

As for the iodine applications, you can make use of the tincture of iodine of the pharmacopœia, or of the iodized cotton,² or if you desire still more revulsive an action, you can add a little more iodine to your tincture.³

You can also make use of the means proposed by Bernard,⁴ who based quite a therapeutic method on nascent iodine. This method consists in the decomposition, on the place where it is applied, of an alkaline iodate by tartaric acid. It is quite an efficacious way of procuring severe local revulsion.

It is in these cases of rheumatic pains that use is made of the pomades and liniments of which I have before spoken. One point I must urge upon you: In these painful muscular and joint affections it is well to keep the limb at rest. Moreover, this immobilization is instinctively made by the patient, who thus seeks to avoid anything that will produce pain. Cœhne has gone so far in this direction as to propose splints in the treatment of acute rheumatism of the joints.⁵ I think that this is carrying immobilization to excess; and notwithstanding the importance which ought to be attached to arrest of movements in the treatment of certain mono-articular arthritides, it would be a mistake to apply retentive apparatuses in the case of inflammations so mobile and shifting in their character as are observed in acute rheumatism.

Balneotherapy occupies an important place in the therapeutics of acute rheumatism, whether muscular or articular. This disease being generally pro-

may be advantageously medicated with morphia as follows: R. Morphia, 1 gramme; tincture of iodine, 30 grammes. M.

[A favorite anodyne application is the extract of belladonna or stramonium rubbed up into a paste with water, and spread on cloth, with which the affected joint is covered.]

² The iodized cotton is made according to Mehu's directions as follows: Take 25 grammes (nearly an ounce) of finely carded stove dried cotton, sprinkle over it 2 grammes (3 ss) of iodine reduced to powder, and heat to 100 degrees 212° F.) Eight per cent. of the iodine remains fixed to the cotton. (a)

³ Bouvier gives the following formula for a stronger tincture of iodine than the officinal; R. Tinct. iodine, 30 grammes; iodine 2.50 grammes; iodide potas., 1.50 grammes. M. Laborde's tincture is still stronger: R. Tinct. iod., 60 grammes; iodine, 10 grammes; iod. pot., 5 grammes. M. This solution has the consistence of paint, and is applied with a camel's hair pencil. (b)

⁴ Bernard's solutions for nascent iodine are as follows: R. Iodide of sodium, 98.85 grammes; iodate of soda, 26.17 grammes; water, q. s. For a solution which will mark 12.5 on the salinometer. This is No. 1. No. 2 is as follows: Tartaric acid, 125.80 grammes; water, q. s. To make a solution that shall mark 12.15 on the salinometer. Apply with two different brushes the two solutions successively, or surround the joint with cotton soaked in No. 1; the acid sweat will set free iodine by decomposition of the alkaline iodate.

⁵ Cœhne employs splints in the treatment of acute articular rheumatism, and he has compared the results obtained by this method in 45 cases of rheumatism, with 45 other cases treated by other methods. According to this writer, immobilization lowers the fever, and the total duration of the disease is diminished a week at least (c).

(a) Delpech on Iodized Cotton. Bull. gen. de Th. t. 87, p. 33, 1874.

(b) Laborde on The External Applications of Iodine. Bull. de Th. t. 87, p. 76, 1874.

(c) Cœhne, Die Behandlung des Rheumatismus acutus mit festen verbanden (Arch. der Theelkunde, 1875, 5th livr.)

voked by the direct action of cold and dampness on the cutaneous surface, and by arrest of the functions of the skin, it has always been believed that sudorifics have a very energetic and beneficial action in the treatment of rheumatism, and that nature has given an indication for their employment in the abundant sweats that characterize the malady. Therefore it has seemed logical to increase the secretory action of the skin. Sudorifics have then been in fashion, whether administered internally in the form of ptisans or externally in the form of vapor baths; thus infusions of dulcamara (bitter-sweet) have been advised, of borage (*borago officinalis*), of bryony, and especially of the European ash (*fraxinus excelsior*) vaunted by Delarue, Marbotin and others.¹ I must not omit to mention the infusion of black cohosh (*cimicifuga racemosa*) so recently recommended by Bartlett.²

In the same group we must place jaborandi and pilocarpine, with which, in the treatment of rheumatic fever, Gubler, at the beginning of his career as a clinician, made several trials; trials which have seldom since been repeated.

If diaphoretic infusions play a doubtful and disputed rôle in the therapeutics of rheumatic fever, it is not so with external sudorific applications, such as vapor baths, the wet pack,³ and hydrotherapy.

Sudation is obtained by the vapor bath in two ways: either by the hot dry

¹ The leaves of the ash, *fraxinus excelsior*, have been much employed in rheumatism, and recently Delarue, Pouget and others have experimented with this old remedy, and have found the leaves efficacious as a therapeutic agent. The infusion, if we may judge by their trials, provokes abundant sweats and a copious diuresis. The leaves contain the medicinal principles, and the dry leaves are better than the green. With the former a decoction is made by infusing from half an ounce to an ounce in eight ounces of water, a pinch of peppermint leaves being added before steeping. This infusion is taken in teacupfuls every two or three hours; it may also be used in the form of lavements. The dried leaves may also be applied around the painful joints. Pouget has proposed a similar infusion, made by steeping fifteen grains of the dried powder of the leaves in about a gill of hot water; this is infused three hours and strained. (a)

² The black cohosh (also called *macrotys*) is much used in this country in acute and chronic rheumatism. It is a great favorite with eclectic practitioners. The decoction of the root (one ounce to the pint) may be used in doses of one or two fluid ounces, or the tincture or fluid extract, in the dose of 15 drops every two hours, till relief is obtained from the pain and active diaphoresis is produced. According to some authorities its physiological action is characterized by slight nausea, vertigo and lowering of the pulse, but not by sweating. Dr. F. N. Johnson, of New York, was one of the first to introduce it in this country in the treatment of acute inflammatory rheumatism. It induced no sensible evacuations but diminished the force and frequency of the pulse, and caused the pain to disappear. Dr. Simpson found it wonderfully efficacious in lumbago. In sciatica and rheumatic dysmenorrhœa it is highly vaunted.—TRANS.

³ Dowse employs in cases of acute rheumatism wrappings in wet sheets, and claims good results. He envelopes the patient in a sheet wrung out of warm water, which he covers with dry blankets, so as to provoke copious diaphoresis; from time to time the patient is made to drink some hot ptisan. (b)

(a) Delarue, Jour. de Conn. Med. Chir., August, 1852. Pouget and Peyraud, Union Med., Dec. 9, 1852. Marbotin, Bull. de Ther., 1853.

(b) Dowse, Brit. Med. Jour., 1875, pp. 39 and 106.
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air, or the hot moist air process, and we can in certain cases apply warm steam douches to the patient in bed, by projecting jets of steam around his body encircled with hoops which are covered by the bed clothes.¹

During the last few years there have been great improvements in the processes of balneation. Zaba has advised the use of the vapor of water as hot as can be borne. Benoit, Bremond and others have added turpentine to these baths and have thus constituted terebinthinated vapor baths, which play an important part in the treatment of certain forms of rheumatism. By the side of these baths of medicated vapor, we place medicated baths, properly so-called, and among these last the sulphur baths.² These give good results in the treat-

¹ Vapor baths are divided into hot air baths (the hot air chamber) and vapor baths properly so-called. These baths are of great antiquity. The Egyptians employed dry air baths, also the ancient Mexicans, according to Von Humboldt. Among the Greeks and Romans these balneal practices were in great repute. After undressing in the *spoliatorium*, the bather entered the *laconicum*, an oven-like chamber filled with hot air, and in which profuse perspiration was excited. Then he passed into the *frigidarium*, where he took a cool plunge bath, and from this he went on to the *tepidarium*, a warmer apartment where massage was practiced, and where he was dried and rubbed and anointed with oil.

Hot air baths are given at the present day in special apartments which the subject enters, or they consist of partial air baths in which the head of the patient is protected from the heat. A simple way of administering this bath is to place the patient on a chair pierced with holes and covered with a cloth, beneath which an alcohol lamp is burning. He is then wrapped with blankets, all but the head. The temperature of the hot air chamber varies from 35° to 65° centigrade. It is not, however, prudent to exceed a temperature of 45° (113° F). After staying a while in these hot air chambers, the subject takes an invigorating plunge in a cold tank, or receives a cold douche (as in the Russian bath). In the Turkish or Oriental bath, after emerging from the hot air room, the bather is shampooed, wrapped in warm towels and wiped dry.

Vapor baths are also whole baths or partial baths. The temperature of these moist air chambers is lower than that of the dry rooms, and varies between 37° and 45° centigrade. At the same time the people of northern countries can support for a short time, without suffering, a temperature of 75° C. (167° F).

[The partial vapor baths are given in a similar way to the partial hot air bath above described, a dish of hot water being placed over the alcohol lamp and made to evaporate; the vapor being confined by the bed clothes which envelope the patient, all but the head. In a very short time profuse perspiration takes place.]

The last few years Fleming has studied the action of the Turkish bath. He has shown that it augments the temperature and pulse. The destiny of the urine is increased; it loses a great part of the chlorides, while the quantity of urea is augmented; arterial tension is raised. Fleming considers the Turkish bath a powerful curative agent in rheumatism, but it is contra-indicated where there is any heart affection. (a)

Bremond's apparatus consists of a tight box in which the patient is confined, all but his head. Into this box steam is conveyed by a suitable generator; this steam carries with it minute quantities of the vapor of turpentine which impinges upon every portion of the body of the patient, except what is outside the box. Bremond affirms that by this means there is a considerable absorption of turpentine by the skin and elimination by the different emunctories. (b)

² There are several formulas for these sulphur baths. We present three:

(a) Physiology of the Turkish Bath, Jour. of Anat. and Phys., July 13, 1879.

(b) Bremond, Cutaneous Absorption. A New Method of Treatment of Rheumatism, Paris, 1874.

ment of rheumatic pains, but it is necessary to take great care, as Lasègue recommends, always to raise the temperature of the bath so that the bath will be hotter when the patient leaves it than when he enters it.

It would now be in place to speak to you of the thermal treatment of rheumatism, but as this kind of treatment belongs rather to the chronic than to the acute manifestations of this affection, I will defer the exposition of this subject till my next lecture, when I will consider the treatment of chronic rheumatism and of gout.

To sum up, then, what I have said: In simple acute articular rheumatism you need employ only one medication, the salicylate of soda, giving it from the very beginning in the doses of from four to six grammes (3 j to 3 jss) a day, and you must prolong the treatment a long time after the disappearance of the pain and febrile symptoms. In subacute rheumatism, whether articular or muscular, yet accompanied by severe pains and great mobility of symptoms, it is still well to make use of salicylate of soda. When, on the other hand, you have to do with vague rheumatic pains without fever—frictions, vapor baths and sulphur baths will serve you a good turn. In fine, when rheumatism localizes itself, it is the revulsive medication which you should employ, and according to the effects which you would produce, you may use successively tincture of iodine, vesicatories and punctiform cauterizations. It is this revulsive method which, joined to the use of suitable retentive apparatus, is of most efficacy in the treatment of gonorrhœal rheumatism. It remains for me now to say a few words about the treatment of the complications of acute rheumatism.

You all know the predominant tendency of rheumatism to affect serous membranes, and especially those of the heart. These endocardial, pericardial, pleuritic rheumatisms are all amenable to revulsive treatment, but you can prevent in a certain measure their development by the salicylic medication; and notwithstanding the statistics furnished by Fagge and Broadbent, I can assure you, after my own experience, that the salicylate of soda, administered from the very commencement of rheumatism, will oppose cardiac and pulmonary complications.³ Among these complications is one which is of great gravity, and

1. Take of sulphide of sodium.....two ounces.
Chloride of sodium.....two ounces.
Dried carbonate of sodaone ounce.

Mix. To be added to the water of an ordinary full bath.

2. Take of sulphide of calcium.....two ounces.
Bicarb. soda.....two ounces.
Chloride of sodium.....two ounces.

Mix. For a bath.

3. Take of tri-sulphide of potassium.....five ounces.

Add to the water of an ordinary full bath.

No. 3 is the most generally used.

³ There is not perfect agreement among medical authorities respecting the influence of the salicylic medication as preventive treatment of the cardiac complications in rheumatism. In Germany certain statistics have been published which pertain to eighteen cases of acute rheumatism treated from the first or second day by the salicylate. In only five per cent. of

which, by the treatment which it demands, has a place apart from the other manifestations of rheumatism. I refer to cerebral rheumatism.

The accidents which may occur on the part of the brain in the course of rheumatism have multiple forms.⁴ Sometimes intellectual troubles supervene, which my excellent friend Mesnet, my colleague in this hospital, has described under the name *folie rhumatismale* (rheumatic insanity). Sometimes veritable attacks of hemiplegia take place (rheumatic apoplexy); sometimes meningeal symptoms predominate; sometimes there exists hyper-pyrexia with or without delirium. This rheumatic hyper-pyrexia has especially attracted the attention of English physicians, and in his recent work on rheumatism, MacLagan devotes a long chapter to this hyper-pyrexia, which he likens to that produced by sunstroke. He attributes it to irritation of the thermic nerves of the skin by lactic acid, the excess of which in the blood is, he thinks, the first cause of all the rheumatismal complications. It is this hyper-febrile movement which is

these cases were there any cardiac lesions, instead of in eighty per cent., which has been given as the ratio of heart complications where this medicine was not used.

English statistics give results completely opposite. The statistics furnished to the Medical Society of London in December, 1881, pertain to 5,000 cases. According to the statistics of Fagge, in 500 cases of rheumatism not treated with salicylic acid, there were 273 with cardiac lesions, or fifty-four per cent.; in 350 cases where various kinds of treatment were used, there were cardiac lesions in 227, or sixty-five per cent.; in 350 cases treated by salicylate there were cardiac lesions in 241, or sixty-eight per cent. According to the statistics of Broadbent, there were cardiac affections in fifty five per cent. where salicylates were not used; and in 1,748 cases in which this medication was employed, there were cardiac affections in 1,109, or sixty-three per cent. In England, then, instead of the small proportion of five per cent., we find a medium of sixty-four per cent. of cardiac complications during or following the salicylic medication.

⁴ Hervez of Chegoïn was the first to describe, under the name of cerebral rheumatism, the brain complications which supervene in the course of rheumatism. These complications may be classed under four heads: *Folie rhumatismale*, rheumatic apoplexy, rheumatic meningitis, and simple delirium with hyper-pyrexia.

Hyper-pyrexia is observed especially in connection with simple delirium, and it is this form which is benefited by cold baths. The delirium may even be wanting, and there exist rheumatisms with hyper-pyrexia, without delirious manifestations. Steward Lockie cites curious examples. The temperature rises in these cases to 41° C., and even attains a higher point. What characterizes this form of rheumatism is the disappearance of the articular phenomena, and their reappearance when the delirium is gone. Cerebral rheumatism has been accused of being provoked by the exhibition of certain medicaments, and in particular quinine. Aran has shown that these medicines have nothing to do with the production of cerebral rheumatism. The treatment of cerebral rheumatism by cold baths was first adopted by William Fox in 1871; then, the same year, by Moxon and Clifford Albutt; by Thompson and Russel in 1872; by Weber in 1873; by Raynaud in 1874; Fereol and Blachez in 1875, and Heubner in 1877. (a)

(a) William Fox, On the Treatment of Hyperpyrexia as Illustrated in Articular Rheumatism, London, 1871. Morton, Med. Timet, 1871, p. 243. Clifford-Albutt, Lancet 26 décembre, 1871. Thompson, Brit. Med. Journ., 3 aug. 1872, et Med. Times, 19 mars 1873. Russel, Brit. Med. Journ., 20 mars 1872. Weber, A Case of Hyperpyrexia, Clin. Soc. Trans., V, 1872. Heubner, Zur Behandlung der Hyperpyrexia in Acuten Gelenk-rheumatismus des Sagenannten cerebralerheumatismus, Arch. der Heilkunde, XVII, p. 134.

of all the cerebral accidents of rheumatism, the only one amenable to treatment by cold baths.¹

In the discussion which arose in 1875 in the sessions of the Société des-Hôpitaux, with reference to the treatment of cerebral rheumatism by cold baths, I was forced to take the ground that in the event of cerebral complications, the indication for this kind of treatment was derived neither from the disappearance of the joint symptoms, nor from the appearance of delirium, but from the elevation of temperature, and that the only guide in the use of cold baths was the temperature which in these cases may reach, and even exceed 41° C. (nearly 106° F.) (b)

This cold bath medication, recommended for the first time by William Fox in 1871, and introduced into France by Maurice Raynard in 1874, has given, in certain cases, marvellous results. It consists in immersing the patient in cold water, according to the method of Brand, and in continuing or repeating the baths till the temperature is brought down, and remains below 40° C. (104° F.).²

This kind of treatment is heroic, and you ought always to resort to it when you have to do with rheumatism complicated with excessive fever

¹ MacLagan dwells at great length on rheumatic hyperpyrexia. According to him there exists a special heat centre, situated probably in the upper part of the spinal cord, which governs and regulates the heat-production of the entire economy; this centre, which has the double power of producing and arresting heat, is in immediate connection with the thermic nerves which are abundantly distributed in the skin. It is thus that is explained the hyper-pyrexia produced by *coup de soleil*, and the febrile excesses observed in rheumatism.

The skin possesses an extraordinary activity in rheumatic fever; the excess of lactic acid in the blood, which is, according to MacLagan, the point of departure of rheumatism, is the cause of the excessive sweats, and as this lactic acid is eliminated by the perspiration its elimination irritates the cutaneous surface. This irritation enlists the thermic nerves as well as those of common sensation, and through the thermic nerves the thermic centres are affected. As treatment MacLagan proposes cold applications. (a)

² Woillez has written a valuable monograph on the treatment of cerebral rheumatism by cold baths. According to him the indications of this bath are as follows:

1. When to the delirium is joined diminution or disappearance of the articular fluxion, and, moreover, a fever heat of 40° or more.
2. When in cerebral rheumatism with the delirium there is no diminution in the joint symptoms, the fever heat being high.

The Clinical Society of London has made some researches on this subject. These are their conclusions:

1. The hyperpyrexia in acute rheumatism seems to prevail at certain epochs. Cases of this kind were very numerous between the years 1873-76. They have been more rare for the last few years. Without affirming that there exists a mathematical proportion between the number of cases of hyperpyrexia and of rheumatism, it may at the same time be admitted that there exists a certain relation between them. The hyperpyrexia was more common in spring than in summer, while rheumatism is more frequent in fall and in winter.

2. While the influence of sex on the frequency of rheumatism seems little marked,

(a) MacLagan On Rheumatism, Its Nature and Treatment, London, 1882.

(b) Dujardin-Beaumetz on The Indications of Treatment of Cerebral Rheumatism by Cold Baths. (Union Med., 1875, and Bull. et Mem. de la Soc. Med. des Hôp., Mars., 1885.)

heat, one of the gravest of forms, and which speedily proves fatal unless you come to the rescue with active antipyretic treatment.

I shall have finished, gentleman, the hints which I wished to give you in reference to the treatment of acute rheumatism, when I shall have set forth the dietetic and hygienic principles which should govern you in these cases. These general rules, save always the milk regimen counselled by Biôt of Lyons,³ are much more applicable to chronic rheumatism and to gout. I will then defer them till my next lecture, when I shall speak of the treatment of these two affections.

hyperthermia is more common in man than in woman, in the proportion of 1.8 to 1.; the influence of age and professional occupation is nil.

3. Hereditary predisposition to rheumatism is not a cause of hyperthermia.
 4. Generally hyperthermia complicates the first attacks of rheumatism.
 5. It is not generally accompanied by accidents on the part of the viscera. The most common visceral complications are pericarditis and pneumonia.
 6. The mortality of acute rheumatism with hyperthermia is very high; hyperthermia is one of the principal causes of death in acute rheumatism.
 7. Sometimes, but not always, it is preceded by suppression of the joint pains and by perspiration.
 8. It is often preceded by delirium or other nervous accidents.
 9. The date of the appearance and the duration of the hyperthermia are very variable.
 10. Death, when it takes place, comes on generally on the second or third week of the rheumatism.
 11. It does not give place to the special lesions of the viscera; when there exist visceral lesions, these are not necessarily very extensive.
 12. The best treatment consists in making cold applications to the skin; these are the more efficacious, the earlier they are resorted to. The temperature ought not to exceed 40.5° C. (105° F). If the baths do not suffice, one should have recourse to applications of ice, to cold lotions, to the wet pack, to injections of ice water, etc. (a)
- ³ Biôt, of Lyons, employs the milk diet in rheumatism. According to him, this regime alleviates the pain and lowers the thermic curve. This effect is largely due to the activity given to the renal functions. (b)

(a) Woillez, Du rhumatisme cérébral et de son traitement par les bains froids (Bul. gén. de Thér., p. 334 et 397, October et November, 1880). Report concerning hyperpyrexia in acute rheumatism, by a Commission of the Clinical Society of London (Med. Times and Gaz., June 3, 1882).

(b) Biôt, On Milk Treatment of Acute Rheumatism. Revue Mens. de Méd. et Chir. Mars, Avril, Mai, 1879.

ON THE TREATMENT OF CHRONIC RHEUMATISM AND GOUT.

SUMMARY:—Chronic Rheumatism—Origin of Gout and Chronic Rheumatism—Arthritis—Arthritis Deformans—Treatment of Arthritis Deformans—Internal Medication—Arsenic—Iodine and Iodides—Salicylate of Soda—External Treatment—Electricity and Massage—Thermal Treatment—Dietetic Treatment—Action of Cold—Gout—Pathogeny of Gout—The Uric Acid Diathesis—Etiology of the Uric Diathesis—Therapeutics of Gout—Treatment of the Fit of Gout—The Fit of Gout—Ought We to Treat the Fit of Gout—Visceral Complications of Gout—The Gouty Kidney—Bloodletting—Sudorifics—Guaiaacum—Purgatives—Specific Treatment of Gout—Sulphate of Quinine—Colchicum—Preparations of Colchicum—Vegetal Treatment of Gout—Alkalies—Salicylate of Soda—External Treatment of the Fit of Gout—Resumé of the Treatment of the Fit of Gout—Treatment During the Interval—Alkalies—Lithia—Bitters and Tonics—Thermal Treatment—Hygienic Treatment.

GENTLEMEN:—I propose in this lecture to consider the treatment of chronic rheumatism and gout. By these words, chronic rheumatism, I do not mean all chronic forms of rheumatism, but rather that variety which affects the bones, and which is characterized by those deformities of the small joints which have given to this affection the name of *nodular rheumatism* or *arthritis deformans*.¹

Confounded from remote antiquity under the name of arthritis, gout and chronic rheumatism have been now grouped in the same description, now constituted as distinct entities, according as writers have taken for their basis the etiology, the symptomatology, or the pathological anatomy of these two affections. To-day this question, after many vicissitudes, seems to have reverted to the point from which it started, and if we observe between gout and rheumatism differences radical and complete, we recognize also that they may derive their origin from one common hereditary source.

¹ Charcot has referred chronic articular rheumatism to three principal types: 1. Chronic, primitive, articular rheumatism, generalized or progressive; this is the nodose or deforming rheumatism of authors, a rheumatism remarkable especially for its tendency to become general, by beginning in the little joints and particularly those of the hands, by the deformities and disorders which it occasions.

2. Chronic, primitive articular rheumatism, fixed and partial. This is the dry arthritis of surgeons; it generally affects only one joint, preferably that of the hip (*morbus coxae senilis*).

3. Heberden's nodosities (*digitorum nodi*) which occupy the joints of the phalanges and palangettes, while sparing the metacarpophalangeal articulations. Besnier has divided the forms of chronic articular rheumatism into three groups:

Simple chronic rheumatism, chronic fibrous rheumatism, chronic bony rheumatism. The latter is subdivided into three groups: Chronic multi-articular bony rheumatism; chronic partial bony rheumatism; chronic rheumatism of the phalanges. (a)

(a) Charcot, Leçons sur le rhumatisme chronique, recueillies par Ball. Besnier, Art. Rhumatisme, in Dictionn. encyc. des sciences méd.