thinks that appendicular disease causes a protective spasm of the pylorus. Possibly this is the explanation of those cases in which there is hyperchlorhydria. As Dr. Soltau Fenwick points out in his paper, the symptoms are those of hypersecretion. Exactly how the hypersecretion is caused we are not in a position to say. All we know at present is, that in some way the appendix does affect the gastric secretion. Personally, I think that intestinal stasis rather than pyloric spasm is the condition in these cases. The symptoms may be regarded as toxic, the result of the intestinal stasis. This view seems to be supported by the frequency with which the duodenum is found markedly dilated at operation, and by the fact that in a number of the cases the stomach is dilated also. Further, as a rule the quantity of gastric contents evacuated after a test meal is greater than in healthy individuals; the percentage of volatile acids is usually increased, and in addition flatulence and constipation are prominent symptoms.

Gastrostaxis.

In recent years it is becoming gradually recognised that hæmatemesis accompanied by pain and vomiting is not pathognomonic of ulcer. Operations have been undertaken for hæmorrhage from a supposed ulcer, but no ulcer has been discovered, the source of the bleeding being a general oozing from the whole mucous membrane. To this condition Dr. Hale White⁴ has given the name "gastrostaxis." Dr. Bertrand Dawson⁵ has termed it "hæmorrhagic gastralgia." The older writers⁶ regarded the bleeding as a form of vicarious menstruation, a hypothesis for which there appears to be no adequate justification. The perusal of hospital reports reveals a remarkable difference between the sex incidence of gastric ulcer as diagnosed clinically, and the sex incidence of gastric ulcer as proved by operation and post-mortem examination. Dr. W. P. Herringham⁷ in an interesting paper has called attention to this difference and illustrated it from the records of St. Bartholomew's Hospital. There can be no doubt that many of the cases diagnosed as gastric or duodenal ulcer are not gastric or duodenal ulcer at all, but some other condition, and I suggest that it is probable that some at least of the cases of so-called gastrostaxis and many of the cases diagnosed as gastric ulcer are really cases of latent appendicular disease.

Indications for Operation.

Lastly, I wish to make my position quite clear with regard to operation. That latent appendicular disease gives rise to gastric symptoms I have not a doubt. The symptoms I have described are in the main those of hypersecretion or the so-called "acid dyspepsia." I need hardly state that I do not for a moment suggest that all cases, or even the majority of cases, of acid dyspepsia require operation, but I believe that when we have reason to believe that the gastric symptoms are due to appendicular disease, operation as a rule is advisable, provided medical treatment has failed. I hold it as a cardinal principle that in all cases of gastric disorder, except when there is evidence of some organic lesion such as carcinoma, pyloric stenosis, or hour-glass constriction, before operation be undertaken it must be premised that medical treatment has been tried and failed. And when I speak of medical treatment I mean, not a few weeks of dieting or drug taking, but a course of rest and careful dieting continued during at least six months.

It is the cases in which there are no physical or chemical signs which require careful consideration. In those cases in which, in addition to the gastric symptoms, there is definite and persistent tenderness over the appendix, operation is usually advisable. I confess that I have an old-fashioned prejudice against operating when pain is the only symptom. At the same time I recognise that there are such cases in which operation is not only justifiable but necessary. I take it we are all agreed that it is right to operate in cases of so-called "appendicular colic," when such attacks are recurrent. Surely it is equally justifiable to remove the appendix when the patient suffers from recurrent attacks of gastralgia attributable to disease of the appendix, provided medical treatment has been tried and has failed. And in this connexion I may point out again the diagnostic significance of the radiation of epigastric pain to the lower

part of the abdomen. I would insist, however, that the pain must be definite, and such that it seriously interferes with the patient's enjoyment of life. The principles I laid down in my Hunterian lectures in 1906 with regard to gastric ulcer are as true to-day as when they were written, not only as regards gastric ulcer, but as regards appendicular gastralgia: "If after six weeks' complete rest on a milk diet, a further period of six weeks on a milk diet with comparative rest, followed by three months' careful dieting, the patient is not free from definite symptoms, or if after apparent cure the patient has a relapse, operation is probably in the best interests of the patient." And at the risk of repetition I may, perhaps, add what I wrote at the same time: "The performance of gastro-jejunostomy (and this is equally true of appendicectomy) in cases of vague gastric disorder, unaccompanied by definite organic lesions, cannot but lead to the discrediting of a valuable and, in suitable cases, legitimate operation."

Conclusions.

1. Appendicular disease may give rise to symptoms which closely mimic the supposed symptoms of gastric and duodenal ulcer.
2. The prominent symptom is epigastric pain or severe discomfort after food; in many cases there are sour eructations, vomiting, and even hæmatemesis and melæna.
3. The radiation of epigastric pain to the lower abdomen is very suggestive of appendicular trouble.
4. Gastric analysis reveals, in some cases hyperchlorhydria, in others a normal amount of free HCl, in others a marked diminution or absence of free HCl. As a rule there is an increase of the volatile acids, and in some cases evidence of hypersecretion.
5. Some cases of hypersecretion or acid dyspepsia and many cases of supposed gastric or duodenal ulcer are due to latent appendicular disease.
6. The evidence that the gastric symptoms are due to appendicular disease is threefold: (a) the majority of the patients are cured by appendicectomy; (b) the influence which appendicectomy has on the gastric contents; and (c) the frequency of a previous history of gastric symptoms in those who have an attack of acute appendicitis.
7. The symptoms are probably the result of intestinal toxæmia, due to intestinal stasis. The effect on gastric secretion is, in the early stages, possibly due to pyloric spasm, but more probably to some influence of the appendix on gastric secretion.
8. Appendicular gastralgia is apparently more common in women than in men.
9. The important lessons to be learnt from these cases are the two following. 1. That no operation should be performed on the stomach except when a definite organic lesion of the stomach or duodenum exists. Gastro-jejunostomy will not cure appendicitis. 2. That in all operations for supposed gastric or duodenal ulcer, the condition of the appendix should be carefully investigated.

Upper Wimpole-street, W.

SOME OF THE COMMONER FORMS OF CHRONIC RHEUMATISM (FIBROSITIS) AND THEIR TREATMENT.¹

BY ARTHUR P. LUFF, M.D., B.Sc. LOND.,
F.R.C.P. LOND.,

PHYSICIAN TO ST. MARY'S HOSPITAL.

THE affections that I am dealing with in this lecture are amongst the minor maladies, in that they do not affect the duration of life, but they have a very appreciable influence on the comfort and enjoyment of life, and in that respect are well worthy of more attention than they generally receive at the hands of the medical profession. They are the more or less chronic affections which are generally labelled "rheumatic," but which undoubtedly are not the sequelæ of acute rheumatism, and which are in no sense connected with that disease. Whereas acute rheumatism is more common in the first half of life, the various forms of chronic rheumatism are much more common in the second.

⁴ Hale White: THE LANCET, 1906, vol. ii., p. 1189.

⁵ Dawson: Brit. Med. Jour., 1905, vol. ii., p. 1032.

⁶ Watson's Lectures, II., p. 496.

⁷ Herringham: St. Bartholomew's Hospital Reports, vol. xlv., p. 11.

¹ A lecture delivered at the Medical Graduates' College and Poly-clinic on March 10th, 1910.

Pathology.

In the great majority of the cases of so-called chronic rheumatism that I am about to deal with, the essential pathological change is an inflammatory hyperplasia of the white fibrous tissue in various parts of the body, to which the term "fibrositis" has been very aptly applied. The articular structures proper—synovial membrane, cartilage, and bone—are not primarily affected, but the parts implicated are the fibrous tissues of the joints, muscles, and bones, especially the aponeuroses and insertions of the muscles, fasciæ, the fibrous ligaments of the joints, and the periosteum. Such affections cause pain and stiffness in these structures, are especially apt to recur, and are commonly referred to as rheumatic or even gouty in their origin. This inflammatory hyperplasia of the fibrous tissues occurs in patches and is started by exposure to wet or cold, by injury, or by some irritant, microbic or toxic, conveyed in the blood. The inflamed and swollen fibrous tissue is tender, painful on pressure or on movement, and can frequently be felt on palpation, or is evident by the consequent elevation of the skin. This fibrositis may completely disappear, but recurrences are common, and if not suitably treated the thickened fibrous tissue remains as indurations at various parts.

The indurations may be widespread, but generally are well defined and vary in size from an eighth of an inch to one inch in diameter. They may be situated in the subcutaneous tissue, the muscles, tendons, aponeuroses, and periosteum. The pain is especially aggravated by any sudden movement of the muscles which compresses or stretches the affected fibrous tissues and the sensory nerve filaments.

Indurations and nodules.—Indurations in muscles are especially apt to develop as the result of excessive muscular work, as in some cases of writer's cramp, in muscles that are much exposed, as in those of the hand and neck, and in those where an injury has been sustained, as is frequently the case with the muscles of the back. These indurations in the muscles are exceedingly common, and are easily recognised. There is only one condition that may be mistaken for them, and that is a gumma. The latter, however, is not usually painful, and the other evidences of syphilis will prevent a mistake.

Barlow and Warner in 1881 described the development of fibrous nodules in the subcutaneous tissue as an occasional feature in the course of rheumatism in childhood and early adult life. Since then subcutaneous nodules have been recognised in adults who have been suffering from that form of chronic rheumatism secondary to acute or subacute rheumatism, and these nodules exactly correspond to those described by Barlow and Warner. As a rule they persist for a longer time than is the case with patients under the age of puberty, but usually they last for a few weeks and then gradually disappear. In young children the presence of subcutaneous nodules is usually of serious import, since they are frequently associated with cardiac disease, which is apt to be progressive in character. It is, however, now a recognised fact that subcutaneous nodules occur in many forms of so-called chronic rheumatism, which are not secondary to either acute or subacute rheumatism, and that in such cases their presence is not of the serious import which it is in the cases of young children referred to above.

Etiology.

Local fibrositis may result from several causes of which the following are the commonest:—

1. *Cold, damp, and wet.*—In a very large number of cases the only assignable cause of the fibrositis is a history of exposure to cold and wet. Sometimes the attack comes on acutely a few hours after the exposure, as in many cases of lumbago, stiff neck, intercostal "rheumatism," and other forms of so-called muscular "rheumatism." At other times stiffness gradually develops after the exposure, and passes on to the condition of chronic fibrositis generally known as chronic rheumatism. The exposure may be due to draughts, remaining in wet clothes, lying or sitting on damp ground or some cold substance, or the simple advent of damp or cold weather. Many persons are readily affected by the approach of rain, and by a lowering of the barometric pressure. Longstreth states that the painful symptoms do not correspond to rain, but to the fall of barometric pressure, and Stockman suggests that possibly the atmospheric changes may increase or lessen the lymph pressure in the body, and so increase or lessen the tension in the affected fibrous

tissues. A very common cause of lumbago from exposure to a local draught is sitting on a draughty privy or water-closet; this, no doubt, accounts for the prevalence of that affection in rural districts, combined with the constant strain of the lumbar muscles amongst so many agricultural labourers.

2. *Extremes of heat and cold.*—Sudden and considerable variations in temperature constitute by no means an uncommon cause of a generalised fibrositis which takes the form of so-called "muscular rheumatism," following on the resulting chill.

3. *Local injuries.*—These are responsible for a large number of cases of local fibrositis, so-called "local rheumatism." Traumatic fibrositis is a definite form and is induced by sudden and severe strain on tendinous and ligamentous structures. Such a form may persist for a lengthened period, for whereas the slighter forms of muscular fibrositis, such as "stiff neck" and mild forms of lumbago, are usually of brief duration, that which affects the tendinous and ligamentous structures may persist for weeks and even months. Golf produces a number of such injuries, the fibrous tissues of the muscles and their attachments to the arms and back being specially affected in this game.

4. *Absorption of irritating toxins from the alimentary tract.*—It has long been recognised that disorders of the alimentary tract may give rise to "rheumatic" pains. Oral sepsis is undoubtedly responsible for the development of some forms of chronic rheumatism. The aching in the joints and the lumbar region that occasionally occurs the day after a lengthy dinner, especially if several wines have been indulged in, is due to irritation of the fibrous tissues by the toxins absorbed from the intestinal tract and which have been produced there by abnormal fermentation. This pain, whether in the joints or the lumbar region, which follows excessive indulgence at the table is generally attributed to gout, and, as a rule, the champagne, claret, or port is blamed for it. I am convinced, however, that this articular or muscular pain has, in the great majority of cases, no relation whatever to gout, and that it is due to a self-generated systemic poison owing to the inability of the gastrointestinal tract to deal properly with the various articles introduced into it.

5. *Tonsillitis and pharyngitis.*—The aching pains that occur in various parts of the body in connexion with these affections are well known and are doubtless due to toxic absorption and consequent irritation of the fibrous tissues.

6. *Influenza.*—Many individuals are personally acquainted with the aches and even severe pains in the muscles, joints, and bones which accompany this disease. These are in all probability due to the fibrositis set up by the specific microbe or its toxin. It is not uncommon to find fibrous nodules and thickenings left as sequelæ of this disease.

7. *Febricula.*—A "feverish cold" is generally accompanied by aching pains in the muscles, joints, and bones. The attack, which is sometimes described as a "rheumatic cold" or an "influenzal cold," is microbic in its origin, and the pains are no doubt due to irritation of the fibrous tissues by the microbe or its toxin.

Various Forms of Fibrositis.

Muscular rheumatism.—This affection is always a fibrositis. Any of the muscles may be affected. Affection of the muscles of the lumbar region constitutes one of the forms of lumbago; affection of the muscles of the neck constitutes stiff neck; affection of the deltoid muscle constitutes "deltoid rheumatism"; affection of the intercostal muscles constitutes "intercostal rheumatism."

Muscular fibrositis of the shoulder and upper arm muscles is at times a very distressing malady, and so severe is the pain in the affected muscles that any attempt at passive movement causes an involuntary contraction in them, which contraction in its turn considerably augments the pain. The result is that under such conditions the shoulder-joint appears to be fixed and gives the impression of the presence of firm adhesions within the joint. It is, in my experience, fairly common to meet with such cases of muscular fibrositis which simulate a fixation of the joints, and in the present days of rapid motoring, with consequent exposure to draught, such cases are becoming more and more frequent. Motorists who ride in the back seats of an open car provided with a wind shield are, if insufficiently clad, especially liable to such attacks of fibrositis, owing to the powerful back draught to

which the back of the neck and the shoulders are exposed. In some of these cases of brachial fibrositis the interference with sleep on account of a difficulty of securing an easy posture in bed, as well as the pain produced by each movement of the arm, are extremely trying to the patient.

In severe cases of brachial fibrositis the inflammatory condition may spread to the adjacent nerve sheaths, and so cause a secondary brachial neuritis. It is not uncommon for the tendinous attachments of the muscles to be especially affected, and I have seen several cases in which the fibrositis has been limited to the insertion of the deltoid, so that the pain has been entirely confined to that locality.

Lumbago.—This is a very typical form of fibrositis. It may be an affection of the fibrous elements of the lumbar muscles, but more commonly it starts as a localised affection of the insertions of the muscles in the vicinity of one or both of the sacro-iliac joints. It spreads by continuity of the fibrous tissue, as is manifested by its affecting the tendinous attachments of the neighbouring muscles, by its affecting the sacro-iliac joint itself, and by its often spreading through the joint and reaching the sheath of the sciatic nerve. This explains the very frequent association of some degree of sciatica with an attack of lumbago.

The production of the pain of lumbago is usually sudden, the patient frequently ascribing it to a sudden strain or wrick, especially on rising in the morning; but although the production of the pain is generally sudden, yet the condition on which it depends has been gradually developed.

Dupuytren's contraction.—This is a localised fibrositis caused by habitual postural use of the hand. It is frequently ascribed to gout, but, according to my experience, the condition has no connexion with that disease. Certainly, I have never seen any gouty deposits in the thickened tissues, nor is the affection commoner amongst gouty subjects.

Fibrositis of the plantar fascia.—A fairly common form of localised fibrositis is that which affects the plantar fascia. This causes pain in the sole of the foot when the weight of the body is on it, and if not arrested is liable to lead to the development of flat foot. The fibrositis is sometimes localised to the attachment of the fascia to the inner tubercle of the os calcis, and then constitutes one of the commonest forms of painful heel. If the inflammation persists at this point it is liable to cause a local periostitis and osteitis, resulting in the formation of a bony spur, which, if not removed, constitutes a permanently painful heel. The accompanying reproduction of a radiogram shows such a bony spur on the os calcis. The patient, who was a gouty individual, was sent to me on account of his chronic painful heel. I advised removal of the spur, which was done by Sir William H. Bennett, with a result that the patient was completely cured of the painful heel.

Pads upon the finger joints.—These constitute a chronic form of localised fibrositis, and have been thoroughly described by Archibald E. Garrod. They form excrescences which are almost confined to the dorsal aspects of the interphalangeal joints of the proximal row, and are only very rarely seen upon the terminal joints of the fingers. They are usually present upon the fingers of both hands, and vary in size from that of a split pea to that of the half of a hazelnut. Sometimes they are quite painless, but more often pain of various degrees of severity is complained of, especially when the fingers are flexed or if the lumps are knocked. Patients suffering from these pads generally seek medical advice under the apprehension that they are the precursors or accompaniments of rheumatoid arthritis, or that they are due to chronic gout. There does not, however, appear to be any connexion between these pads and either rheumatoid

arthritis or gout. There is, however, an intimate connexion between these pads and Dupuytren's contraction of the palmar fascia, and it is fairly common to see the two conditions together.

Chronic villous synovitis.—Although, according to the strict interpretation of the term, this is not a form of fibrositis, yet it may be conveniently referred to here, as its correct treatment is similar to that of other chronic rheumatic conditions. It is a purely local condition and not a manifestation of a general disease. It usually occurs in the knee, and is characterised by crepitus or creaking on movement and by pain and tenderness on use. The crepitus during movement of the joint is frequently unpleasantly audible to the patient, and is especially caused by going up or down stairs. The capsule and the ligaments of the joint are more or less relaxed and the synovial membrane is passively congested and loose. The crepitation on movement is due to the folds of the flabby congested membrane rubbing together; in other words, it is a true creaking and not a bony grating. If further relaxation of the synovial membrane results, hernial-like projections of the synovial fringe may be produced which are apt to cause a catching or locking of the joint when it is moved. In this class of cases the fluid in the joint is generally quite normal, although, if there be great irritation, some excess of it may form. The condition is very frequently mistaken for rheumatoid arthritis, but there is no erosion of cartilages, and no eburnation of the ends of the bones, consequently bony grating can never be produced in such joints.

Treatment.

A saline aperient should always be given at the onset of an attack of acute fibrositis, and repeated as necessary. If the attack is a severe one a short confinement to bed may be necessary. In all cases of brachial fibrositis the arm should be carried in a sling and should be moved as little as possible during dressing and undressing.

Drugs.—In the treatment of the different forms of fibrositis salicylates are of little curative value, as they do not exercise the same specific action as in acute rheumatism. Aspirin is of decided use for the relief of pain in severe cases, but it should only be given with that object. It acts better

than the salicylate of soda owing to the fact that it is not decomposed and absorption does not commence until it reaches the intestinal tract, where a slow liberation of its salicylic acid moiety takes place. It probably also exercises a beneficial effect in cases of abnormal intestinal fermentation. Iodide of potassium is a most valuable drug in the treatment of fibrositis. It seems to exercise a direct effect in removing the hyperplasia and serous exudation in the fibrous tissues. It should always, if possible, be given in full doses of 10 or 12 grains, and should be combined with tonics such as nux vomica or the compound glycyero-phosphate syrup. If the iodide produces severe symptoms of iodism one of the organic iodine compounds may be tried. Of these I have found iodipin, in the form of tablets, extremely useful.

Fibrolysin.—This is a chemical combination of thiosinamine and sodium salicylate. It is freely soluble in water, but the solution undergoes oxidation when kept in the presence of air and light. It is therefore supplied in sealed phials, which are tinted so as to exclude the actinic rays. Thiosinamine is allyl-sulpho-urea, and was originally found to possess a peculiar action on scar tissue in causing it to swell, stretch, and become soft; a similar effect was later found to be produced by it in other cases of pathological fibrous tissue. It is but little soluble in water, but freely so in alcohol. Alcoholic injections of it, however, are very painful, an objection which is almost entirely removed by the

use of it in the form of fibrolysin. It must be administered by intramuscular, subcutaneous, or intravenous injection, as it is inactive when taken by the mouth.

The method of injection that I invariably employ is into the deep subcutaneous tissues of the upper arm, each arm being injected alternately. In my experience there is no necessity to inject it at the site of the fibrositis or scar tissue. The injections should be made under strict antiseptic precautions, and when so done they seldom cause anything more than a slight temporary local pain. It is necessary to give from 30 to 40 injections in all, and they should be administered on alternate days. After 20 injections have been given movements and massage of the affected fibrous tissues should be commenced, as it is at this stage that the thickened tissues usually begin to soften and are then likely to stretch if movements and massage are employed. It is in my experience essential that the injections of the fibrolysin should be followed by massage and movements of the affected parts.

I have employed fibrolysin in several cases of thickening and contraction of fibrous tissues associated with different forms of fibrositis and arthritis, and also in several cases of Dupuytren's contraction of the palmar fascia. In some of the cases no benefit resulted, but in the majority good results were obtained; whilst in several of the cases of stiffened and distorted joints the results were remarkably good, so that the joints, which were previously for all practical purposes useless, had good movements restored and became in most of the cases freely mobile. In the majority of the cases of Dupuytren's contraction the thickening of the fascia and the consequent deformities entirely disappeared. Roughly speaking, in about one-third of the cases fibrolysin failed, and in about two-thirds was more or less successful. I am therefore of opinion that in properly selected cases fibrolysin is a very useful drug to employ, but it is essential that in cases of stiffened and distorted joints it should not be employed while any active mischief is proceeding within the joints. I am unable to offer any definite opinion as to the permanency of the good results in the successful cases, but so far I have not met with any relapses.

As regards the treatment of pads upon the finger-joints, fibrolysin is undoubtedly useful in promoting the softening of these pads. The only other treatment that I have found of use is the nightly inunction of a 25 per cent. jothion ointment, which causes softening and partial absorption of the thickened tissues, although I have never known them to entirely disappear under such treatment.

Formic acid and bee stinging.—Bee poison contains in addition to formic acid an alkaloidal base akin to the venoms, but it would appear that the action of bee poison in rheumatic subjects is attributable to its formic acid constituent. It is possible that if the direct stinging with bees is of any efficacy in the treatment of rheumatism, it is simply due to the action of formic acid as a counter-irritant. I have had no experience of the treatment of rheumatism by means of bee stings, but a few years ago I gave an extensive trial to the treatment of several forms of chronic rheumatism by means of formic acid administered internally. The results, however, were so discouraging, and compared so unfavourably with the results obtained by other methods of treatment, that I have completely abandoned the use of formic acid.

External applications.—In the early stages of an acute fibrositis hot fomentations are useful. Afterwards one of the best external applications in my experience is a mixture of equal parts of chloral hydrate, camphor, and menthol. These three substances form a liquid when well rubbed together. This liquid should be painted over the painful area, and then be gently rubbed in with the fingers. Some patients find the cold sensation produced by the menthol objectionable; in such cases the menthol may be omitted and equal parts of chloral hydrate and camphor employed, which also form a liquid when rubbed together. Another useful external application is to paint the painful area with tincture of iodine and then to apply a hot linseed poultice or a very hot fomentation. The heat converts the iodine into vapour, which exercises an anodyne effect and, probably by absorption, directly acts on the affected fibrous tissues. In the later stages the aconite, belladonna, and chloroform liniment applied on lint is frequently most beneficial. In cases of a very localised fibrositis counter-irritation is sometimes of great use, especially in the form of the thermo-cautery.

Heat and electricity.—Rest of the affected parts and diaphoresis are two of the most important procedures in the

treatment of rheumatic fibrositis; diaphoresis is especially beneficial at the onset of an attack. Heat is of the greatest use in the treatment of these cases, and if employed early will frequently abort an attack. Heat dilates the peripheral vessels, lowers blood pressure, causes diaphoresis, and relieves pain. If heat is to be applied to the entire body the electric light cabinet bath is the most convenient and most useful form. I regard the combination of the heat and light rays as most useful and as being far superior in their effects to the employment of dark heat.

In strictly localised forms of fibrositis, and especially in cases of lumbago and chronic villous synovitis of the knees, the most effective form of local treatment that I am acquainted with is the employment of superheated air followed by ionisation (cataphoresis) of the affected joint or part. I have employed this method of treatment in some hundreds of cases and with the most satisfactory results. In cases of affected joints I always order the employment of the superheated air cylinder, and in cases of lumbago either the entire body electric light bath or the application of superheated air locally by one of the forms of apparatus that have been devised for the purpose. The application of the superheated air lasts for 15 to 20 minutes, and is immediately followed by ionisation lasting from 10 to 15 minutes.

In chronic joint cases and in chronic cases of lumbago I always order the employment for ionisation of a 2 per cent. solution of iodide of lithium and direct that the negative ion (the iodine) should be driven into the affected tissues. In cases of acute lumbago ionisation should be done with a 2 per cent. solution of salicylate of sodium at the first sitting or two, in order to produce immediate relief of the severe pain. The salicyl ion is introduced into the painful region, and it is remarkable how rapidly it will relieve the pain, just as salicylic ionisation rapidly relieves the pain of most cases of severe neuralgia and some forms of neuritis. I have found this method of treatment with superheated air and ionisation of the greatest value, and it has a very remarkable effect in causing the absorption of thickened fibrous tissues.

In the later stages of a muscular fibrositis a rapidly interrupted faradic current is beneficial, but it should be so weak as not to cause any muscular contraction.

Massage and exercises.—Massage is very useful in the later stages, but it should not be employed until it causes no pain. The manipulations should be very gentle at first, so as to promote removal of exudation and to relieve the tension. Afterwards more vigorous massage is most efficacious in dispersing the indurations and fibrous thickenings, and in removing the stiffness of the affected part.

During the very painful stage of muscular rheumatism as complete rest as possible of the affected muscles must be enforced, but later on exercises of the muscles are of great benefit. Either light dumb-bells or Indian clubs of from one to two pounds in weight should be employed, and such movements are to be performed as will bring the affected muscles into action. The exercises should be performed on rising in the morning and should not occupy more than from 10 to 15 minutes. After the exercises a cold or tepid bath should be taken and the skin be briskly rubbed with a rough towel.

Diet.—Unlike gout, no special dieting is required in these affections. Moderation should be the keynote of all prone to the various forms of fibrositis, and especially should they avoid foods which their experience has taught them to be apt to produce gastro-intestinal fermentation. It has become of late years a fashionable craze to attribute many of these forms of "chronic rheumatism" to uric acid, but I am firmly convinced that that harmless by-product of the human economy plays no part whatever in the development of the various forms of chronic rheumatism or fibrositis.

Underclothing.—With regard to the underclothing that should be worn by rheumatic individuals I must confess that I am a convert to the view that porous linen underwear is the most suitable. It allows of the free evaporation of perspiration and so prevents a more or less sodden garment from remaining in contact with the skin, which so frequently happens with those who wear woollen underclothing. I am convinced that in the latter case such sodden garments are a frequent cause of many of the forms of chronic rheumatism. Some individuals find that in winter linen underwear is too cold, and in such cases a thin silk vest may be worn over the linen. This will be found to constitute a thoroughly warm, comfortable, and safe form of underwear.

Queen Anne-street, W.