

admirably portrayed than by Sydenham in his treatise<sup>6</sup> on gout, I will mention especially the dyspeptic prodromes and the pains in the joints which acute gout determines.

The perturbation of the functions of the stomach plays a considerable part in the attacks of gout, and this is so generally known that gout has even been attributed to functional derangements of the stomach. I have already spoken of these gouty dyspepsias in those lectures which treat of diseases of the stomach.

As for the pains in the joints, these affect, as you well know, in the great

pletely alleviated, the digestive functions remain good, but if the case is otherwise, there is anorexia and dyspeptic disorder.

During the febrile paroxysm the urine is scanty, and deposits a great quantity of crystallized uric acid (Scudamore, Proust, Rayer).

The first attack of gout may be the only one, but this is not generally the case, and often at the end of several months there is a second, then a third, then other attacks occur at intervals more or less wide apart, and leave certain traces behind them. The gout does not remain limited to one joint, it attacks several; resolution is not complete in the diseased parts; the joints keep stiff, are tender and sensitive to pressure and movements; the gout passes to the chronic state.

Chronic gout may be chronic from the outset; generally it succeeds the acute form. The attacks are less violent and are apyretic, but they are longer, and in the interval of the fits the health does not become fully restored as before. The local state undergoes changes; in the ligaments and periarticular tissues there are deposits of urates. Concretions appear under the form of fine sand, or mortar like masses, which are diffused among the tissues, become hard and form solid bodies, sometimes of considerable size, which provoke disorders more or less, grave on the part of the joints, distort the bones, and render movements impossible. In the feet the tophus has its favorite seat around the first joint of the great toe. When the disease has lasted a long time, it is quite common to note other alterations. The articulating surfaces may be disjoined, concretions of urates and of uric acid cause incomplete luxations, the bones themselves are affected, and anchyloses ensue; sometimes the periarticular tophus becomes the origin of inflammation, followed by ulcerations of the skin, which lead to sloughing out of the concretions. These lesions are met with chiefly in fixed gout. The cretaceous deposits are not only found in the bones, joints, and periarticular tissues, they are also observed in the cartilages, and Garrod relates cases of gouty patients who had no joint troubles, and where but one or two patches were observed of urate of soda seated on the cartilage of the external ear.

<sup>6</sup> Sydenham's description of the fit of acute gout is as follows:

"Whenever the gout is regular, this is its mode of manifestation:

"About the end of January, or the beginning of February, it bursts forth abruptly, almost without warning, if we except a certain crudity of the stomach with dyspepsia, from which the patient has for several weeks suffered. He has been (it may be) complaining of a feeling of flatulent distension, and of a heavy pressure, which increases from day to day till the fit occurs. For a few days he has suffered from a sense of torpor, with cramps or muscular spasms running down the limbs. Sometimes the evening before the attack, the appetite is more voracious than natural. He goes to bed, however, in a fair state of health and sleeps. About two o'clock in the morning he is awakened by a pain which is generally confined to the great toe, sometimes to the heel or the calf of the leg. This pain resembles that which accompanies dislocation of these bones, plus the sensation of hot water poured on these parts; soon a creeping sensation with a chill comes on, and a little fever. The pain, at first moderate, gradually increases, while the crawling sensations and the chill disappear. At length, as the morning comes on, the pain arrives at its maximum, spreading over the differ-

majority of cases, the metatarso-phalangeal articulation of the great toe, and cause horrible suffering. The skin over the inflamed joint takes on a violaceous tint, and has a shining aspect which enables you to diagnosticate a fit of gout at first sight. You know to-day that these joint phenomena are due to the presence in the interior of the articulation of crystals of urate of soda, and you are aware that the least disturbance of the limb will exasperate the pain; you also know that the urate of soda, the morbid agent of the gout, may cause certain saline deposits, known as *tophus*, around the joints.

But there is a disputed question which we must now meet, viz., whether it is best to treat at all a fit of gout. Moved by the grave accidents which may

ent bones of the tarsus and metatarsus and gaining possession of the ligaments, sometimes manifesting itself under the form of violent tension or laceration of these investments, or gnawing, racking, rending torture.

The part affected has acquired so exquisite a sensibility that it cannot bear the weight of the bedclothes, nor even the jarring produced by a person heavily walking across the room. The night passes in this excruciating suffering and in perpetual jactitation of the entire body. The patient vainly seeks for rest, and for some easy position for the suffering member, and relief does not come for several hours, or till after a sort of digestion or dispersion of the morbid matter. The patient at last feels a sudden lull in the pain, and generally he attributes it, though wrongly, to the last position in which he placed the painful member.

Covered with a gentle perspiration, he yields to sleep. On waking, the pain is very much lessened, but he perceives that the affected part has become the seat of a tumefaction, while previously there was nothing to be seen but swelling of the veins in the vicinity. The next day, or two or three days later, according as the matter suitable to engender the gout is more or less abundant, the part attacked remains more or less painful; the suffering augments towards night and diminishes towards morning. At the end of two or three days the other foot is tormented by a pain similar to that which affected the first member. If the latter is now free from pain, the resulting debilitation soon vanishes; the bodily forces are restored as before, unless the pains which affect the second member should become equally atrocious, in which event there would be a renewal of the previous scene of suffering. After the two feet have been thus affected, the successive paroxysms become abnormal as respects the time of the invasion and the duration. They keep always this characteristic, that the pain has its nocturnal recrudescences and its morning remissions.

It is the congeries of these fits which constitutes the paroxysm of gout. It is not to be inferred that the individual afflicted by the malady for two or three months is all the time under torture; he is subjected to a series of paroxysms which go on decreasing in severity and duration till the peccant matter is exhausted and the health is restored.

In strong individuals and those whom gout has rarely visited, this return to health often takes place after a fortnight; in old men and those who have often been afflicted by the disease, it is accomplished at the end of a couple of months. Those, in fine, who have become infirm from age, or in consequence of long subjection to the disease, do not generally experience any improvement till summer.

The first fourteen days the urine is more highly colored than natural, and on standing it deposits a red and sandy sediment; the patient scarcely gets rid of a third of his ingested liquids by the urinary passages; the constipation is almost constant. The loss of appetite, the chilliness experienced toward evening, the sensation of weight and of malaise even in the parts which have not been affected, are continued throughout the sickness. Towards the end there comes on an almost intolerable itching of the foot, especially between the toes where there is a furfureous desquamation. The feet themselves undergo desquamation just as after certain poisonings.

The sickness is over, health and appetite return, and this in proportion to the pain



occur in the case of a gouty paroxysm, and especially struck by the disappearance of the gouty symptoms when visceral complications arise, the older physicians assigned an important part to metastasis in the production of these phenomena of visceral gout. Adopting in their entirety the ideas of Sydenham,<sup>1</sup> they thought that it was dangerous to interfere in the gouty paroxysm for the reason that the attack was the result of a tendency on the part of the economy to throw out peccant humors; if this elimination did not take place, they thought that this morbid matter, attacking the lungs, heart, and brain, would produce very serious complications referred by them to retrocession.

Thanks to the progress of pathological anatomy, we have an explanation more true, more scientific, and more exact of this metastasis, and we know to-day that it is occasioned by uræmia. In fact, the kidney plays an important rôle in the symptomatology of gout. Under the influence of the constant irritation which is determined by the passage of urine loaded with uric acid, the renal canaliculi become inflamed or obliterated in part, and then supervenes either

and discomfort experienced during the long attack. If the last attack seriously prostrated the patient, the next one will not reach the same point of severity during the year following. This is the behaviour of regular gout which manifests itself with the frank symptoms which are proper to it. (a)

<sup>1</sup> Gout, whether acute or chronic, is not always regular, is often unfortunately abnormal, and the articular fluxions may be replaced by visceral troubles.

The articular crises may cease abruptly, the pains disappear; whereupon sundry metastatic affections manifest themselves: dysentery, enteralgia, cardialgia, angina pectoris, pericarditis, endo-carditis; the breathing may be asthmatic; on the part of the brain there may be delirium, apoplexy, coma, ending fatally.

The visceral manifestations may also appear in the interval and independently of the fit of gout (alternating or sub-articular gout).

The abnormal manifestations of gout pertain to divers systems and functions, and the following kinds of gout have been described:

1. Gout of the muscular system (myosalgia, paralysis, contracture).
2. Gout of the nervous system (cephalgia, cephalia, melancholia, hypochondriasis, oddities of character, frontal, facial, sciatic neuralgia, etc.)
3. Gout of the respiratory and circulatory apparatus; pulmonary or bronchial congestions, asthma, nervous palpitations, cardi-algia, angina pectoris, gouty heart, fatty degeneration of the heart, atheroma of the arteries, whence ensue hæmorrhages, cerebral or spinal ramollissement, constituting gouty apoplexy or gouty paraplegia.
4. Gout of the digestive apparatus (gouty dyspepsia), characterized by pains, gastralgia, eccentricities of appetite, pyrosis, vomiting of glairy mucous, intestinal pneumatosis, enteralgia, constipation, hæmorrhoids, hepatic congestion, biliary lithiasis.
5. Gout of the genito-urinary apparatus; gouty kidney (gravel, renal colic), gout of the genital organs (blennorrhœa, retention of urine), gout of the skin (arthritides).

Chronic gout, by the disorders which it produces, by the trouble which it provokes in the organism, may reduce the patient to cachexia. Exhausted by the pain, condemned by immobility, sometimes complete, by reason of the articular lesions, he leads a languishing life; appetite fails, the stomach no longer digests the food which oppresses it, and the patient grows feeble from day to day, unless some intercurrent disease or complication supervenes to put an end to his sufferings.

(a) Sydenham, Tractatus de podagra, 1683. Lasègue, Traité de la goutte de Sydenham, partie descriptive, Paris, 1882, p. 7.

interstitial nephritis, or fatty metamorphosis of the kidneys, and it is to this aggregate of lesions that the name of gouty kidney has been given. These lesions, by impeding the functions of the renal filter, entail consequences more or less grave, some pertaining to uræmia, others having a marked influence on therapeutics, and explain why certain medicines administered to the gouty, have even been attended with fatal results.

We find here also an application of a fact to which I have called attention before in the course of these lectures. It is that when elimination by the kidneys is at fault, you obtain not the medicinal effect desired, but the toxic action of the substance which you employ. This, too, explains why our forefathers were afraid of active interference in gout; it also shows the necessity of great prudence in the treatment of this disease, and careful daily examination of the urine, and this, not only with reference to the albumen which it may contain, but also to the extractive matters in that excretion. These reserves being made, I believe it to be the duty of the physician actively to treat attacks of gout, discarding altogether the precept of Cullen, who summed up in the two words, "patience and flannel," the whole treatment of gout.

A great number of medicaments have been proposed for acute gout—antiphlogistics, purgatives, sudorifics, specifics, etc. Bloodletting, whether general or local, once much in usage, as, for instance, in the celebrated remedy of Paulmier,<sup>1</sup> which consisted in the application of twenty or thirty leeches around the joints, is completely abandoned. Nevertheless, Garrod thinks that in certain exceptional circumstances one may have recourse to local emissions of blood with advantage, and Gairdner is of the same opinion. However, it is not easy to see what good this local bleeding can have in acute paroxysms, being powerless to modify the uric diathesis—the cause of the affection.

As for sudorifics and purgatives in this disease, their value has long been discussed. Among the first, guaiacum deserves a place, once of great reputation as a specific in gout, and Ackermann, Metzger, Weismantel, have vaunted its anti-arthritis properties. The essence of guaiac serves as the basis of the celebrated remedy of Caraibes, the anti-gouty syrup of Boubée, and the syrup of Vicq d'Azyr and of Gall.<sup>2</sup>

<sup>1</sup> Sydenham, who was a great partisan of blood-letting in rheumatism, does not approve of it in gout, except during the first attack. Todd thought that bleeding favored metastasis. Gairdner, on the contrary, approves highly of blood-letting, and affirms that he has met with cases of atonic gout with plethora, before which he found himself powerless without the help of blood-letting, which brought instantaneous and complete relief.

The remedy of Paulmier consists in applying from 20 to thirty leeches around the joints. Roche maintains that the application of leeches may cut short an attack of gout; it will at least shorten the sickness.

<sup>2</sup> The famous remedy of Caraibes is principally composed of the alcoholic tincture of guaiacum. The anti-gouty syrup of Boubée has this formula:

R	Sarsaparilla root .....	40 parts.	- 3-40 = 36
	Resin of guaiacum .....	15 "	3-15 = 31
	Jalap .....	9 "	3-9 = 31
	Mustard .....	9 "	3-9 = 31
Mix.			

0.200  
3 7 1/2



To-day guaiacum is almost completely abandoned, and if it were desirable to resort to sudorifics it would be better to employ jaborandi and pilocarpine. But although urea does to some extent undergo elimination by perspiration, this elimination is too insignificant to afford a real relief to the patient, and while recognizing that it is a good thing to promote the functions of the skin during the fit of gout, I do not think that we can count much on sudorifics to the exclusion of other remedies.

It is the same with purgatives, to which Scudamore had attributed curative virtues in the attack of gout, while Sydenham, on the contrary, discarded them altogether. Purgatives have no other effect during a fit of gout than to keep the bowels open, and this is generally necessary by reason of the constipation which is habitual in such cases. The purgatives to which you should always have recourse are chiefly mineral waters, such as those of Hunyadi Janos, Püllna, Carlsbad, the American Hathorn water, etc., which should be given only in sufficient quantity to maintain regular action of the intestines.

I pass rapidly over mercurial treatment, vaunted by Musgrave and Hamilton; antimonials which serve as a basis for Quarin's cure (of Sarza, licorice, anise and antimony), and James's powder (of precipitated antimony and phosphate of lime), to come to medicaments which have a real specific action in gout. I refer to sulphate of quinine, to colchicum, and to salicylate of soda.

Influenced by the intermittency which characterizes the gouty paroxysm, quinine has been recommended in its treatment, and it is doubtless true that this medicine mitigates, to some extent, the intensity of the attack. Quinine may be given with other medicines, and especially with colchicum. Colchicum is the veritable specific in gout, and Fievée has gone so far as to affirm that colchicum is to gout what quinine is to fever and ague. Nevertheless, colchicum is absolutely an empirical medicine, for if clinical experience every day witnesses its good effects in gout, experimental physiology has little to say in explanation of those effects.

Colchicum is a bulbous plant with violaceous flowers, which flourishes in abundance in our meadows, and which our herds carefully shun, for it constitutes for them a poison of great activity.<sup>3</sup> The bulb, the seeds, and the flowers

Boil in three hundred parts of water for two hours, and add sugar enough to form a syrup.

The anti-arthritis pills of Vicq d'Azyr have also guaiacum for a basis; the formula is as follows:

R Castile soap..... 4 parts.  
Ox gall..... 2 "

Mix and incorporate guaiacum resin, calomel, of each 1 part.

M.—Make into pills each weighing 20 centigrammes. Dose, one or two morning and evening.

The pills of Gall contain, besides the extract of guaiac, a little antimony and opium.

<sup>3</sup> Colchicum is an emeto-cathartic medicine. Its mode of action on the kidneys and circulation is under dispute. While Hammond, Christison, Maclagan, Bouchardat and others claim that colchicum acts as a diuretic and augments the excretion of uric acid and

are used in medicine, being made into tinctures, alcoholic extracts, and wines, which are the modes of administration most often employed. As the different parts of the plant do not contain the same quantity of active principle, it is necessary to specify in your prescriptions the part of the plant which you desire to administer. Although the tincture of the flowers, known under the name of Hahnemannian tincture, has been vaunted by several authorities, and in particular by Debout, it is generally preparations of the seeds which you should order, and you can administer the tincture and the fluid extract in the dose of ten drops to a teaspoonful daily watching carefully the result of your doses, for the therapeutical effect varies according to individuals. Some can bear large doses without inconvenience, while others experience toxic results from very small doses. These troubles consist, as you know, in diarrhoea and vomiting; these effects you should avoid. You ought then to order the tincture of colchicum in doses consisting of a certain number of drops, remembering that twenty drops weigh thirty-nine centigrammes. You can give twenty drops morning and evening without any inconvenience, and increase the dose according to the needs.

But you will ask, since the active principle is unequally distributed in the

urea, Gairdner, Garrod, Oberlin, Boecker, affirm that it does not act on this excretion which is the rather diminished according to Garrod. These are, moreover, Garrod's conclusions:

1. There is nothing to prove that it is one of the effects of colchicum to provoke an increased elimination of uric acid; when this medicine has been continued for a long time it seems to produce the contrary result.

2. We cannot affirm that colchicum has any influence on the excretion of urea or any of the other solid principles of the urine.

3. Colchicum does not always act as a diuretic; on the contrary, it often diminishes the quantity of urine, especially when its action on the digestive tube is very marked.

Graves pretends that colchicum if it does not act as diuretic, prevents the production of uric acid in the blood. Bouchardat and Maclagan claim that colchicum has a sudorific action.

The action on the heart is still more uncertain. According to some authorities, as Albers, of Bonn, the movements of the heart undergo no change under colchicum, while Maclagan and Garrod have always noted a diminution of the pulsations in man.

In fine, colchicum and colchicine act, according to Albers, as paralyzers of the sensibility and motor functions.

Jolyet, on the contrary, maintains that it is an excito-motor medicament analogous to strychnine.

Nothnagel and Rosbach pretend that colchicine acts very slowly and determines the death of animals; three centigrammes suffices to kill a man. The heart is not influenced by colchicine, but the medicament acts on the nervous system, producing complete paralysis. (a)

(a) Garrod, la Goutte, son traitement (trad. par Ollivier, Paris, 1876, p. 445).—Maclagan. On Colchicum Autumnale in Monthly Jour. of Med. Sc., t. xiii, 1851, et xiv, 1852).—Boecker, Beiträge zur Heilkunde, t. 11, p. 204.—Hammond, Experiments Relating to Diuretic Action of Colchicum (in Glasgow Medical Journal, t. ix, 1861).—Jolyet, De l'action physiologique de la colchicine chez la grenouille (Compt. rend. de l'Acad. des sc. et Mém. de la Soc. de biol., 1867).—Albers (de Bonn), Deutsche Klinik, 1856.—Goupil (de Rennes) Mémoire sur le colchique d'automne, son action physiologique, ses effets thérapeutiques dans le rhumatisme et dans la goutte (Arch. gén. de méd., 5e série, t. xviii, p. 57, 1861, et Bull. gen. de théor. t. lxi).—Nothnagel et Rosbach, Elements de matière médicale et de thérapeutique (trad. par Alquier, Paris, 1880, p. 681).—Dujardin-Beaumetz Dictionn. de Théor., art. Colchique.