marked tenderness on pressure over the hip-joint.
180.	Female.	52.	Flexion painful ; tenderness on pressure over the sacrum.
181.	Male.	46.	No notes.
182.	Female.	57.	Began fifteen years ago ; pain in outside of leg.
183.	Female.	51.	Lame.
184.	Female.	46.	Began five years ago. Pelvic thickening ; distinct pain on pressure over the hip-joint.
185.	Female.	46.	Began sixteen years ago. No tenderness on pressure over hip-joint, nor wasting of glutei.
186.	Male.	60.	No notes.
187.	Female.	62.	Been two months ill ; has had rheumatic gout. Some wasting of glutei ; sudden onset. Both legs affected.
188.	Female.	50.	Gout in the family ; slight case.
189.	Female.	43.	Has had acute gout. Heberden's nodes ; swelling.
190.	Male.	59.	Rheumatic affection of eyes ; has had lumbago attacking left sacro-iliac joint. Tenderness and wasting of leg.
191.	—	—	No notes.
192.	Male.	58.	Has had lumbago and eczema. Both sides affected.

108 SCIATICA : A FRESH STUDY

No	Sex.	Age.	
193.	Female.	53.	Gout in hand ; has had lumbago.
194.	Female.	72.	Suffered from rheumatism.
195.	Female.	45.	Rheumatism in knee.
196.	Male.	55.	Said to be cured by electricity.
197.	Male.	72.	Very marked tenderness on pressure over the hip-joint.
198.	Female.	50.	Both knees and hips affected ; has had lumbago.
199.	Male.	55.	Left shoulder troublesome ; has had lumbago.
200.	Male.	33.	Sacro-iliac joint affected ; relieved by walking.
201.	Male.	35.	No notes.
202.	Male.	70.	Cannot stretch himself out ; very decided tenderness on pressure over the hip-joint.
203.	Male.	52.	Tension and fulness at the hip-joint.
204.	Male.	49.	Considerable wasting of glutei ; tenderness on pressure over the hip-joint.
205.	Male.	60.	Some pelvic swelling.
206.	Female.	54.	Shoulder affected by rheumatism.
207.	Female.	60.	Limitation of circumduction at hip-joint ; obliteration of folds of nates ; tenderness on pressure over the trochanter.
208.	Female.	43.	"Cruel pain."
209.	Female.	55.	Lame.
210.	Male.	52.	Tenderness on pressure over the hip-joint.

No.	Sex.	Age.	
211.	Male.	47.	No tenderness on pressure over the hip-joint.
212.	Female.	42.	No notes.
213.	Male.	65.	No notes.
214.	Female.	55.	Muscular rheumatism ; sudden difficulty in walking.
215.	Male.	50.	Tenderness on pressure over the hip-joint.
216.	Female.	51.	Tenderness on pressure over the hip-joint.
217.	Female.	52.	Wasting of glutei.
218.	Male.	35.	Circumduction perfect ; some tenderness on pressure over the hip-joint.
219.	Female.	50.	Rheumatism in right arm ; tenderness on pressure over hip-joint.
220.	Female.	40.	Rheumatism in knees ; has had lumbago.
221.	Male.	36.	Not worse after walking.
222.	Male.	56.	Old case. Chronic lumbago ; nervous ; limb starts.
223.	Female.	60.	Three years ill ; pain very acute.
224.	Male.	50.	Wasting of glutei, and some obliteration of folds of nates ; decided tenderness on pressure over the hip-joint.
225.	Male.	50.	Wasting of glutei, and obliteration of folds of nates ; tenderness on pressure over the hip-joint.
226.	Male.	50.	Slight case.
227.	Female.	45.	Slight case.

110 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
228.	Female.	70.	Senile. Some tenderness on pressure over the hip-joint.
229.	Male.	58.	Wasting of glutei well marked; no tenderness on pressure over the hip-joint.
230.	—	—	No notes.
231.	Male.	45.	Decided wasting of glutei, and obliteration of folds of nates; no tenderness on pressure over the hip-joint.
232.	Male.	43.	Tenderness on pressure over the hip-joint.
233.	Female.	54.	Shoulder affected; wasting of glutei; ankle swollen.
234.	Male.	50.	Considerable tenderness on pressure over the hip-joint.
235.	Female.	40.	Wasting of glutei; doubtful tenderness on pressure over the hip-joint.
236.	Female.	43.	Slight case.
237.	Female.	72.	Both legs affected; has had lumbago; decided tenderness over both hip-joints.
238.	Female.	41.	Three years ill. Shoulder affected; internal rotation at hip-joint incomplete.
239.	Male.	35.	Shoulders ache; some difficulty in circumduction at hip-joint; cannot stand upright; wasting of glutei; tenderness on pressure over capsule.
240.	Female.	64.	Some limitation of power of circumduction; tenderness on pressure over the sciatic nerves on both sides.

APPENDIX II

III

No.	Sex.	Age.	
241.	Female.	50.	Has had lumbago; limitation of powers of circumduction at hip-joint; throbbing pain when she walks.
242.	Female.	27.	A teacher. Both legs affected; had tenderness on pressure over hip-joint, now gone.
243.	Male.	60.	Pain in peroneal region of leg.
244.	Male.	55.	Result of an accident. Distinct obliteration of folds of nates; some tenderness on pressure over the hip-joints.
245.	—	—	No notes.
246.	Female.	61.	History of old sciatica.
247.	Female.	50.	Fifteen years bad. Neck cracks on movement; cannot lie on the affected side; some tenderness on pressure over the hip-joint.
248.	Female.	71.	Has had lumbago. Difficulty when lying down in turning; cannot cross bad leg over its neighbour.
249.	Male.	47.	Sudden attack. Hanging affected limb causes pain, as does lying on affected side; cannot put on stocking; easiest when leg extended.
250.	—	—	No notes.
251.	Male.	69.	Tired by walking; decided wasting of glutei, as also tenderness on pressure over the hip-joint.
252.	Male.	68.	Attack eight years ago, well now.

112 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
253.	Male.	51.	Has had lumbago. Some wasting of glutei; fulness and heat felt over the hip-joint, and excessive tenderness on pressure; some sacro-iliac tenderness also on pressure.
254.	—	—	Both legs affected; difficulty and pain when lying down, on turning the body; decided wasting of glutei, and some tenderness on pressure over the hip-joint.
255.	Male.	69.	Some numbness and giddiness. Slight case.
256.	Male.	69.	On right side slightly, also on left; marked wasting of glutei; some tenderness on pressure over the hip-joint.
257.	Female.	49.	Gout and eczema; never had lumbago. Slight case.
258.	Female.	30.	Began a month ago; shoulders very rheumatic. Slight case.
259.	Female.	35.	Sacro-iliac tenderness on pressure; considerable tenderness on pressure over the hip-joint.
260.	Female.	55.	Right shoulder troublesome; tenderness on pressure over hip-joint; exertion hurts, and causes pain in front of tibia.
261.	Female.	50.	Has had rheumatism in knee.
262.	Male.	35.	Ill for a year. Trouble in shoulder; "gout on nerves."
263.	Female.	63.	Swelling of finger-joints; marked tenderness; winces on pressure over hip-joint.

APPENDIX II

113

No.	Sex.	Age.	
264.	Male.	61.	Hip-joint, no tenderness on pressure in that region; obliteration of folds of nates.
265.	Female.	35.	Gouty swelling above ankle; tenderness on pressure over the hip-joint.
266.	Male.	59.	No general rheumatism; marked wasting of glutei; tenderness on pressure in front of capsule of hip-joint.
267.	Male.	23.	Three months ill. Has had lumbago, he says, from sprain; been three weeks in bed.
268.	Male.	60.	Knee and foot both swollen; knee gives him most trouble.
269.	Female.	65.	Ill fifteen years ago; has now gout in fingers and toe-joints.
270.	Male.	59.	Excessive tenderness on pressure over the capsule of hip-joint.
271.	Female.	55.	Ill two years ago. Subject to gouty pains. As a result of stretching nerve, loss of power to lift her leg.
272.	Male.	70.	Old case. Been troubled with eczema; has had lumbago.
273.	Female.	42.	Brothers and sisters rheumatic gout. Difficulty when lying down in turning her body; internal rotation at hip-joint affected; considerable wasting of glutei; trouble began in her back; some tenderness on pressure over the capsule of joint.

114 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
274.	Male.	40.	Has had sciatica twice, now free from pain ; acute gout in toe and knee.
275.	Male.	60.	Father's family had gout ; has had lumbago. Wasting of glutei, but not great ; difficulty in internal rotation of hip-joint ; marked tenderness on pressure over the capsule ; suspicious pelvic thickening.
276.	Female.	30.	Has had lumbago ; much tenderness present on pressure over the hip-joint.
277.	Male.	78.	Gouty knobs on fingers. Slight case.
278.	Male.	62.	Rheumatism in shoulder ; has not had lumbago ; no limitation of circumduction, but difficulty in taking off boots ; great wasting of glutei, and excessive tenderness on pressure over the hip-joint.
279.	Male.	52.	Circumduction at hip-joint affected ; great wasting of glutei ; distinct fulness, and marked tenderness on pressure over the capsule of joint.
280.	Male.	70.	Has had lumbago ; very decided wasting of glutei ; also some wasting of the muscles of the thigh. A weak old man.
281.	Male.	50.	No notes.
282.	Female.	60.	Relapse after five years ; slight case.
283.	Female.	66.	Wasting of the glutei ; swelling ; pelvic deposit.

No.	Sex.	Age.	
284.	Female.	80.	Ill for some years ; both legs affected, right ankylosed ; very decided wasting of glutei and thigh ; pelvic deposit.
285.	Female.	70.	Twelve months lame ; free from pain when lying down ; pain in going down stairs.
286.	Female.	50.	Well-marked case of gout in her hip-joint ; almost every joint in her body affected ; very marked tenderness on pressure over the hip-joint.
287.	—	—	Result of an accident ; much better.
288.	Male.	68.	Gamekeeper. Gouty knees and marked pain on internal rotation at hip-joint ; very decided tenderness on pressure over the capsule, which seems distended.
289.	Female.	46.	Arm affected ; no limitation of circumduction. When bad, cannot put a foot under her.
290.	Female.	50.	Knees very rheumatic ; tenderness on pressure over the hip-joint.
291.	Male.	45.	Flexion very imperfect ; pain on external rotation at the hip-joint ; much wasting of glutei ; distinct fulness at, and great tenderness on pressure over the capsule.
292.	Female.	73.	Some trouble in external and internal rotation at hip-joint ; muscles very tense in front of the capsule. Difference of opinion as to the exact nature of the illness.
293.	Female.	—	Lameness after walking.

116 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
294.	Male.	71.	Gouty myalgia from cold ; pain in external rotation at the hip-joint ; wasting of glutei ; some tenderness on pressure over the capsule.
295.	Female.	49.	Rheumatic gout in feet. Numbness in arms ; rheumatism in hip-joint ; some wasting of glutei, and distinct tenderness on pressure over the capsule.
296.	Female.	41.	Rheumatism in arms and leg ; mother rheumatic. Some difficulty of external rotation at the hip-joint ; wasting of glutei, and some obliteration of folds of nates. Feels as if she would like to have her leg pulled out.
297.	Male.	56.	Three weeks ill. Gout in other joints ; flexion imperfect, more on one side than the other, at hip-joint ; external rotation impossible ; a little pelvic thickening on right side. Cannot get on horseback. Both limbs affected.
298.	Male.	46.	Swelling of toe-joints. Flexion imperfect at hip-joint ; marked tenderness over front of capsule. Massage did no good—distinctly aggravated the pain.
299.	Male.	56.	Some difficulty in rotating the hip-joint outwards.
300.	Male.	70.	Gout in left foot and rheumatism in knees. Much obliteration of folds of nates ; no tenderness on pressure over the hip-joint ; some pain on thigh and calf of leg after exertion.

No.	Sex.	Age.	
301.	Male.	62.	No gout or rheumatism ; never had lumbago. Decided obliteration of folds of nates ; some tenderness on pressure over the hip-joint.
302.	Male.	60.	Both joints ; right flexion and internal rotation at hip-joint imperfect. Left flexion and internal rotation affected ; great wasting of glutei ; considerable tenderness on pressure over the capsule.
303.	Female.	52.	Eight years bad. Heberden's nodes ; deficiency in internal rotation at hip-joint.
304.	Male.	56.	Nearly three years ill ; no gout or rheumatism. External rotation at hip-joint decidedly affected ; no wasting of glutei or tenderness on pressure over capsule ; must lift right foot over left if sitting long.
305.	Male.	55.	Wasting of glutei ; decided obliteration of folds of nates ; considerable tenderness on pressure over the hip-joint.
306.	Male.	—	Flexion at hip-joint not complete.
307.	Female.	50.	Shoulders rheumatic. Internal rotation at hip-joint much affected ; troubled in standing erect.
308.	Female.	48.	Double case. Flexion on right somewhat affected, external rotation more so at hip-joint ; tenderness on pressure over the capsule decided. Flexion of left nearly perfect ; considerable tenderness on pressure over capsule on that side.

118 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
309.	Male.	69.	Ill for two years ; some gout and rheumatism. Mother rheumatic ; father no rheumatism.
310.	Male.	35.	Wasting of glutei ; evident tenderness on pressure over the hip-joint. Great difficulty in walking at first.
311.	—	—	Old case.
312.	Female.	64.	Rheumatic gout ; mother gouty. Occasional attacks.
313.	Male.	56.	First attack.
314.	Male.	75.	Circumduction affected both on right and left sides at the hip-joints ; some wasting of glutei on left ; no tenderness on pressure over the capsule on either side ; cannot lift the one leg over the other.
315.	Female.	31.	Ill for three years ; grandfather on both sides gouty ; no history of lumbago. On her back for some months ; had to lift the one leg over the other with her hands.
316.	Male.	61.	Gouty for some years ; has had lumbago. Flexion unaffected ; internal rotation somewhat, and external rotation decidedly, impaired at hip-joint ; much tenderness on pressure over the capsule.
317.	Male.	34.	Six months ill. Clear wasting of glutei, and decided tenderness on pressure over the hip-joint.

No.	Sex.	Age.	
318.	Male.	60.	History of gout and rheumatism. Some wasting of glutei, and also some obliteration of folds of nates ; a little tenderness on pressure over the hip-joint. Suffers great pain.
319.	Male.	42.	Grandfather gouty ; mother rheumatic gout. Both legs affected ; now quite recovered.
320.	Male.	34.	Arms troubled ; some tenderness over the lumbo-sacral articulation ; very decided tenderness on pressure over the hip-joint.
321.	Male.	62.	Nails brittle ; has had lumbago. Flexion in both hip-joints imperfect, more so in the right ; some wasting of glutei ; decided obliteration of folds of nates ; undoubted tenderness on pressure over the capsule, but doubtful fulness. Improved much.
322.	Female.	55.	Rheumatism in legs and arms. Internal and external rotation considerably impaired at the hip-joint ; wasting of glutei and obliteration of folds ; great tenderness on pressure over the capsule.
323.	Female.	44.	Rheumatism in legs and arms. Some difficulty of internal rotation of hip-joint ; decided tenderness on pressure over the capsule.
324.	Male.	55.	Rather gouty. Neither internal or external rotation of hip-joint ; glutei free ; distinct wasting of glutei folds ; no obliteration ; some

120 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			tenderness on pressure over the capsule ; fixed pain in buttock. Could not put his heel down.
325.	Female.	59.	Toes and knees bad ; has not had lumbago. Some tenderness on pressure over hip-joint.
326.	Female.	40.	Distinct tenderness on pressure over the hip-joint.
327.	Female.	55.	No notes.
328.	Female.	66.	Some difficulty, and more in internal rotation of hip-joint ; distinct wasting of glutei and obliteration of folds of nates, as also tenderness in pressure over the hip-joint.
329.	Male.	67.	Impaired power of internal rotation in hip - joint, with some tenderness on pressure over the capsule.
330.	Male.	—	Gout in toe. Tenderness on pressure over the head of the rectus.
331.	Female.	63.	Four months ill at this time ; bad five years ago. Doubtful wasting of glutei ; distinct tenderness on pressure over the hip-joint.
332.	Male.	53.	Internal rotation decidedly affected at hip - joint ; clear wasting of glutei and obliteration of the folds of nates, with decided tenderness on pressure over the capsule.
333.	Female.	65.	Slight wasting of glutei and obliteration of folds of nates. Told she was suffering from neuritis.

No.	Sex.	Age.	
334.	Female.	64.	No notes.
335.	Male.	47.	Pain on forcible extension, and great difficulty in internal rotation of hip-joint; some wasting of glutei, and obliteration of folds of nates; distinct tenderness on pressure over the capsule; left Strathpeffer much better.
336.	Male.	37.	Three months ill. No rheumatism; some wasting of glutei, and obliteration of folds of nates; restless when first goes to bed; left Strathpeffer improved.
337.	Male.	55.	Both legs affected; has had lumbago; left limb some trouble in flexion, none on the right; external rotation very deficient on left, less so on right at the hip-joint; marked wasting of glutei on left side, much less on right; folds of the nates much obliterated, with very marked tenderness on pressure over both capsules; gets into upright position very stiffly.
338.	Female.	51.	Fourteen weeks ill. Decided difficulty in flexion; also of internal and external rotation of the hip-joint; slight wasting of glutei; marked tenderness on pressure over the capsule; left Strathpeffer improved.
339.	Male.	67.	Sudden attack four years ago, slight seizure. Rheumatism in knees; has had lumbago, and some difficulty in complete flexion, and

122 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			more of internal and external rotation (which causes pain) on hip-joint; wasting of muscles of leg; no tenderness on pressure, but undoubted pelvic deposits.
340.	Male.	72.	Ten months ailing. Has had lumbago; decided tenderness on pressure over the hip-joint; had hip-joint disease when fifteen years of age.
341.	Female.	62.	Long ill. Some difficulty in flexion, more of external rotation; marked tenderness on pressure over the hip-joint; cannot move her leg at night.
342.	Female.	72.	Mild case; did well. Rheumatic pains.
343.	Male.	61.	Pain in elbow and right knee; external rotation affected, internal much more so at hip-joint; some wasting of glutei, and obliteration of folds of nates; some swelling of hip affected, and pain when lying down.
344.	Female.	50.	Shoulders, knuckles, and big toe painful; tenderness on pressure over both hip-joints; difficulty in getting into bed; both legs affected.
345.	Female.	47.	Began a year ago; has had lumbago.
346.	Female.	70.	Off and on twenty years bad; toe-joint been inflamed; flexion imperfect; no external rotation possible; internal rotation incomplete at hip-joint; some wasting

No.	Sex.	Age.	
			of glutei ; distinct obliteration of folds of nates ; decided tenderness over capsule ; some pelvic deposits. Improved by treatment.
347.	Male.	30.	Five months ill. Some wasting of glutei, and distinct partial obliteration of folds of nates, as also tenderness on pressure over the hip-joint ; pain when standing up, and when he lies on the affected side.
348.	Male.	56.	Has had lumbago ; external rotation at hip-joint incomplete ; some wasting of glutei, and decided tenderness on pressure over the front of the hip-joint.
349.	Female.	50.	Ill for years. Has had lumbago ; some tenderness on pressure over the hip-joint. Slight case ; quite well in a day or two.
350.	Male.	59.	Seven weeks in bed. Has had lumbago ; nothing imperfect in circumduction at hip-joint ; some wasting of glutei ; decided tenderness on pressure over the hip-joint.
351.	Male.	60.	Bad two years ago. Rheumatism in arm, small toes swollen, has had lumbago ; some difficulty in complete flexion and internal rotation of hip-joint ; doubtful wasting of glutei, and distinct tenderness on pressure over the hip-joints. Both legs affected. Improved with spa treatment.

124 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
352.	Female.	60.	Leg wasted ; lame.
353.	Female.	33.	Knee-joint hot and swollen ; leg wasted ; quite lame ; both hip-joints affected.
354.	Male.	62.	Rheumatism in ankles and knees ; has had slight lumbago ; full flexion imperfect ; tenderness on pressure over right hip-joint, none over left ; numbness down his legs. Improved with spa treatment. Double case.
355.	Male.	75.	Hands slightly gouty, knees much affected ; external rotation at hip-joint distinctly interfered with ; much wasting of glutei ; no tenderness on pressure over the capsule. Cured case.
356.	Male.	53.	Ill three months ago. Shoulder bad. Left Strathpeffer much improved.
357.	Male.	44.	Four weeks ill. Has had lumbago occasionally for twelve years back ; distinct wasting of glutei, as also considerable obliteration of folds of nates ; decided tenderness on pressure over the hip-joint ; no fulness of capsule ; difficulty in tying shoe-laces.
358.	Male.	65.	Shoulders rheumatic ; ankylosis in both hip-joints.
359.	Male.	61.	Hereditary rheumatism ; has had lumbago. Left leg flexed and everted from injury ; cannot lie on the affected side.

No.	Sex.	Age.	
360.	Male.	48.	Keeper ; three months ill ; could not move in bed for two weeks. Wasting of glutei, and considerable obliteration of folds of nates, with marked tenderness on pressure over the hip-joint.
361.	Female.	54.	Hand, arm, and toe - joints all affected by rheumatism ; no impairment of circumduction at hip-joint—never actually lame, came on suddenly, like toothache.
362.	Male.	48.	Gout in shoulders ; has had lumbago ; distinct tenderness on pressure over the hip-joint. Left improved by spa treatment.
363.	Male.	60.	Hip-joint completely ankylosed with pelvic deposit.
364.	Male.	76.	Interference with full internal and external rotation of the hip-joint ; decided tenderness on pressure over the capsule.
365.	Male.	60.	Twelve months ill ; has had lumbago. Full external rotation hampered, and painful at the hip-joint ; some wasting of glutei, and considerable obliteration of folds of nates ; decided tenderness on pressure over the capsule.
366.	Male.	50.	Has had lumbago ; distinct deficiency in full internal rotation of the hip-joint ; decided wasting of glutei, also obliteration of the folds of nates ; great tenderness on pressure over the capsule ; pain comes and goes quickly.

126 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
367.	Female.	50.	Long duration. Deficiency in full external rotation at hip-joint; wasting of glutei; distinct tenderness on pressure over the capsule.
368.	Female.	52.	Slight case; cured by rest.
369.	Male.	61.	Began slowly; some pain in groin; twinge, nearly fainted; has had lumbago, said to be rheumatism, in right hip.
370.	Male.	60.	No gout or lumbago; pain in ball of heel; lameness for a week after golfing.
371.	Female.	50.	Rheumatism in both arms; full flexion, and internal rotation at hip-joint decidedly affected; wasting of glutei, folds of nates not so distinct; very great tenderness on pressure over the capsule; left Strathpeffer better.
372.	Female.	42.	Full external rotation at hip-joint much restricted; very great tenderness on pressure over the hip-joint.
373.	Female.	56.	No notes.
374.	Female.	65.	Slight pain on flexion, no interference otherwise with circumduction at hip-joint; some wasting of glutei and distinct partial obliteration of folds of nates; no tenderness on pressure over the capsule. Interesting case; getting well before beginning spa treatment.
375.	Male.	42.	Carpenter. Some limitation of full external rotation at hip-joint; decided wasting of glutei on the right side, less on left; marked

No.	Sex.	Age.	
			tenderness on pressure over capsule, both sides, more on right than left. Long helpless; double case.
376.	Male.	50.	Full flexion much affected; very marked tenderness on pressure at hip-joint over capsule. Improved by spa treatment, but still great tenderness of hip-joint persisted.
377.	Male.	45.	Three weeks ill. Full flexion and internal rotation, but some trouble in external rotation at the hip-joint; decided wasting of glutei and much obliteration of folds of nates; decided tenderness on pressure over the capsule. Improved by spa treatment.
378.	Male.	62.	First attack; been two months bad; shoulders long ago rheumatic. Some wasting of glutei and obliteration of folds of nates; tenderness on right, none on left side in hip-joints. Began suddenly on lifting a cask; difficulty in turning in bed and putting one foot before another.
379.	Female.	50.	No interference with circumduction of hip-joint; decided tenderness on pressure over capsule. Improved by spa treatment.
380.	Female.	65.	Rheumatism in head, throat, and back. Full flexion difficult in both hip-joints; much obliteration of folds of nates; some tenderness over the capsule. Back troublesome; slight case.

128 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
381.	Female.	56.	Has had lumbago. Full flexion at hip-joint impossible; external and internal rotation unaffected; considerable wasting of glutei, as also obliteration of folds of nates; decided tenderness on pressure over the capsule. Has to help her leg up in getting into a carriage.
382.	Male.	60.	Circumduction at hip-joint not affected; decided wasting of glutei, as also obliteration of folds of nates; distinct tenderness on pressure over the capsule.
383.	Female.	65.	Sister gouty. Pain on taking a high step; some pelvic thickening; pains in back of leg.
384.	Female.	64.	Has had slight lumbago. Full flexion, external and internal rotation at hip-joints much affected; doubtful wasting of glutei; very distinct tenderness over the capsule. Cannot put right foot over the left.
385.	Male.	45.	Five months since attacked; six weeks in bed; previous seizure ten years ago. Full flexion and external rotation much affected, but internal rotation complete at hip-joint; no evident wasting of glutei or obliteration of folds of nates; tenderness on pressure over the capsule very decided. Cannot put right leg over the left.
386.	Male.	56.	Rheumatism in arms and legs; has had lumbago six or seven times. Slight stiffness in circumduction at hip-joint.

No.	Sex.	Age.	
387.	Female.	60.	No notes.
388.	Female.	62.	Left shoulder rheumatic. Heberden's nodes; knuckles thickened; full flexion and internal rotation at hip-joint much affected, not so external rotation; wasting of glutei and obliteration of folds of nates; decided tenderness on pressure over the capsule. Complains only of knee.
389.	Female.	32.	Complains of shoulder and suffers from pleurodynia. Only tender on pressure over the hip-joint.
390.	Female.	66.	Gout in toe-joint; some pain and resistance in circumduction at the hip-joint.
391.	Male.	60.	Six years bad; suffers from rheumatism; pain in shoulder and forearm; never had lumbago. Decided impairment of rotation, internal and external, at hip-joint; some wasting of glutei and obliteration of folds of nates; very decided tenderness on pressure over capsule.
392.	Male.	40.	Rheumatism in arms. Some wasting of glutei and obliteration of folds of nates, and distinct tenderness on pressure over the hip-joint. A slight case, cured by spa treatment.
393.	Female.	60.	Has had lumbago. At the hip-joint circumduction complete; tenderness over both capsules; quite decided double case.

130 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
394.	Male.	66.	Two months ill. Heberden's nodes in two or three fingers ; at hip-joint circumduction unaffected ; folds of nates somewhat obliterated. Mild case ; getting better.
395.	Male.	69.	Uric acid gravel ; knees, rheumatic gout. Full flexion slightly affected ; external and internal rotation at hip-joint considerably affected ; much wasting of glutei ; folds of nates obliterated to a certain extent ; doubtful tenderness on pressure over capsule. Left Strathpeffer, having lost his limp, and much improved.
396.	Male.	69.	Heberden's nodes ; full extension hurts, otherwise circumduction at hip-joints unaffected. Very decided tenderness on pressure over capsule.
397.	Male.	63.	Been ill for a year ; father rheumatic. Right side, full flexion decidedly affected, internal and external flexion much more so ; left flexion same as right, but internal and external rotation altogether incomplete. No tenderness on pressure over capsule. Improved by spa treatment.
398.	Female.	67.	Circumduction unaffected ; some wasting of glutei ; decided tenderness on pressure over the hip-joint.
399.	Female.	30.	Has had lumbago.

No.	Sex.	Age.	
400.	Female.	80.	Decided affection of internal rotation at hip-joint ; flexion and external rotation normal ; doubtful case.
401.	Male.	53.	Acute attack for three days ; previous seizures twelve and six years ago ; never had lumbago. Full internal rotation at hip-joint brings on pain ; some wasting of glutei and obliteration of folds of nates. Distinct tenderness on pressure over the capsule.
402.	Female.	60.	Sacro-iliac pains ; lame.
403.	Female.	52.	Very sudden seizure ; all movements of limb affected at hip-joint ; internal rotation decidedly affected, also external ; doubtful tenderness on pressure over trochanter on left leg.
404.	Female.	62.	No objective sign of any kind.
405.	Male.	53.	Knees rheumatic ; mother rheumatic. Full circumduction at hip-joint complete ; decided tenderness on pressure over the capsule.
406.	Female.	46.	Twenty-five years bad ; could not lift the affected leg over its neighbour. At hip-joint flexion distinctly affected ; external rotation imperceptible ; internal rotation decidedly affected. Pain inside the knee-joint.
407.	Male.	58.	Extension painful ; flexion not affected at hip-joint ; pain on walking, and yet worse when in bed.

132 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
408.	Female.	72.	At hip-joint flexion distinctly affected; internal rotation impaired; in bed for five or six days. Left Strathpeffer cured.
409.	Female.	50.	At hip-joint full flexion incomplete; rotation more so. Has to lie on the affected side to keep hot when in bed.
410.	Female.	71.	Improved by spa treatment.
411.	Male.	75.	Slight case.
412.	Female.	46.	Also slight case.
413.	Male.	55.	Heberden's nodes; has had lumbago. Frequent attacks; great pain at night. Cured.
414.	Female.		Stiffness; slight case.
415.	Male.	50.	Eighteen months ill; laid up for eight weeks in bed. At the hip-joint circumduction perfect; excessive tenderness over capsule, both in front and behind. Has to get up at night for relief from pain, but does so with difficulty, and cannot tie his bootlaces.
416.	Female.	40.	Months bad; rheumatism in left leg and shoulder. At hip-joint full flexion decidedly incomplete; internal rotation more so; external rotation also much impaired; some tenderness on pressure over capsule, and causes pain down the leg.
417.	Female.	50.	Six weeks ill, five weeks in bed; rheumatism fifteen years ago. Has pain both on external and internal rotation of hip-joint.

No.	Sex.	Age.	
418.	Male.	48.	Bad fourteen years ago; three months ill, three weeks in bed; could not turn himself. At hip-joint circumduction incomplete; extension affected; no tenderness over course of sciatic nerve; over capsule exceedingly severe pain. Rest relieves. Double case.
419.	Male.	52.	Sciatica lasted more than a year; rheumatism in shoulder. Attack ten years ago; lumbago over a year. At hip-joint circumduction complete, unless when leg extended and not bent at the knee; much pain on pressure over the capsule. Trouble began in haunch, and spread down the back of the leg; most pain in that region when he walks. Ill for six or seven years; pain in hip when he sneezed. Double case. Cured.
420.	Male.	41.	Rheumatism in left hand and ankle; never had lumbago. At hip-joint, on right side, full flexion imperfect; pain on extension; great tenderness on pressure over left capsule, much less on right; lame when attack comes on. Double case.
421.	Female.	71.	Rheumatism in back and knees; fingers; frequent attacks of lumbago; at hip-joints right, full flexion markedly deficient, left, complete; right internal rotation somewhat affected, but left normal; internal rotation <i>right</i> , left not at all;

134 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			tenderness on pressure over capsule—right decided, left doubtful. Went off cured, except a little pain in the left leg.
422.	Female.	60.	A little gout in one finger, and rheumatic pains in shoulder; some want of normal motion in hip-joint when flexed, otherwise all right; decided tenderness on pressure over capsule. Pain never lower than knee.
423.	Female.	46.	Shoulders and big toe gouty; been nine weeks ill, and two weeks in bed; pain and difficulty in full flexion at hip-joint; some difficulty also in internal and external rotation. Pain came on all at once on the outside of the hip, and afterwards on outside of leg. Sneezing aggravated the pain. Left Strathpeffer almost well.
424.	Female.	66.	Rheumatism in shoulders and arms. Six years bad; worse for the last two years. At hip-joint flexion complete; internal rotation very incomplete, external rotation less so; decided wasting of glutei, and obliteration of folds of nates.
425.	Male.	60.	Three or four years bad. At hip-joint flexion complete; internal rotation very deficient; great wasting of glutei; no tenderness on pressure over the capsule; cannot put one foot behind the other. Evident pelvic deposits; so-called rheumatoid arthritis of hip.

No.	Sex.	Age.	
426.	Male.	53.	Twenty or thirty years since the trouble began first; bad for twenty days at this time. Slight obliteration of folds of nates, and a little tenderness on pressure over the hip-joint. Scarcely any lameness.
427.	Female.	50.	Began a year ago; hips of both legs bad; could not bear them to be touched. Relieved by morphia. Slight case.
428.	Male.	70.	Catarrh of throat and eczema; slight tenderness on pressure over hip-joint.
429.	Male.	72.	Bad two months. Rheumatism in knee for four years; difficulty in turning in bed; when he stoops cannot straighten himself up; pain up and down the thigh, reaching to the foot.
430.	Male.	41.	Rheumatism in foot for twelve years, and attacks of lumbago; at hip-joint flexion on right side decidedly impaired, left not quite so much so; right internal rotation much limited, left less hampered; right external rotation impaired, left about the same or less; decided wasting of glutei, and obliteration of folds of nates on left, more on right; very distinct tenderness on pressure over the capsule on right; some on left, and threatening ankylosis—might be called rheumatoid arthritis of right hip. Double case.
431.	Male.	58.	Mild case.

136 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
432.	Male.	60.	At hip-joint full flexion on right diminished by nearly one-half, on left not so marked; external rotation, right, markedly impaired, left much less so; wasting of right glutei; tenderness on pressure over capsule—same in both; “neuralgia” feet and hips; want of feeling when bad; fainted with the pain in the left leg. Double case.
433.	Female.	40.	Varicose veins; some impairment at the hip-joint of full flexion; internal and external rotation; swelling and heat of the capsule, and great tenderness on pressure over it.
434.	Female.	60.	Rheumatism in both hands; at hip-joint distinct limitation of full flexion, with very sharp pain. Left rather the better for spa treatment.
435.	Male.	61.	Circumduction at right hip complete; internal rotation of left leg impaired; extension also affected; tenderness on pressure over both joints distinctly marked. Sudden attack; limp. Double case.
436.	Male.	60.	Knee troubled; began a fortnight ago; wasting of glutei, and some obliteration of folds of nates. Doubtful case.
437.	Female.	51.	Knee rheumatic; at hip-joint clear impairment of full flexion, and slight of external rotation; marked tenderness on pressure over the capsule.

No.	Sex.	Age.	
438.	Male.	61.	Has had phlebitis and acute pain in shoulder ; bad for six or seven weeks ; in bed for four weeks. Circumduction complete at hip-joint, left leg ; wasting of glutei ; tenderness on pressure over capsule quite decided, both over right and left ; pains all about hips at first. Limp a good deal, and difficulty in crossing legs—worst at night. Left Strathpeffer cured.
439.	Female.	46.	Two weeks ill. Pain in back and loins ; limps a good deal.
440.	Male.	67.	Two months bad. Hereditary rheumatism ; pain in right shoulder ; foot swells ; circumduction complete at hip-joint ; some wasting of glutei. Left improved by spa treatment.
441.	Male.	66.	At hip-joint full flexion and external rotation affected ; distinct tenderness on pressure over the capsule ; pelvic deposit.
442.	Male.	27.	Family scrofulous. At hip-joint circumduction hampered ; marked tenderness on pressure behind, also in groin, but not so severe.
443.	Male.	39.	Attack of acute gout ; occasionally lumbago ; extension causes a little jag. History of local violence and cold.
444.	Male.	49.	Attack nineteen years ago ; has had lumbago.
445.	Male.	57.	Stiffness in joints, especially of leg ; has had lumbago. Slight case.

138 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
446.	Female.	69.	Inherits gout ; sciatica in left leg. Right leg fractured eight years ago.
447.	Female.	39.	At hip-joint some limitation of full flexion, more so of external and internal rotation ; distinct wasting of glutei ; very decided tenderness on pressure over capsule. A housemaid ; severe case. Left Strathpeffer cured.
448.	Male.	30.	At hip-joint circumduction complete ; distinct wasting of glutei and obliteration of folds of nates ; very decided tenderness on pressure over the capsule, in which there is distinct heat. Cannot lie on affected side.
449.	Female.	44.	Eight months bad ; motion "awful." Fingers big and swollen ; complete circumduction at hip-joint ; some wasting of hip and obliteration of folds of nates ; movements cause aching in leg ; no tenderness on pressure over the hip-joint.
450.	Male.	35.	Cured, and bad again for last three weeks. Circumduction at hip-joint complete ; distinct wasting of glutei ; came on suddenly and went off quickly. Left Strathpeffer almost quite well.
451.	Female.	70.	Shoulders very bad ; cured last year at Strathpeffer. At hip-joint full flexion distinctly affected ; internal and external rotation less so.

No.	Sex.	Age.	
452.	Female.	80.	Distinct tenderness over left hip-joint, none on the right ; extension distinctly affected. Both hip-joints bad ; much pain.
453.	Male.	35.	Some obliteration of folds of nates.
454.	Male.	55.	No clear history of gout. At hip-joint circumduction complete ; marked wasting of glutei and obliteration of folds of nates ; tenderness on pressure over capsule ; spasms mostly in thigh.
455.	Male.	58.	Knee troublesome. At hip-joint full flexion incomplete, as also internal rotation ; decided wasting of glutei ; some obliteration of folds of nates ; distinct tenderness on pressure over the capsule ; no tenderness along the course of sciatic nerve. Began after he got a kick ; worse after exercise.
456.	Male.	55.	Wasting of glutei ; some obliteration of folds of nates ; distinct tenderness on pressure over the hip-joint. Slight case ; limp.
457.	Male.	42.	Complains of rheumatic pains at hip-joint, also in right shoulder at times. Full flexion and internal rotation affected, internal rotation much more so ; decided wasting of glutei ; slight obliteration of folds of nates ; distinct tenderness on pressure over the capsule ; great difficulty in turning in bed, also in external rotation of leg at hip-joint. Has had lumbago.

140 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
458.	Male.	65.	Has had lumbago. No power of circumduction at hip-joint; some tenderness on pressure over the capsule. Case evidently going on to ankylosis.
459.	Female.	60.	Both legs affected; right circumduction complete, left very much affected; tenderness on pressure, decided over capsules of both legs. Pain worst in left leg when putting on slipper; cannot take her foot out unless she turns her leg and presses down. Has eczema. Double case.
460.	Male.	—	Six months ill; pain only in morning—his leg chiefly—in thigh posteriorly as far down as ankle.
461.	Male.	40.	Twelve months bad. Circumduction at hip-joint nearly complete; distinct wasting of glutei and obliteration of folds of nates; very decided tenderness on pressure over the capsule. Has suffered from renal calculus; slight case.
462.	Female.	43.	Formerly rheumatic; has had lumbago. Full flexion and internal and external rotation at hip-joint very incomplete; excessive tenderness on pressure over the capsule.
463.	Male.	65.	Fifteen months bad; rheumatism in hand; left leg first affected; saving it, the right leg got ill. Began in hip. Has had lumbago. At hip-joint complete circumduction; distinct obliteration of folds

No.	Sex.	Age.	
			of nates ; very great tenderness on pressure over capsule.
464.	Male.	52.	Four or five years bad ; difficulty in getting over fence ; leg occasionally gives way ; has had lumbago. At hip - joint internal rotation partly affected ; distinct tenderness on pressure over the capsule.
465.	Female.	55.	Gout in hand. Slight case.
466.	Male.	42.	At hip-joint full flexion and internal rotation incomplete.
467.	Female.	40.	Complained of pain in her knee ; laid up at first, then got better ; eight months bad ; slight case.
468.	Male.	38.	Eight months bad. Wasting of glutei ; decided tenderness on pressure over hip-joint.
469.	Male.	40.	Has had lumbago. Began in back ; lame, both legs affected. Double case.
470.	Female.	48.	At hip - joint internal rotation somewhat affected, external rotation decidedly so. Began on left side, now on right. Double case.
471.	Male.	53.	Two years ill ; brought on, he thinks, from sitting on lump of ice. Loss of power of extension at hip-joint ; could not sit down for two days.
472.	Female.	40.	Pain only in thigh ; almost intolerable ; worse when lying down. At hip-joint full flexion imperfect ;

142 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			internal rotation decidedly incomplete, external less so ; much wasting of glutei ; great tenderness on pressure over the capsule.
473.	Female.	28.	Twelve months ill ; left hip worse at night when moving the limb.
474.	Male.	72.	Has had lumbago. At hip-joint full flexion incomplete ; decided loss of range of rotation ; external rotation free, but not full ; distinct tenderness on pressure over the capsule ; pain only when walking or getting into or out of train.
475.	Male.	18.	Began in groin with swelling, "result of sneezing" ; not much pain at night. At hip-joint full flexion much impaired ; decided wasting of glutei, and distinct obliteration of folds of nates ; signs of pelvic deposit. No history of gout. Chronic case.
476.	Male.	43.	A year bad. Has had lumbago ; some failure in external rotation at hip-joint ; much tenderness on pressure in that region. Slight case.
477.	Male.	77.	Two years bad. At hip-joint full flexion incomplete ; internal and external rotation much more so ; wasting of glutei, and decided obliteration of folds of nates, but no tenderness on pressure over the capsule. Several attacks. Pelvic deposits.

No.	Sex.	Age.	
478.	Male	53.	Six months bad. Circumduction at hip-joint unaffected; distinct tenderness on pressure over capsule. A typical case.
479.	Female.	35.	One week ill. Doubtful history of rheumatism. At hip-joint full flexion interfered with; no wasting of glutei; stiffness and pain when getting up after sitting some time.
480.	Female.	56.	Two months ill. No abnormal physical sign noted; both sides affected, left at first; cannot lie on the side that is worst. Double case.
481.	Female.	—	Six months ill. Never had lumbago; limps; worst at night.
482.	Male.	39.	Never had lumbago. Some wasting of glutei, and slight obliteration of folds of nates; decided tenderness on pressure over capsule of hip-joint. Second attack. Has to lift affected leg up when lying down.
483.	Male.	69.	Has had lumbago.
484.	Male.	71.	Shoulder troublesome; at hip-joint full flexion, and external rotation distinctly hampered.
485.	Female.	60.	No notes.
486.	Male.	45.	Seven weeks ailing. Two brothers have had gout. Distinct wasting of glutei; marked tenderness on pressure over the capsule of hip-joint.

144 SCIATICA: A FRESH STUDY

No.	Sex.	Age	
487.	Female.	39.	Four years ailing. At hip-joint full flexion affected; distinct tenderness on pressure over capsule; stiffness, movements troublesome.
488.	Female.	50.	Has had rheumatism. Doubtful if case is not one of sacro-iliac trouble.
489.	Male.	61.	Two months ailing. Distinct wasting of glutei; no obliteration of folds of nates; no tenderness on pressure over capsule of hip-joint. After spa treatment still lame, and complaining of pain in the affected leg.
490.	Female.	30.	Ten months ailing. Rheumatic fever when thirteen years of age. Father rheumatic, brother laid aside with rheumatism. Pain in walking from hip to ankle.
491.	Male.	43.	Twelve months ailing. Mother bedridden with gout. Has had lumbago badly; distinct wasting of glutei, and some obliteration of folds of nates; decided tenderness on pressure over the capsule of hip-joint—slight at first, then very severe.
492.	Male.	20.	Ailing a year and a half. Moderate wasting of glutei; decided tenderness on pressure over the capsule of hip-joint. Laid up entirely for three months.
493.	Female.	29.	Ten months ailing. Distinct tenderness on pressure over the capsule of hip-joint; pain in right hip. Cured by spa treatment.

No.	Sex.	Age.	
494.	Male.	64.	Full internal and external rotation at hip-joint affected ; distinct tenderness on pressure over the capsule of hip-joint ; pain in hip and down the front of thigh.
495.	Male.	60.	Eight weeks ailing. Began in back, threatened left leg and then right ; walking causes pain, but pain also at night ; rheumatism in shoulder and back ; has had lumbago ; circumduction almost complete ; wasting of glutei. Distinct tenderness on pressure over capsule of hip-joint, right side.
496.	Male.	53.	At hip-joint full flexion, and external and internal rotation much hampered ; decided wasting of glutei, and obliteration of folds of nates ; very decided tenderness on pressure over the capsule. Improved much by spa treatment.
497.	Male.	47.	Father and sisters rheumatic ; has had lumbago. No notes as to circumduction at hip-joint, probably complete ; distinct wasting of glutei, and obliteration of folds of nates ; clear evidence of pain on pressure over the capsule.
498.	Male.	68.	Has had lumbago ; distinct impairment of complete internal rotation at hip-joint ; some tenderness on pressure over the capsule. Doubtful case, more like sacro-iliac trouble.

146 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
499.	Male.	38.	Rheumatism of legs and shoulders, and little lameness. Slight case.
500.	Female.	44.	Doubtful case. Pain in hip.
501.	Female.	41.	Rheumatism all over. Doubtful case.
502.	Male.	63.	Impairment of full flexion ; decided interference with external rotation, less with internal rotation at hip-joint ; wasting of glutei ; decided tenderness on pressure over capsule ; pain "ridiculous."
503.	Female.	54.	Has had lumbago ; decided wasting of glutei, and some obliteration of folds of nates ; power of circumduction at hip-joint unimpaired ; distinct tenderness on pressure over capsule in one leg, and not the other ; irritation in front of ankle.
504.	Female.	48.	At hip-joint full flexion affected ; decided tenderness on pressure over the capsule.
505.	Male.	64.	Circumduction complete ; decided tenderness over capsule of hip-joint ; pain in walking, limps a little ; pain in groin, goes down to his knees.
506.	Male.	70.	Pain in full flexion at hip-joint ; both external and internal flexion affected ; much wasting of glutei and obliteration of folds of nates ; no tenderness on pressure over the capsule.
507.	Female.	70.	Circumduction of hip-joint complete ; marked tenderness on pressure over capsule.

No.	Sex.	Age.	
508.	Male.	60.	Knee been swollen and painful for a long time; has had lumbago. At hip-joint full flexion hampered (no note about rotation); no tenderness on pressure over capsule; pain in both legs, from hips downwards. Slight case.
509.	Male.	19.	Back of neck and shoulder rheumatic; has had lumbago; at hip-joint distinct want of power of full flexion; external and internal rotation distinctly affected; great wasting of glutei; some obliteration of folds of nates; decided tenderness on pressure over capsule; rather lame at first; uneasy at night; both legs bad. Double case.
510.	Male.	45.	Has had lumbago. Some impairment of internal rotation at hip-joint; pain in hip. Slight case.
511.	Male.	53.	Has had lumbago. Full flexion at both hip-joints much impaired; both legs bad.
512.	Male.	61.	Has had lumbago. At hip-joint external rotation affected; distinct tenderness on pressure over the capsule.
513.	Female.	32.	Has had lumbago. Right side now bad; left nine years ago affected; decided tenderness on pressure over capsule of hip-joint behind, and to a less extent in front. Double case.

148 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
514.	Female.	40.	Rheumatism in elbow and both feet, and lumbago. Very decided tenderness on pressure over the capsule of hip-joint.
515.	Female.	50.	At hip-joint pain and hampering of full flexion ; marked tenderness on pressure over the capsule ; cannot cross her legs ; difficulty in getting into an upright position.
516.	Male.	29.	Three years ill ; rheumatism in shoulder and all over body. Much wasting of glutei, and marked tenderness on pressure over capsule of hip-joint.
517.	Male.	50.	Has had lumbago ; six years ailing. Much wasting of glutei and obliteration of folds of nates ; decided tenderness on pressure over capsule of hip-joint, with distinct heat locally.
518.	Female.	51.	Circumduction complete ; tenderness on pressure over capsule of hip-joint ; both knees rheumatic.
519.	Male.	67.	Has had lumbago. At hip-joint full flexion inadequate, external rotation more so. Other signs not recorded.
520.	Male.	69.	Right shoulder troublesome ; at hip-joint circumduction complete ; decided wasting of glutei and obliteration of folds of nates ; has also much tenderness on pressure over the capsule ; pain from hip to knee.

No.	Sex.	Age.	
521.	Female.	52.	Ill for a month ; much rheumatism. Circumduction at hip-joint distinctly hampered ; no tenderness on pressure over the capsule. She feels her right hip much when she gets up ; gets bad in bed.
522.	Male.	22.	Rather troubled with lumbago. Full flexion and external rotation at hip-joint distinctly affected ; some wasting of glutei, and very decided tenderness on pressure over the capsule.
523.	Female.	29.	Six months ailing ; began in her back. At hip-joint full flexion and external rotation hampered and painful ; considerable wasting of glutei and obliteration of folds of nates, also marked tenderness on pressure over the capsule. Limp ; difficulty in putting on stocking ; pain worse on standing up.
524.	Male.	43.	Distinct obliteration of folds of nates ; decided tenderness on pressure over capsule of hip-joint ; could not lie in bed ; difficulty in turning when recumbent. Second attack.
525.	Male.	65.	Merely a little stiffness ; slight case ; had severe sciatica some years ago.
526.	—	—	Ailing for six years. At hip-joint external and internal rotation decidedly interfered with ; no tenderness on pressure over the capsule. Slight case.

150 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
527.	—	—	Two years bad ; some trouble in back two years ago. At hip-joint full flexion incomplete ; some wasting of glutei, and distinct obliteration of folds of nates ; quite definite tenderness on pressure over the capsule. Slight case ; cured by spa treatment.
528.	Female.	40.	Ten weeks in bed ; father had sciatica. At hip-joint full flexion incomplete ; external rotation much affected, internal less so ; distinct wasting of glutei ; acute tenderness on pressure over capsule. Very severe case ; no improvement by spa treatment.
529.	Male.	51.	Rheumatic ; generally pained after much exertion ; lumbago once. At hip-joint distinct impairment of external and internal rotation, with wasting of glutei and obliteration of folds of nates ; decided tenderness on pressure over the capsule.
530.	Male.	51.	Joints of fingers and toes enlarged ; at hip-joint definite interference with internal rotation. No other notes.
531.	Male.	57.	Three months ailing nine years ago. Rheumatism in left arm ; at hip-joint marked difficulty in internal rotation, also wasting of glutei and obliteration of folds of nates ; very decided tenderness on pressure over capsule.

No.	Sex.	Age.	
532.	Female.	45.	Two or three months ailing ; four weeks in bed. At hip-joint full flexion decidedly impaired ; no interference with external and internal rotation ; marked tenderness on pressure over capsule. Fourteen years ago pain after confinement, now pain on crossing her legs, and when tired.
533.	Male.	49.	At hip-joint distinct impairment of full flexion ; internal rotation also affected ; much wasting of glutei, with distinct tenderness on pressure over capsule ; now pain in moving leg when tired out.
534.	Female.	72.	Heberden's nodes ; pains in toe-joints ; distinct impairment of full flexion at hip-joint, also of external and internal rotation, with much pain in all three movements ; tenderness on pressure over right capsule ; pain worse after sitting down. Not bad at night ; began in hip, and then went to knee ; cannot cross her legs. Double case.
535.	Male.	53.	Has had rheumatism in shoulder ; at hip-joint full flexion impaired, external rotation decidedly so, also internal ; decided wasting of glutei, and considerable obliteration of folds of nates ; no tenderness on pressure over the capsule ; slight lameness ; pain when standing, occasionally also in bed and in crossing his legs.

152 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
536.	Male.	66.	Has had lumbago. At hip-joint some trouble in full flexion, none in external or internal rotation; decided pain on pressure over capsule; some pain in shoulder (renal calculus).
537.	Male.	50.	Six years ailing; has had lumbago. Some wasting of glutei, and considerable obliteration of folds of nates; decided tenderness on pressure over the capsule.
538.	Male.	66.	Six months ailing. Some pain in arm and hand; great pain in leg, with swelling of the limb; quite lame; at hip-joint circumduction slightly interfered with; much wasting of glutei, and considerable obliteration of folds of nates; very decided tenderness on pressure over the capsule.
539.	Male.	40.	Two weeks bad; mending before came to Strathpeffer. Distinct wasting of glutei; no tenderness on pressure over the capsule of joint. Slight case—taken early.
540.	Male.	61.	First attack three years ago; has had lumbago. Circumduction nearly complete; decided wasting of glutei and some obliteration of folds of nates; no tenderness on pressure over capsule.
541.	Male.	56.	Ailing for seven months; golf started the trouble. Pain in getting up; pain on blowing his nose; pain runs down left side to knee,

No.	Sex.	Age.	
			and below it ; circumduction complete. Began in hip ; slight case ; cured.
542.	Male.	65.	At hip-joint circumduction complete ; distinct tenderness on pressure over the capsule ; toe-joints occasionally red and inflamed ; easier when clothes on.
543.	Female.	46.	Ten months ailing. At hip-joint full flexion hampered, as also, but more so, external and internal rotation ; distinct wasting of glutei and obliteration of folds of nates ; marked tenderness on pressure over the capsule. Very severe at first ; began in hip, and then went to the leg ; quite lame.
544.	Male.	32.	Two months ailing. Mother rheumatic. Circumduction complete ; decided wasting of glutei, and obliteration of folds of nates ; tenderness on pressure over capsule, fairly well marked ; no tenderness along the course of sciatic nerve ; coughing causes pain in hip and down the outside of leg.
545.	—	—	Three months in bed. No rheumatism hereditarily ; has had lumbago. Distinct wasting of glutei, and obliteration of folds of nates ; well-marked tenderness on pressure over the capsule. Two attacks of sciatica when young. Difficulty in turning when lying down ; pain began first in hip ; no tenderness along the course of sciatic nerve.

154 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
546.	Male.	60.	Very mild case.
547.	—	60.	Rheumatism two or three years ago. Pain first in right arm, now in left hand; pain comes on suddenly; lame; at hip-joint full flexion, also external and internal rotation much affected; decided wasting of glutei; distinct tenderness on pressure over the capsule. Ankylosis threatening.
548.	Female.	42.	Brother has had sciatica. Circumduction hampered. Mild case.
549.	Female.	50.	First in right and then in left leg; pain does not extend below the knees; has to get up and rub her leg at night; slight limp; distinct tenderness on pressure over the capsule of the joint; obliteration of folds of nates.
550.	—	—	Strong case; has had lumbago. At hip-joint full flexion markedly incomplete, external rotation less so, and internal free; much wasting of glutei, and obliteration of folds of nates; marked tenderness on pressure over the capsule, which shows local heat and distinct swelling. Improved with spa treatment. Full doses of salicylate of soda did good. Double case.
551.	Female.	55.	Eighteen months ailing; has had lumbago. Decided tenderness on pressure over capsule of hip-joint; began in the bone of right leg,

No.	Sex.	Age.	
			"went up in a nerve"; could not cough without pain; walking causes pain. Eight months in bed.
552.	Female.	55.	Six months ailing; has had lumbago. Lamé; could not stand straight up; worse when walking about.
553.	Male.	36.	Five years bad; has had rheumatism and lumbago. Some wasting of glutei, and obliteration of folds of nates; decided tenderness on pressure over capsule of hip-joint, with distinct swelling and heat.
554.	Female.	60.	First attack fifteen years ago; second has lasted for a year; has had lumbago. Hands and feet some swelling. Mild case.
555.	Male.	53.	Two years bad; has had lumbago. Some pain in hand. Mild case.
556.	Male.	56.	Rheumatism in shoulder; external rotation at hip-joint affected; some tenderness on pressure over capsule. Slight case.
557.	Female.	57.	Eight months ailing. At hip-joint external rotation affected; decided tenderness on pressure over capsule of hip-joint; began with pain in stooping; all right when lying down, but could not turn her body. Double case.
558.	Male.	70.	Attack seven years ago, bad for nine months at this time. At hip-joint full flexion decidedly incom-

156 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			plete, external rotation more so, internal rotation less ; very decided tenderness on pressure over capsule ; lame until warm weather ; first attack left leg, now right ; ankylosis beginning. Double case.
559.	Male.	68.	Rheumatism in arm. At hip-joint full flexion affected, as also external and internal rotation ; began in hip ; cannot lift one leg over the other ; no tenderness on pressure over capsule ; apparently going on to ankylosis.
560.	Male.	61.	At hip-joint both external and internal rotation much affected ; history of syphilis.
561.	Female.	35.	Flexion at hip-joint hampered, external rotation much more so ; excessive tenderness on pressure over the capsule of hip-joint.
562.	Male.	40.	Has had lumbago. At hip-joint full flexion and external rotation complete ; had pain in peroneal region, and numbness ; pain in one groin and then another ; sudden attack below knee.
563.	Female.	70.	Decided tenderness on pressure over the capsule of hip-joint ; pain usually in bed. Slight case.
564.	Male.	61.	Rheumatism in both legs ; at hip-joint full flexion complete ; internal rotation affected, external more so ; distinct tenderness over the capsule.
565.	Male.	73.	Fourteen months ailing. Pain in shoulder ; lumbago.

No.	Sex.	Age.	
566.	Male.	65.	Pain in heel ; difficulty in straightening himself up and tying bootlaces ; at hip-joints some trouble in full flexion ; distinct difficulty in both legs in external rotation ; trouble in both legs in internal rotation. Double case.
567.	Male.	54.	Rheumatism in both shoulders ; at hip-joint imperfection in full flexion, and internal rotation ; obliteration to some extent of folds of nates ; heat and swelling of right capsule ; left threatening ankylosis. Improved by massage. Double case.
568.	Male.	63.	Has had lumbago. At hip-joint some hampering of movement of full flexion ; external rotation much affected ; distinct wasting of glutei ; obliteration of folds of nates, and decided tenderness on pressure over the capsule. Slight case. Cured by spa treatment.
569.	Male.	62.	Circumduction perfect ; no tenderness on pressure over capsule of hip - joint. Slight case. Left Strathpeffer cured.
570.	Female.	65.	Slight case.
571.	Female.	65.	Six months ailing. At hip-joint full external rotation distinctly affected ; decided tenderness on pressure over the capsule. Improved with spa treatment.
572.	Male.	42.	Both shoulders rheumatic ; distinct tenderness on pressure over capsule of hip-joint.

158 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
573.	Male.	45.	Three months ailing. At hip-joint circumduction complete; wasting of glutei; distinct tenderness on pressure over capsule.
574.	Male.	53.	Nine months ailing; bad four years ago; worst in the morning; rest relieves pain; quite lame. Circumduction almost quite incomplete; some wasting of glutei, and distinct obliteration of folds of nates; no tenderness on pressure over the capsule; ankylosis evidently threatening. Double case.
575.	Male.	38.	Some months ill; has had lumbago. At hip-joint external and internal rotation imperfect, considerable pain with former; some wasting of glutei, and very decided obliteration of folds of nates. Chronic case. Pained at first during the night, now through the day, but all right when he walks about. Took as much as 120 grains of salicylate of soda without any bad effect.
576.	Male.	58.	Three months ailing. At hip-joint full flexion somewhat hampered; distinct obliteration of folds of nates; no evident wasting of glutei; marked tenderness on pressure over the capsule; lame; double sciatica.
577.	Male.	45.	Worst in the morning. Rest relieves.
578.	Male.	51.	Second attack; has had lumbago. At hip-joint full flexion, and ex-

No.	Sex.	Age.	
			ternal rotation much affected, internal rotation less so; some wasting of glutei, and obliteration of folds of nates; decided tenderness on pressure over the capsule. Began in peroneal region of leg; went upon last occasion to hip; easier in bed; lame last summer; pain occasionally pulls him up when walking.
579.	Female.	60.	At hip-joint decided interference, with full internal rotation; marked tenderness in front of capsule, less behind, but extending down the course of the sciatic nerve.
580.	Female.	52.	Has had lumbago. At hip-joint full flexion, and external rotation much interfered with; extension also hampered distinctly. Cannot lie on left side; easier when walking about. No note as to tenderness over the capsule.
581.	Male.	52.	Was ill seven or eight years ago; began as neuritis of spine; aspirin relieves his pain.
582.	Female.	68.	Twenty months ill. At hip-joint external and internal rotation decidedly hampered; distinct wasting of glutei; marked tenderness on pressure over the capsule; acute case relieved by aspirin.
583.	Male.	60.	Attack eighteen years ago. Circumduction complete; distinct tenderness on pressure over the capsule of hip-joint. Slight case.

160 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
584.	Male.	29.	Says he has been ill for two years. At the hip-joint much pain in flexion and external rotation; decided obliteration of folds of nates; marked tenderness on pressure over capsule, with decided heat and sense of fluctuation in that region. Doubtful at the time if it was a case of ordinary sciatica, but by-and-by the patient got to be quite well
585.	Male.	68.	Three months ill; has had lumbago. At hip-joint full flexion and external rotation distinctly affected; marked tenderness on pressure over the capsule; pain in turning in recumbent position, also in sneezing. Cannot ride, but can play golf.
586.	Female.	40.	No interference with full flexion and internal rotation, but external rotation decidedly hampered; extension all right; began in hip.
587.	Female.	47.	Twelve months ailing. At hip-joint full flexion; external and internal rotation decidedly interfered with; both legs been bad, now only in right. Double case.
588.	Male.	45.	Ill for some weeks. Pain and interference with internal rotation; marked pain on pressure over the capsule of hip-joint; much relieved by very hot sulphur baths; only a little pain down the back of affected leg.

No.	Sex.	Age.	
589.	Male.	70.	History of gout ; much improved after spa treatment. Double case.
590.	Male.	77.	Slight case.
591.	Female.	45.	Some pain on internal rotation at hip-joint. Doubtful case.
592.	Male.	70.	Four months ailing. At hip-joint full flexion hampered ; external and internal rotation decidedly affected ; distinct wasting of glutei and obliteration of folds of nates ; some tenderness on pressure over capsule ; no pain along the course of sciatic nerve.
593.	Female.	40.	Shoulder troublesome ; at hip-joint full flexion decidedly affected, external rotation more so, but internal rotation quite free ; distinct obliteration of folds of nates, and decided tenderness on pressure over the capsule.
594.	Male.	65.	An attack two or three years ago ; present seizure has lasted about six months ; has had lumbago. At hip-joint full flexion, external and internal rotation distinctly affected ; decided tenderness on pressure over the capsule ; limps a little ; pain bad in bed at first, now when walking about.
595.	Male.	77.	Slight case.
596.	Male.	70.	Double case.
597.	Male.	59.	Ailing five years. Arms rheumatic ; pains at hip-joint ; full flexion decidedly affected, as also

162 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
			internal rotation, but external quite free; marked tenderness on pressure over the capsule; right leg now bad, left to begin with; pain now in walking, and limps a little. Double case.
598.	Male.	62.	Father had gout; doubtful history of lumbago. At hip-joint circumduction much hampered; marked tenderness on pressure over capsule; right leg affected—began in left, starting in knee and going up to hip; cannot straighten himself. Double case.
599.	Female.	—	Four months ailing. At hip-joint circumduction almost nil; quite lame.
600.	Female.	57.	Three months ill four years ago; was bad; knee troubled and has had lumbago. Difficulty in turning in bed when very bad; cannot stand on her legs; distinct tenderness on pressure over capsule of hip-joint.
601.	Female.	40.	Difficult to say which leg affected; walking brings on pain in knee; bad heart.
602.	Male.	63.	Seven months ailing; never had gout or rheumatism; has had lumbago; easier in bed.
603.	Female.	71.	Three years ailing; has had lumbago. Doubtful which side affected; some limp; began in hips, now in toes.

No.	Sex.	Age.	
604.	Male.	33.	Mild case.
605.	Male.	60.	Has had lumbago. Decided wasting of glutei; obliteration of folds of nates; marked tenderness on pressure over the capsule of hip-joint.
606.	Male.	46.	Three months ill; has had lumbago. Difficulty in deciding which leg affected; has trouble in crossing his legs or in standing in upright position.
607.	—	—	Previous attack ten years ago; has had lumbago. At hip-joint external and internal rotation entirely stopped in both legs; wasting of glutei; distinct obliteration of folds of nates; cannot walk without two sticks. Ankylosis beginning. Double case.
608.	Male.	76.	Fifteen months ailing; began two years ago; father gouty. Began with lumbago; could not ride or walk; pain in thigh and outside of leg; laid up for a month at a time.
609.	Female.	66.	Marked tenderness on pressure over the capsule of hip-joint.
610.	Female.	74.	At hip-joints full flexion much restricted, external rotation less, and internal more so; decided tenderness on pressure over both capsules; difficulty of getting into bed and in crossing her legs; doubtful which leg affected. Double case.

164 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
611.	Male.	58.	Fifteen months ailing ; ill four years ago. At hip-joint internal rotation decidedly affected, and causes great pain ; extension complete ; left leg first affected, now the right ; cannot stand ; pain in peroneal region of leg.
612.	Male.	26.	Cannot walk without two sticks. Cannot ride. Laid up for a month. Has had two to three attacks.
613.	Female.	66.	Much tenderness on pressure over the capsule.
614.	Female.	74.	No notes.
615.	Male.	58.	Some impairment and pain on internal rotation.
616.	Male.	58.	He had acute rheumatism four times. Both legs affected. Right flexion. Left internal rotation.
617.	Male.	60.	Last year, neuritis left leg ; neuralgia trigeminal, persistent ; this year, pain in sciatic nerve ; limp ; could not cross his legs.
618.	Female.	63.	Sudden attack of pain and weakness in her legs ; has had sciatica and acute gout.
619.	Male.	50	Difficulty in standing erect ; no local sign.
620.	Female.	—	Rheumatism in both legs ; difficulty in turning in bed ; worst at night, also stiff and lame when walking ; pain in both knees, but not lower down. Double case.

No.	Sex.	Age.	
621.	Male.	—	Pain coming downhill "jumps"; much enlargement of left trochanter.
622.	Female.	47.	Occasional pain in leg, and in right foot.
623.	Female.	23.	Acute attack. Right side better, then, after a fall, as bad as ever. Much wasting of glutei and obliteration of folds of nates. Great tenderness on pressure over the capsule.
624.	Female.	—	Left leg worst in bed; began in hip; right formerly not so bad in moving about. Double case.
625.	Male.	67.	Left leg, ankle, and peroneal region; must be walking; difficulty in putting on stocking; coughing aggravates; no tenderness over sciatic nerve.
626.	Male.	—	Left leg, pain in spring; difficulty in getting up and down, and turning in bed; lame. Slight case. Calculus of left ureter.
627.	Male.	45.	Lame; worse during the day; no tenderness along sciatic nerve.
628.	Female.	—	Both legs, worst in right; rheumatism in muscles; getting worse. Double case.
629.	Male.	36.	Both legs, left worst when walking; limp; coughing and sneezing affects it; knee extended and raised causes pain; both sides; cannot stoop. Double case.

166 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
630.	Female.	36.	Lame; walking hurts; difficulty in getting in and out of bed; could not cross her legs; stooping difficult; right side affected.
631.	Female.	35.	Both sides, at first at night, now when moving about; difficulty in turning in bed, and going upstairs, and putting off and on shoes. Double case.
632.	Female.	59.	Pain in peroneal region; worst when walking; left side affected; shoulder also affected. Slight case.
633.	Female.	53.	Rheumatism in feet and hands; some difficulty in straightening herself; circumduction; external rotation distinctly affected; flexion; tenderness; pressure well marked.
634.	Female.	62.	Lumbago and sciatica; neuritis in left arm, been also in right; sciatica in both legs, easy when lying down; in left tenderness very considerable; slight internal rotation; distinctly improved right circumduction.
635.	Male.	64.	Rheumatism in left leg; occasional lameness catches him in thigh; not troubled at night; shoulder, deltoid, and biceps.
636.	Male.	44.	Slight sciatica, and lameness on right side; stiffness mostly in hip; turning in bed affects it; slight pain on external rotation; no tenderness on pressure over the capsule of hip-joint.

No.	Sex.	Age.	
637.	Male.	—	Seen with Dr. Mowat; history of attack of lumbago three weeks ago, followed shortly by sciatica on left side; cannot walk for pain, which was also bad at night, and required hyp.
638.	Male.	51.	Lumbago attack a year ago, then better, walked too much; back and legs not examined; this spring very bad; at present can hardly walk at all; much pain in left leg when turning.
639.	Male.	65.	Two years ago began in left leg; tired when travelling, limps, worse about midnight; difficulty in turning in bed, worse in getting up; pain in knee, in front, not in ankle; fastening shoe impossible.
640.	Female.	59.	Came on seventeen years ago, after her confinement; could not stand, weaker and weaker, limp; no pain when sitting, or by night, only when she moves about; circumduction complete; tenderness on pressure over capsule well marked.
641.	Female.	59.	Right leg; began two years ago; bad at one time in bed. Now when walking, coughing, and sneezing does not affect her; first in thigh, and then hip; difficulty in turning in bed; could not cross her legs.
642.	Male.	60.	Annual attacks; coughing and sneezing hurt; sudden seizure.

168 SCIATICA: A FRESH STUDY

No.	Sex.	Age.	
643.	Male.	—	Both groins; difficulty in putting foot beneath him, also in turning in bed; worst with exertion and stooping; uneasiness in sitting down; no pain below knee. Double case.
644.	Male.	75.	No notes.
645.	Male.	31.	Sudden attack in hip.
646.	Female.	49.	Sciatica began in the leg; worse after a long walk.
647.	Female.	38.	Right side affected; difficulty in turning in bed; sharp pain when moving.
648.	Male.	72.	Came on after a wetting; worse at night when hot, but now when walking pulls him up suddenly; limps; pain from hip downwards; "fiery darts" below knee.
649.	Male.	52.	Pain in outside of leg, also hip and groin.
650.	Female.	—	Pain on putting on stocking.
651.	Female.	—	After accident in hansom; difficulty in turning.
652.	Male.	61.	Left side affected; sudden attack; never quite gone; at first difficulty in turning in bed; could not ride; slight limp; tenderness on pressure over capsule.
653.	Female.	30.	Right leg; limp. Slight case.
654.	Male.	69.	Pain from hip to knee; cannot cross his legs; began in heel; coughing and sneezing hurts him; difficulty in going upstairs; worse when walking.

No.	Sex.	Age.	
655.	Male.	—	Left ; pain on the inside of lower edges of buttock ; spine twisted ; great difficulty in turning in bed.
656.	Male.	58.	Pain outside of leg, also in hip and loins.
657.	Female.	—	After accident in hansom, difficulty in turning in bed.
658.	Male.	61.	Sudden attack ; pain never quite gone ; at first difficulty in turning in bed ; slight limp.
659.	Female.	30.	Right leg ; limp ; slight case.
660.	Male.	69.	Pain from hip to knee ; began in legs ; coughing and sneezing hurt ; difficulty in going upstairs ; worst when walking.
661.	Male.	—	Left leg ; pain in the inside of thigh and lower edge of buttock ; spine twisted ; great difficulty in turning in bed.
662.	Female.	56.	Right leg bad for two years ; began in haunch ; walking or anything she strikes with her toe brings on pain ; sometimes bad at night ; cannot lie on affected side ; some limp.
663.	Female.	45.	Complains of pain down left side ; sciatica came on acutely in Nairn, though lame before she left home ; the attack confined her to bed.
664.	Female.	—	“ Rheumatism ” in hip-joint ; began in July, and kept on during the winter, worse since May ; comfortable in bed ; pain down both legs ; difficulty in getting up and turning.

170 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
665.	Female.	55.	"Rheumatism" at top of right thigh; slight limp; pain worse at night; acute pain in arms, and also between shoulders.
666.	Female.	54.	Double sciatica.
667.	Male.	—	Left leg gets hot with much walking, with prickly feeling down outside, and heat; cannot shift from side to side when in bed.
668.	Female.	26.	Pain in hip; ankles swelled a little; knee also been swollen.
669.	Female.	—	Lame right side; fall sprained her back; got quite right as far as back was concerned, but a sharp pain across right thigh; bad at night, but better on moving; great difficulty in getting into and out of bed.
670.	Male.	45.	Right leg affected; began in haunch; sleepless; middle joints of fingers swollen, also toe-joints.
671.	Female.	39.	Sciatica left leg; lame; walking and standing brings it on, all right when resting. Both wrists affected.
672.	Male.	54.	Sciatica began in haunch; difficulty in moving affected leg.
673.	Female.	60.	Sciatica in right leg; lame; difficulty in putting right leg over left; shoulder also troublesome.
674.	Female.	52.	Pain in knees, mostly at night, not so much when on her legs; left knee a little swollen.

No.	Sex.	Age.	
675.	Female.	46.	Pain in right hand gone, but cannot lift a spoon; began in calf of leg, then went up to hip; lame; cannot lift affected leg over the other, easiest when stretched out.
676.	Male.	52.	"Rheumatism" in ankles, comes and goes; stiffness in thighs; difficulty in putting one leg over the other; also pain in back of left shoulder, cannot lie on that side.
677.	Male.	62.	Has had slight sciatica—better; pain in region of groin.
678.	Male.	36.	"Rheumatism" in small of his back, then down the hip; slightly lame; worse when working; better in winter, worse in spring; cough hurts him.
679.	Female.	62.	"Rheumatism"; all right when in California.
680.	Male.	73.	Sciatica fifteen years ago; cured for ten years; worse when going about; occasionally bad at night.
681.	Male.	77.	"Rheumatism" in right hip and knee, also in left.
682.	Female.	78.	Difficulty in breathing; pain in back; sciatica on right side; pain in left knee; heart weak; feet swelling.
683.	Female.	41.	Trouble in right side; walking hurts her.
684.	Female.	—	Accident, fell back on right buttock, had a cold at the time; slight pain when she moved about.

172 SCIATICA : A FRESH STUDY

No.	Sex.	Age.	
685.	Male.	51.	Lumbago a year ago ; much pain in left leg when turning in bed ; can scarcely walk at all ; pain began in neck. Double sciatica.
686.	Male.	65.	Two years ago began in left leg ; worse about midnight ; difficulty in turning in bed ; no anæsthesia or spasms ; fastening shoe impossible ; joint quite ankylosed ; flexion bad ; internal rotation imperfect ; wasting of glutei considerable ; so also obliteration of folds ; much tenderness on pressure at upper part of capsule of hip-joint.
687.	Male.	64.	"Rheumatism" in left leg ; occasional lameness catches him in the thigh ; not bad at night ; rheumatism in shoulder ; wasting of glutei decided ; also obliteration of folds ; internal rotation much affected ; great stiffness.
688.	Female.	59.	Limp ; no pain when resting, only when she moves about ; considerable tenderness on pressure over the capsule ; circumduction all right.
689.	Male.	44.	Slight sciatica and lumbago on right side ; stiffness on moving, mostly in hip ; turning in bed affects him severely.
690.	Female.	30.	Double sciatica, right the worse ; circumduction somewhat impaired ; slight wasting of glutei ; also obliteration of folds of nates ; tenderness on pressure over capsule considerable.

No.	Sex.	Age.	
691.	Male.	55.	Circumduction, flexion, and internal rotation somewhat impaired, extension more so; winces noticeably with strong pressure over the upper and back part of the capsule of left hip-joint; wasting of glutei considerable, also obliteration of folds of nates; no tenderness on pressure over the course of the sciatic nerve.

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PLATE IV.



FIG. 1.—ARTHRITIS DEFORMANS. NORMAL JOINT



FIG. 2.—ARTHRITIS DEFORMANS. AFFECTED JOINT

PLATE V.



FIG. 1.—CASE OF T. L. NORMAL JOINT

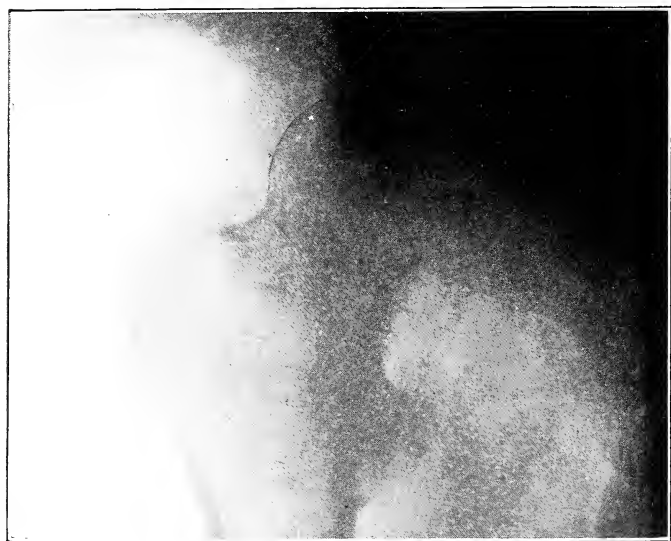


FIG. 2.—CASE OF T. L. AFFECTED JOINT

PLATE VI.



FIG. 1.—CASE OF J. D. NORMAL JOINT



FIG. 2.—CASE OF J. D. AFFECTED JOINT

PLATE VII.

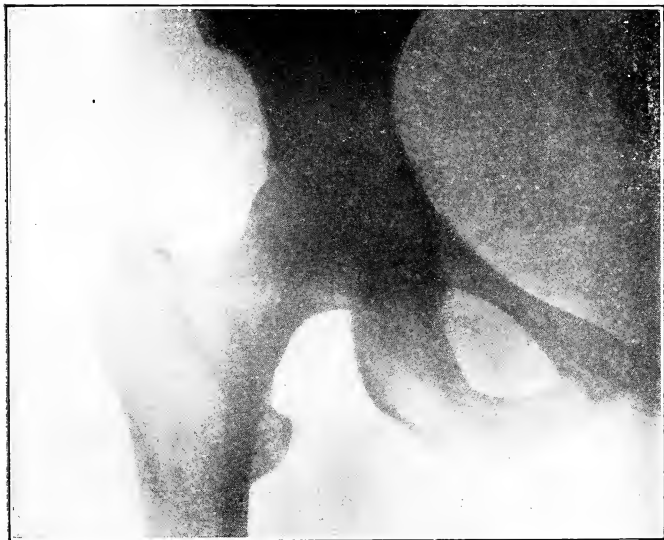


FIG. 1.—CASE OF M. H. NORMAL JOINT

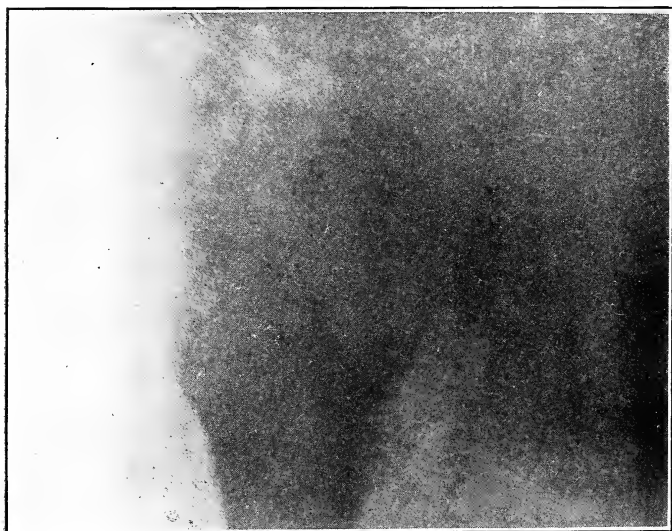


FIG. 2.—CASE OF M. H. AFFECTED JOINT



PLATE VIII.

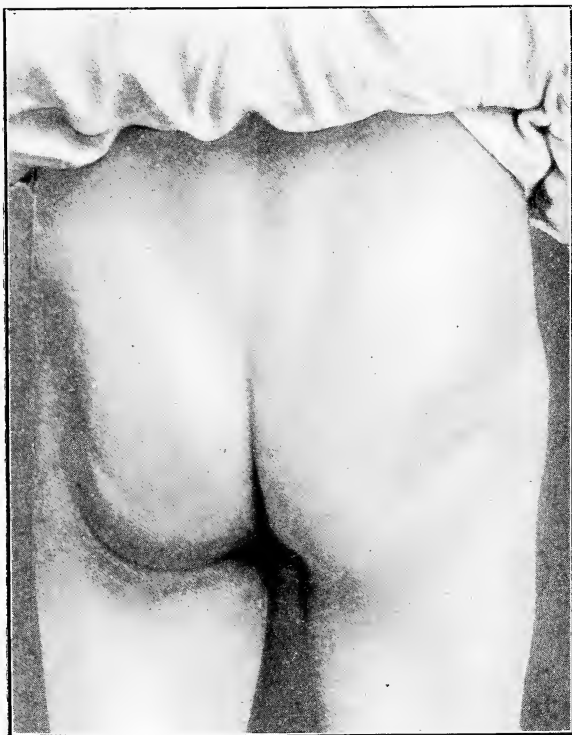


FIG. 1.—CASE OF MISS S. NORMAL JOINT



FIG. 2.—CASE OF MISS S. AFFECTED JOINT

PLATE IX.



WASTING OF RIGHT HIP

PLATE X.



WASTING OF RIGHT HIP

PLATE XI.



WASTING OF RIGHT HIP

PLATE XII.



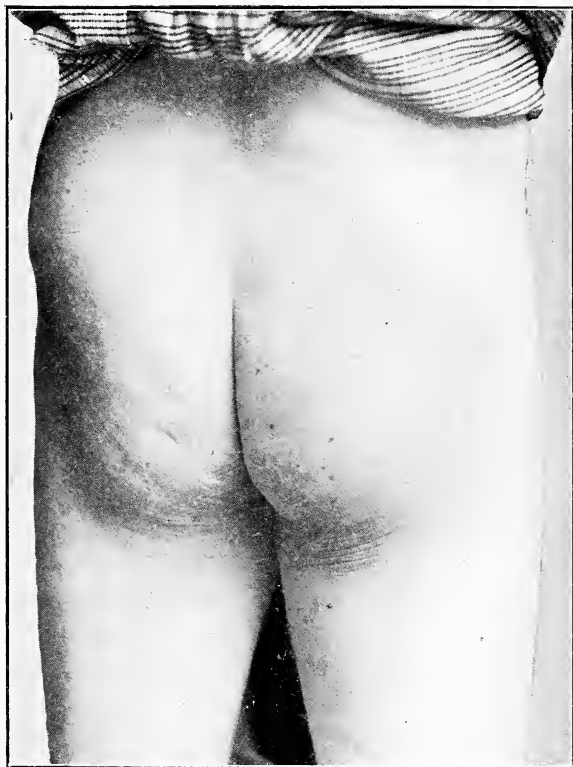
WASTING OF RIGHT HIP

PLATE XIII.



WASTING OF RIGHT HIP

PLATE XIV.



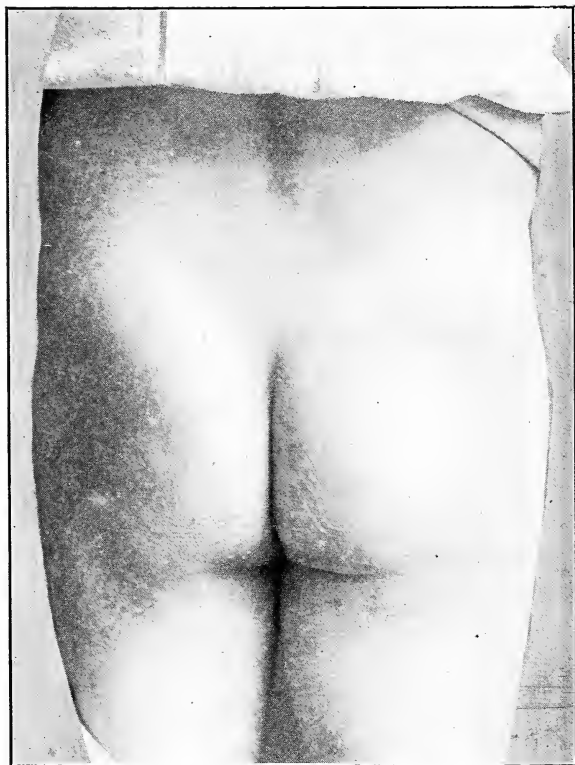
WASTING OF RIGHT HIP

PLATE XV.



FLATTENING OF RIGHT HIP

PLATE XVI.



WASTING OF LEFT HIP

PLATE XVII.



WASTING OF LEFT HIP

PLATE XVIII.



WASTING OF LEFT HIP

