plant, why not give this active principle itself? Here we find ourselves in the same embarrassment as in the case of digitalis; and just as there have been found several digitalines, so there have been found several active principles in colchicum. Hess and Geiger, for instance, have extracted from colchicum, *colchicine;* Oberlin, *colchiceine;* Hubler, still another alkaloid; so that the question of the veritable active principle of colchicum is still undecided. Therefore, in the midst of this uncertainty, I think it is better, as in the case of digitalis, to employ the plant itself, indicating, as before said, the tincture of the seeds, or root, or whatever other preparation you wish to employ. The tincture of colchicum may be associated with other substances, and it is this combination which characterizes the majority of the popular remedies for gout, such as Laville's tincture (liqueur Laville), the wine of Anduran, the tincture of Cocheux, the pills of Lartigue, and many others which I pass over in silence. If you do not desire to recommend any of the proprietary nostrums, you can prescribe combinations just as useful, such as the following, which is a good formula: [1]

The European ash has had a great reputation in the treatment of gout, and Pouget and Peyraud consider it as a genuine specific. Moreover, the number of indigenous plants regarded as antiarthritic is considerable, and, to give you an idea how numerous they are, you have only to refer to the electuary[2] once vaunted by Sydenham (this electuary consists of twenty-nine articles). Among these plants I will mention only one—aconite—whose administration mitigates the pains from which gouty patients suffer; therefore, I think that it is always well to combine aconite with your colchicum. Alkalies have little curative action in acute attacks of gout, and constitute only an adjuvant medication. During my trials with propylamine and trimethylamine, I obtained in certain patients (and in particular an illustrious marshal of France) disappearance of the gouty attack under the influence of these medicaments; but now these ammoniacal compounds deserve to give place to a medicine much more energetic and certain, viz., salicylate of soda.

Salicylate of soda has an evident curative influence in gouty paroxysms, and it owes its action to several causes: first, because it favors elimination of urea and uric acid (you know, in fact, that salicylic acid is eliminated in the urine

[1] ℞ Tincture of colchicum,
Alcoholic tincture of aconite root,
Compound tincture of jalap,
Tincture of quinine—ää ℥ ss.

M. Sig.—Thirty drops, morning, noon and night, in a wineglassful of some bitter potion, such as infusion of *fraxinus excelsior.*

[2] Sydenham vaunted highly the following electuary: Take of angelica root, sweet cane masterwort, elecampane, absinthe, centaury, white horehound, germandry, ground-pine, calamint, matricaria, meadow saxifrage, St. John's wort, golden rod, wild thyme, peppermint, sage, rue, blessed thistle, pennyroyal, southernwood, flowers of tansy, lily of the valley, saffron, grains of thapsia, cochlearia of the gardens, caraway seeds, and juniper berries; of each a sufficient quantity. Take of each of these plants six ounces, and enough honey and Canary wine to make the electuary of the required consistence. Give of this every morning and evening about a tablespoonful.

under the form of *salicyluric* acid); next, because this medicament is a powerful analgesic of the articular pains; and, finally, because it has an antipyretic action similar to that of quinine. Therefore, German Sée[1] has rightly insisted on the advantages which may be derived from salicylate of soda in the treatment of attacks of gout, and here the rules of administration are the same as for acute articular rheumatism. But it is necessary in these cases to pay particular attention to the state of the kidneys, for, as I have already told you, the impermeability of the renal organs may render the administration of salicylates dangerous, and this it is that explains the divergence of opinions which have been put forth respecting the advantages and inconveniences of this medication in gout.

The external treatment of gout is a matter of much less importance than internal medication. Many local means[2] have been recommended in the acute paroxysms, from ointments and pomades in current use, to more complex formulas, and even to *horse-chestnut oil*; from applications as hot as can be borne, to the use of ice around the joints;—all have been counselled in these arthritic inflammations. I believe, and in this I am supported by Garrod, that all these applications are useless, and even dangerous. It suffices to consider the state of these joints, the fiery redness of the skin around them, the pain of which they are the seat, to convince one that frictions of an irritant nature may inflict grave disorders on the cutaneous surface thus inflamed. Therefore, in view of

[1] Germain Sée explains the favorable action of salicylate of soda as due to its analgesic power, to its revulsive or resolvent action, to its eliminating properties in certain cases, and also to its power of destroying glycocol, which constitutes an albuminoid excretory substance of considerable importance. According to him, the salicylic medication ought to be employed from the commencement in an attack of gout.

The best mode of employ consists in the administration of a drachm and a half daily during the first three days, of one drachm daily during the three following days, and alternating in this way each successive three days, for three weeks.

Out of one hundred gouty patients whom he has treated by salicylate of soda, he has had four or five failures, and out of the ninety-five remaining cases, more than half were cured immediately.

Sée's view is not shared by all physicians. Lecorché has obtained very unsatisfactory results. Freney and Gueneau d'Mussy, have observed grave complications following the salicylic medication. Bouloumié, in six gouty patients treated by the salicylate, noticed no favorable results. (*a*)

[2] Various local measures have been employed against gout; Cartwright used blisters. The fly blister was also a secret remedy which made the reputation of a woman of Horsham. Turck employed lotions of albuminate of potash. Scudamore recommended applications of tepid water. Others, as Harvey, Small, and Bouchut extol applications and irrigations with cold water. Galtié Bossiere made use of carbonate of potash; Goeden, frictions with phosphorus; Bartella, compresses saturated with chloroform. Then we come to the more complex formulas, one of the most noted of which is the remedy of Pradier. This consists in the application to the member of a large flax-seed poultice wet with a lotion composed of balm of mecca, red cinchona bark, saffron, sage, sarsaparilla and alcohol. The tincture obtained by this maceration was also given internally. (*b*)

(*a*) G. Sée, on "The Treatment of Acute and Chronic Rheumatism and Gout, Paris, 1877. Bouloumié, on "Salicylate of Soda, and its Employ in the Fit of Gout (Union Med., May 15, 20, and 25, 1879).

(*b*) Garrod, De la goutte et de son traitement, trad. d'Ollivier, Paris, 1867, p. 421. Monneret et Fleury, Compendium de Médecine, t. II, p. 359.

the trifling benefit of these local applications on the one hand, and their danger on the other, I advise you to discard all these pomades and ointments, and to surround the foot with a layer of finely carded cotton, which will give immobility to the affected joints and protect them from the air.

To sum up then, when you are called to treat an attack of gout, you should first assure yourself of the integrity of the kidneys, then you should administer salicylate of soda in doses of from one to one and a half grammes, or, if you prefer, the tincture of colchicum combined with quinine or strong tincture of aconite root. If, on the contrary the kidneys are damaged, or if the heart seems to be degenerated, you will have to content yourselves with giving alkaline diluents and keeping the bowels open with saline purgatives; besides enswathing the affected member with wadding around which is placed oiled silk.

But it is not enough to combat the attack of gout, something must be done to prevent its return, and here we have many means at our command, both pharmaceutical and hygienic. Whatever theories may be admitted in explanation of uricæmia, it is against this condition that all our efforts should be directed; here then is the place for the alkaline medication under all its forms. I will be more brief in the exposition of this part of my subject, because I have already, in a former lecture, spoken to you of the treatment of the uric acid diathesis.[1]

All the alkalies may be employed, soda as well as potassa, but there is one that seems to be better than all the others, viz: lithia, which Garrod recommends. I need hardly tell you that the dose of carbonate of lithia is seven or eight grains (fifty centigrammes) given at meal-time in carbonic acid water; the effervescent salts of lithia are good preparations. Benzoic acid and the benzoates have also been highly extolled, and combinations of benzoic acid with alkalies are in use, such as the double benzoate of soda and lithia, which is an excellent preparation.

By the side of the alkaline medication, certain tonics and stomachics deserve a place, being much in repute. These are principally bitter preparations furnished by our indigenous flora, constituting antiarthritic remedies more or less complex, such as (to name those most known) the "electuary of Sydenham" which I have before mentioned, and the famous remedy of the "Duke of Portland." These nostrums, once the subject of much discussion, have now happily passed into oblivion, and given place to quassia and cinchona bark, which are of some little efficacy in atonic gout.

As you perceive, the pharmaceutical treatment of gout in the interval of the attacks is limited to the administration of alkalies in all their forms and and bitters and other tonics. Add to these means the thermal treatment, which plays a considerable part in the therapeutics of this disease. Three stations

[1] Garrod has been enthusiastic in extolling the salts of lithium in the treatment of gout. The salts the most employed are the carbonate and citrate, these salts have a double therapeutic action; they produce marked diuresis, and they form with uric acid a compound essentially soluble which is easily eliminated. Garrod employs this medicament with success, both internally and in the form of local applications to the inflamed joints.

among all those which have been considered as suitable for podagrous patients ought to attract your attention, viz: Vichy, in France; Wiesbad, in Germany; Carlsbad, in Bohemia.

There has been much discussion concerning the mode of action, the advantages and disadvantages, of Vichy water in gout. To-day this question seems to me decided, and I have already given expression to my views on this subject under the head of "renal lithiasis." It is not by neutralizing the excess of uric acid that these alkaline waters act, it is by their influence on the general nutrition, whose functions they regulate. But I am well aware that it will not do to exceed certain quantities, and that the treatment by alkaline mineral waters is not altogether unattended with evil. You should then send to Vichy your strong and plethoric patients whose nutritive functions are below par, and you should proscribe these waters to weakly patients whose attacks are but little accentuated—in a word, who have the symptoms of what has been described under the name of atonic gout and gouty cachexia.

The Carlsbad waters act like those of Vichy, always with this difference, that they are purgative. They suit admirably gouty patients with hepatic congestion and gastro-intestinal troubles, characterized by constipation or irritation of the stomach and bowels, provoked by excesses of the table. Weisbad belongs to the sodic chloride waters, and is applicable rather to the arthritic diathesis than to gout itself. The Aix la Chapelle waters, as well as those of Ems and Royat, which are all sodic chloride waters, act also by the lithia which they contain, and combat rather the multiple manifestations of the arthritic diathesis than the excess of uric acid itself. These are very useful spas, to which you would do well to refer a large part of your chronic rheumatic patients.

Hygiene plays a considerable part in the prophylactic treatment of gout. Everybody is agreed that gout, aside from the laws of heredity, is the consequence of defective hygienic conditions; the uric diathesis, which is its starting point, being an evidence that the azotized materials introduced into the economy there undergo an incomplete combustion. We have, then, two great factors in the pathogeny of gout: too abundant alimentation, too little muscular exercise. Gout is a disease of the rich,[1] and this is a fact on which have insisted all writers, from the most remote antiquity. You should, then, have a care over the alimentation of your gouty patients, and proportion it to their muscular work. You should look after not only their solid food, but also their daily beverages,[2] alcoholic excesses having an important influence in the

[1] It would take a whole volume to include the substance of what has been written respecting the influence on gout of excesses in diet. Petrarch says, "If you wish to live free from gout, you should be poor, or live like a poor man." Sydenham expresses himself thus: "Gout has this in particular which distinguishes it from all other diseases: that it kills more rich people than poor people, and more men of wit than men of dullness and stupidity."

Gout has also been called "morbus dominorum."

Van Swieten has this sentence appertaining to gout: "*Ut divitiarum pedibus bene culta sedit.*"

Like excesses of the table, excessive venery has been accused of giving rise to gout: "*Unde Bacchi et Veneris filia salutatur a poetis podagra.*"

[2] There has been much discussion concerning the nature of the wines which have been

etiology of gout. In fact for ages, attention has been called to the influence of spirituous liquors on the development of this disease. Wines that contain too much alcohol, as well as strong beers, should be interdicted altogether; although Garrod has condemned cider, I do not believe that this beverage can give rise to gout; I think there may be cases in which it may be beneficial.

But if the dietary of the gouty patient needs to be carefully regulated, it is just as necessary to prescribe suitable muscular exercise of all kinds; gymnastics, fencing, pedestrianism, all should be employed, and as our immortal fabulist has said:

> "Goutte bien tracassée,
> Est, dit on á demi pansée."

prescribed or forbidden gouty persons. Van Helmont condemns the white and sour wines; the white wines of Bohemia and of Hungary are also forbidden. Champagne, according to Scudamore, is even more detrimental. Nevertheless, Bouchardat is of the opinion that the white and moderately sour wines, cut with the alkaline waters, are very useful in the case of polyuria.

Beer is absolutely proscribed by Garrod; Van Sweiten, however, claims that it is useful. But there is a general agreement in proscribing the alcohols, so-called, and liquors. Rabuteau has even pretended that alcohol in the blood precipitates uric acid.

[Dr. J. Mortimer Granville (*Lancet*, Aug. 16, 1884) has an interesting article on the "Mental Element in Gout," in which he sets forth the view which he says is accepted generally, now "that there is a uric acid centre, either eliminative or destructive," probably located beneath the floor of the fourth ventricle, not far from and in functional relation with the so-called diabetic and polyuric centre. An attack of gout is likely to occur in the gouty subject at either of two mental or cerebral crises. First, on the eve of a great mental effort, when the brain is charged to the highest point of tension with "nervous energy." The type of a paroxysm so occurring is likely to be "nervous," with severe neuralgic pains, if the patient be neurotic, or *visceral*, in the sense of attacking one of the large organs, if he be robust or of active habit. Second, an attack of gout is likely to occur at the end of an intellectual effort, when the centres are exhausted, and in this case it may take on the form of an epileptiform fit, or syncope, followed by more or less prolonged depression, or it may rapidly develop into a formulated arthritis of the ordinary type. In the break-down, before action, he thinks the cerebral strength itself gives way; while in the paroxysm, after exertion, the attack occurs because the inhibitory control of the cerebral centres over the spinal medullary and organic centres is suddenly suspended. The former class of cases is the most serious. and attacks of this kind go far to prove the existence of a neurosis, for which the patient will require to be specially treated. The second class is one in which the malady proper rather than the patient demands the practitioner's greatest attention. His therapeutic suggestion is that the uric acid can only be got rid of by a process of oxygenation, and that it must pass off by the kidneys, and not by the bowels. Purgatives in gout are always harmful in direct proportion, as they promote discharge of fluid from the intestinal surface, and leave the urine concentrated so that the uric acid, which requires a very large amount of fluid for its elimination, blocks the tubes of the kidneys in the form of crystals. One reason for the specially frequent occurrence of gout in warm weather is the loss of fluid by perspiration, and the consequent concentration of the kidney excretion. If uric acid can crystallize, it will. Below is Granville's famous anti-gouty mixture, which he says always immediately relieves pain, reduces swelling and raises the proportion of urea in the urine, as estimated by the hydrobromate test, from 50 to 100 per cent. in a few hours. He never starves patients or gives colchicum, believing nitrogenous food to be necessary, a vigorously trophic state being needful to facilitate the oxidation of uric acid. ℞ Ammon. chlorid, ʒ iv. Pot. chlor., ʒ ij. Glycerine, ʒ xij. Tinct. iod., ʒ ij. Aquam ad, ℥ xij. M. Sig. Take two tablespoonfuls every third, fourth or sixth hour. Granville's theory, in the present state of science, can be looked on as only an ingenious and plausible speculation, provisionally, perhaps deserving acceptance.—TRANSLATOR.]

ON THE TREATMENT OF DIABETES.

SUMMARY.—Concerning Diabetes—Its Frequency—Its Pathogeny—Physiological Glycæmia—Theory of Diabetes—Alimentary Theory—Nervous Theory—Theory of Disturbance of Nutrition—Glycosuric Urine—Tests for Glycose—Heller's Process—Boetger's Process—Trommer's Process—Dosage of Glycose—Duhomme's Method—Prognosis of Diabetes—The Diabetes of Fatty People—The Diabetes of the Lean—Grave Diabetes—Diabetes of Medium Intensity—The Mild Form—Hygiene of the Diabetic—Alimentary Hygiene—Bases of the Alimentation of the Diabetic—Regime of Cantani—Regime of Bouchardat—Regime of Seegen—Gluten Bread—Soups—Legumes—Fruits—Pastries—Alcoholic Beverages—Beverages in General—Glycerine--Resumé of the Alimentary Hygiene—Exercise—Results of Treatment—Pharmaceutical Treatment—Anti-fermentescible Medicaments—Lactic Acid—Narcotics—Valerian—Ergot of Rye—Iodine and the Iodides—Alkalies—Their Action in Glycosuria—Arsenic—Bromide of Potassium—Thermal Treatment of Diabetes—Electricity—Hydrotherapy—Local Treatment of Diabetes.

GENTLEMEN: Diabetes[1] is a very common affection, which you will often be called upon to treat when you shall have entered upon your practice; I pro-

[1] Cantani has given a full history of diabetes, which he divides into four periods:

The first, which commences with Aretæus and Galen, and during which the presence of sugar in the diabetic urine was recognized though ill-understood.

The second, which commences with Willis, and in which the symptomatology of diabetes was accurately established.

The third, which is associated with the name of Rollo, who, more than any of his predecessors, pursued a practical end while discussing, with more method than they, certain theories which were largely adopted.

The fourth, which commences with Claude Bernard, and in which diabetes is studied by the aid of the experimental method from the standpoint of pathogeny and therapeutics at the same time.

Diabetes was known from the most remote antiquity by the physicians of India, where it was described under the name of *sweet urine*, or urine of honey. In two books translated from the Sanskrit, diabetes is called *madume'hé*, which means *urine of honey*.

The ancients knew little about diabetes; at the same time, Cornelius Celsus mentions it, and Aretæus gave it the name of *diabetes*, from the Greek word διαβαινω, implying that the sweet drinks of persons so affected *passed through* the body unchanged.

Galen also considered diabetes as a disease of the kidneys attended with elimination of sweet beverages unaltered, and these ideas were adopted by Willis. Moreover, Vittorio Trincavella, in support of these Galenic notions, cites a case where the urine of a diabetic patient had the same taste as the drinks which he imbibed. During this period Paracelsus alone took a stand against this theory of Galen, and affirmed that the cause of diabetes was in the blood, and not in the kidneys.

In 1675 Willis detected sugar, or rather honey, in the urine, and thenceforth the symptoms of this disease came to be better known. Sydenham thought that it was a disease of malassimilation; and Dobson proved, by the fermentation test, the presence of sugar not only in the urine, but in the blood. Lastly, Rollo inaugurated the dietetic treatment of diabetes, which hygienic regime has been crowned by the labors of Bouchardat dating from 1841; and within the present epoch Claude Bernard has given to the world his valuable discoveries concerning glycæmia and the glycogenic functions of the liver. (*a*)

(*a*) Cantani on Diabetes. Paris, 1876.