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VICHY
AND ITS
MINERAL SPRINGS.

EXTRACTED FROM THE FOURTH EDITION OF THE
BATHS OF FRANCE.

BY
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VICARY

UNIVERSAL PRINCIPLES

OF FRANCE

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VICHY.

VICHY, being now connected, by a branch at St. Germain des Fosses, with the main line of the Bourbonnais, may be reached from Paris in about eight hours. It lies on the right bank of the Allier, in an extensive valley bounded by gently rising hills, whose acclivities are clothed with vineyards and fruit trees. The air of the district is pure and mild, and the inhabitants generally are healthy and long-lived. The narrow streets, composed of indifferently built houses, close to the river, are separated from the modern portion by a handsome park, which is the usual promenade, comprising a large triangular space, planted with plane, lime, and other trees, disposed in avenues with intermediate parterres of flowers. On either side are ranges of large hotels and lodging-houses. At one extremity are the thermal and bath establishments, at the other, the civil hospital, while in the central space is the splendid recently-constructed casino. A long street, the rue de Nismes, continuous with the route de Nismes, runs through the town from north to south, and is crossed at its commencement by the broad streets Lucas and de Paris. The rue de Parc, more recently built, is connected with the park by the rue Montaret, where are the principal shops for the sale of articles of taste, and libraries well supplied with the current literature of the day.

The in-door accommodation at Vichy is superior to that met with at the generality of the French baths. No less than seventy hotels, and as many lodging-houses, were specified by name in a local guide published some years ago, and the number has increased since that time. The principal hotels are in the park, or in its immediate neighbourhood. On one side are the old-established houses, Guillermin, de Paris, des Bains (lately enlarged), &c. ; on the opposite side are the Hotels des Princes, de la Paix, and the large, new, luxuriously-furnished hotel, du Parc. Among the other chief hotels may be mentioned des Ambassadeurs (also enlarged and renovated), de Richelieu, and de Rome. The Hotels du Parc, de la Paix, and Guillermin, are those mostly frequented by English visitors. All the chief hotels have spacious dining rooms, in which from sixty to a hundred or more persons dine at the tables d'hôte, as also well-furnished saloons, where those of the inmates who are so disposed meet and pass the evenings. By this means, and the interchange of visitors between the different hotels, opportunities of association are afforded greater than at the German baths, which have only their public cursaals, and where there is a more indiscriminate mixture of company than at Vichy, which is mostly frequented on the score of health. There are, moreover, public balls weekly, frequent concerts, dramatic representations, and other entertainments in the casino, where a musical band plays also in the evening, as in the park in the afternoon.

The casino, constructed of white stone, with a tasty façade and portico, presents, exteriorly, a handsome appearance. It comprises on either side spacious corridors for promenading, lofty and beautifully-furnished rooms for card-playing, billiards, and reading, a richly-decorated ball-room and a luxuriously-disposed theatre, laid out in stalls for the audience, which is necessarily select from the high price of admission. Occasional operas and vaudevilles are played by Parisian artistes of reputation. The casino is only open to subscribers.

The thermal Establishment is a neat structure of sandstone, one storey high, with a façade and arcade fronting the park, the back opening out upon the rue Lucas. The ground-floor is occupied by the bathing cabinets, on either side of spacious galleries and waiting-rooms; one side of the edifice being appropriated to gentlemen, the other to ladies. The cabinets (in number about 100) are more or less conveniently fitted up, according to the price of the bath; the *baignoires* are of copper, lined with tin. The first-class bathers pay three francs a bath, the second two francs, and the third twelve sous. The Emperor's bath-cabinet, with adjoining sitting and bed-room, is comprised in this building, the first floor of which, prior to the building of the casino, was devoted to reunions, concerts, the musical band, and other entertainments.

The adjoining recently-constructed supplementary establishment is likewise a handsome

building, exclusively appropriated to bathing. It contains 150 bath-cabinets, and twenty douches. There is every requisite apparatus for administering descending, lateral, and ascending douches. The former are, however, almost exclusively in request. The two establishments contain 340 bath-cabinets, and about 2,500 baths are given daily in the height of the season—the water being previously cooled in large reservoirs in the upper portions of the buildings. Close to the establishment is the building for the preparation of the products, and the preparing, for exportation, of the Vichy water, the processes for which will interest the visitor. That the use of the water at a distance has gone on largely increasing may be seen from the statement of exported bottles in the course of eight years. Thus, in 1853, the number was 388,150 ; in 1857, it was 709,300 ; in 1861, it amounted to 1,228,650 ; and since that date the proportionate increase has been much larger—in 1864 the number amounted to 2,000,000. There are now special dépôts in Paris (Boulevard Montmartre), London (Margaret-street), and elsewhere, besides innumerable pharmacies where it may be obtained. The crystallised salts (prepared by evaporation, and afterwards impregnated with gas by means of a special apparatus), for making baths, are also largely exported in rouleaux or flasks, as are also the Vichy pastilles, which have an agreeable flavour. Vichy baths thus artificially made with the salts may thus be obtained by persons who may be unable to go to Vichy, or who may

desire to continue the treatment afterwards at home. The water bears exportation well, without loss of properties, and is used not only on the continents of Europe and America, but also in the colonies situate in tropical regions.

Among the other public edifices may be specified the civil and military hospitals, the handsome newly-erected church, St. Louis, the new Hotel de Ville, and a commodious English church, built by subscription, the site having been given by the town. The civil hospital is a large building, capable, with the connected hospice, of accommodating 70 patients, old men and orphan children, and about 60 patients sent from various parts of the country to be treated by the mineral waters. Its internal arrangement and the care of the patients devolve upon Sisters of Charity. The thermal establishment attached to this institution is in the adjacent Place Rosalie; it contains a piscina, 11 bath-cabinets, and 7 douches, and is supplied by the hospital spring, which rises in the Place into a large circular basin, surrounded by railing, to which there is an ascent of several steps.

The Military hospital is a handsome modern structure in the rue Lucas, capable of accommodating ninety officers and sixty subalterns and soldiers. As the average course of the waters for each patient does not exceed forty days, about 600 individuals may be subjected to the treatment every season. The accommodation for the officers is of a superior kind, each having a conveniently furnished room, and there being commodious and

well-fitted-up dining and assembly rooms. The arrangement of the piscinæ, baths, and douches, leaves nothing to be desired—a compressed air machine being employed in the administration of the latter means.

Vichy has undergone considerable alterations within the last few years, to which the visits of the Emperor have given the chief impulse. To his Majesty is owing the formation of the new park, extending a considerable distance along the bank of the Allier, which is overlooked by a broad terrace, and the construction of several detached chalets on the Boulevard Napoleon, by which the opposite side of the park is bounded. Here is also a new street of neat houses, named after the physician-inspector, Dr. Alquié. The new park is connected by a broad road with the Quai des Celestins, a much-frequented drive.

The river, though shallow, is of considerable breadth, and is crossed by a new stone, and by a neat suspension bridge, continuous with the road to Gannat, a station on the railway. At the further extremity of the town it receives a tributary stream (the Sichon), the bank of which, well shaded by poplar trees (Chemin des Mesdames), is a frequented promenade. Vichy is well supplied with necessaries, and, in the season, with most of the luxuries of life, and there is an abundance of means—omnibuses, horses, pony-carriages, &c.—for visiting the environs. Among the most frequented spots may be mentioned the Montagne Verte, to which an agreeable path leads through vineyards

and orchards, and whence a pleasing prospect of the town and surrounding country may be obtained—the small town of Cusset (between which and Vichy there is constant communication by means of omnibuses), which likewise contains its bath establishments of water resembling Vichy—the slate quarry (*ardoisiere*) in a picturesque valley some distance beyond Cusset, where also there is an interesting grotto—the hill St. Amand, overlooking the town and valley, and commanding a view that extends to the mountains of Auvergne and to Mont Dore, the château and park de Randan, in the forest of the same name—the châteaux of Moumont and de Busset, a few miles distant, whence likewise there is a fine prospect.

The number of Vichy visitors has gone on steadily increasing, and that of the English has greatly augmented of late years, many going at the beginning of the season on returning from southern winter resorts.* The heat in July and August is at times inconvenient, though in some cases it favours the action of the waters, which, however, at this time require great caution in their use. According to a distinguished physician (Dr. Durand-Fardel) who passes the season there, the best time for the course is from the 15th August to the end of September.

There is abundant proof that the springs of Vichy were used by the Romans; remains of

* The number amounted to between 500 and 600 in the season of 1865.

piscinæ, marble baths, models of Nero, vases, and other remnants of antiquity having been found when the ground was cleared preparatory to building the Establishment. The springs, with the exception of the Celestins, Mesdames, and Lardy, are of a high temperature; their predominating ingredient is the bi-carbonate of soda, which appears to abound in their neighbourhood, for, according to the report presented by M. Dufrenoy to the Minister of Commerce in 1852, whenever the soil was sounded within an extent of ten kilometres around the existing springs, others of an analogous kind were obtained. "The alluvial earth beneath the argillaceous layer," he adds, "may therefore be regarded as a sort of sponge which receives the mineral waters on their ascent, and transmits them to the surface, either by means of natural artesian wells, or through boring tubes." According to M. Bouquet, who has analyzed the springs, the amount of salt supplied by sixteen of them is 5,100 kilogrammes a-day, the greater part of which is lost in the Allier.

Seven of the springs belong to the Establishment—viz., the Grande Grille, having a temperature of 37° (centigrade); the Puits Carré and Chomelle (43°), rising near the former beneath the peristyle at the back of the Establishment; the Hôpital, the Lucas, the Celestins, the Parc, the Hauterive, and Mesdames.

The Grand Grille rises into a large basin railed round (whence the name); its water is projected above the surface in a thick jet or sprudel. At

the other end of the gallery is the drinking fountain of the spring les Mesdames (which rises some distance off on the road to Cusset), the water being conveyed through tubes to the fountain. The Hospital spring is freely exposed to the action of the air; the edges of the large basin into which it is received are covered with the green vegeto-animal substance known by the name of glairine, which is likewise seen on the basin of the Carlsbad and at some other thermal springs. The temperature of this spring is 37°.

The other principal springs are at some distance from the Establishment. The Lardy rises in a planted enclosure, between the route de Nismes and the river, the Celestins being on the adjacent quay, beneath a neat pavilion, with portico.* A little further on is the New Celestins, which is approached by a plane-tree avenue, or by the steps in the rock, which has been added so as to form an artificial grotto of a somewhat imposing aspect, composed of calcareous deposits from the waters. The Hauterive is about two miles distant, rising on the left bank of the river; it has considerable analogy with the Celestins, being also nearly cold (15°), and bears exportation well.

The springs are supposed to originate from a common origin, rising in different parts to the surface. Although the relative amount and nature of their mineralising substance have not undergone any remarkable alteration, the temperature of some

* New baths have been erected at the Lardy, for bathing in common water and in the mineral water.

of them, especially the Grande Grille, has materially varied at different times within the last century. Thus, in 1743 it was 48° ; in 1820, 38° ; in 1844 it descended to 32° ; but in November, 1858, it had again risen to 42° , and has continued much the same ever since. The works undertaken doubtless conduced to this effect by facilitating the flow of water; for this spring, which formerly yielded only 6,000 litres in twenty-four hours, now yields 96,000 in the same time. The Puits Carrè, which formerly gave 180,000 litres, now yields 240,000; the Lucas, which gave 81,000, now gives 150,000.

The water of the warm springs is limpid, without smell, of an agreeable alkaline taste, and though seen bubbling in the wells does not sparkle when taken into the glass, notwithstanding the large proportion of carbonic acid which it contains. The Lucas, Puits Carrè, and Celestins, are the richest in this respect; the latter contains the largest proportion of bi-carbonate of soda (45 grains to the pint). The Puits Carrè is used exclusively for baths; the Celestins exclusively for drinking. The Lucas has a slightly sulphurous impregnation, which, however, speedily disappears after the water is removed from the spring. At the Hauterive springs there is a small drinking pavilion, enclosed in a garden; but on account of the distance, and as the water bears exportation well, it is principally drank at Vichy.

There is not any material difference in the amount of mineralising ingredients contained in the several springs. According to the analysis of

M. Longchamp, made several years ago, a litre (two pints) of the water of the Grande Grille yielded—

Carbonic Acid 17 cubic inches.

Bi-carbonate of Soda . . 90 grains (crystallised).

Muriate of Soda . . . 10 grains.

Sulphate of Soda . . . 8 grains.

Small quantities of lime, magnesia, silex, with traces of iron and a vegeto-animal substance.

The following table shows the relative proportions of substances in the different springs, according to the analysis of the same chemist :—

	Grande-Grille.	Chomel.	Puits Carré.	Hôpital.	Lucas.	Célestins.
	lit.	lit.	lit.	lit.	lit.	lit.
Carbonic Acid . . }	0·475	0·490	0·534	0·491	0·540	0·562
Carbonate of Soda . }	4·9814	4·9814	4·9814	5·0513	5·0863	5·3240
Carbonate of Lime . }	0·3498	0·3488	0·3429	0·5223	0·5005	0·6103
Carbonate of Magnesia }	0·0849	0·0852	0·0867	0·0952	0·0970	0·0725
Muriate of Soda . }	0·5700	0·5700	0·5700	0·5426	0·5463	0·5790
Sulphate of Soda . }	0·4725	0·4725	0·4725	0·4202	0·3933	0·2754
Oxide of Iron . . }	0·0029	0·0031	0·0066	0·0020	0·0029	0·0059
Silex . .	0·0736	0·0721	0·0726	0·0478	0·0415	0·1131
Grammes . .	6·5351	6·5331	6·5327	6·6814	6·6678	6·9802

The analysis of Mr. Henry shows very nearly the same results.

The annexed table shows the saline and gaseous constituents contained in a litre of each of the principal springs, according to the more recent analysis of M. Bouquet * :—

	Grande Grille.	Hôpital.	Célestins.	Haute-rive.	Des-Dames.
Carbonic Acid . .	0·908	1·067	1·299	2·183	1·908
Bicarbonate of Soda . }	4·883	5·029	4·101	4·687	4·016
„ of Potass . .	0·352	0·440	0·231	0·189	0·189
„ of Magnesia . .	0·303	0·200	0·554	0·501	0·425
„ of Strontia . .	0·003	0·005	0·005	0·003	0·003
„ of Lime . .	0·434	0·570	0·669	0·432	0·604
„ of Protoxide of Iron }	0·004	0·004	0·004	0·017	0·026
„ of Protoxide of Manganese . }	A trace	A trace	A trace	A trace	A trace
Sulphate of Soda . .	0·291	0·291	0·314	0·291	0·250
Phosphate of Soda .	0·130	0·046	A trace	0·046	A trace
Arseniate of Soda . .	0·002	0·002	0·003	0·002	0·003
Chloride of Sodium .	0·534	0·518	0·550	0·534	0·355
Silex	0·070	0·050	0·065	0·071	0·032
Organic Matter, Bituminous . }	A trace	A trace	A trace	A trace	A trace
Grammes†	7·914	8·222	7·865	8·946	7·811

The operation of these waters is alterative, resolvent, and diuretic, without being aperient or diaphoretic; it affects most perceptibly the kidneys, increasing the quantity of their secretion, and

* Some fine specimens of the crystallised Vichy salt may be seen in the pharmacy of M. Jaurand.

† One Gramme is equal to about 15 grains.

altering its quality so as to render it alkaline after a person has drank three or four glasses or taken a bath. The drinking is the essential part of the treatment, though most patients combine with it a course of bathing; the water for the baths being often diluted with common water, as otherwise its action, daily repeated, would be, in some cases, too stimulating. From the difference of temperature, and of amount of impregnation of the waters, they are applicable to a variety of pathological conditions. "The seven springs of Vichy," observed Dr. Lucas, "present, as respects their medical employment, more important differences than might be supposed on judging merely from their chemical analysis; and, although it may be difficult to account, *à priori*, for these differences, numerous observations made in the course of twenty-five years, have left in my mind no doubt of the fact. In this state of uncertainty, our treatment must be regulated according to the susceptibility of the organs, and of the patients; we must feel our way during the whole course."

The water taken internally has the effect of exciting the appetite and improving the digestion in those cases where it is indicated; sometimes, however, unpleasant symptoms occur from its use, as a sense of giddiness and fulness in the head, with an abnormal disposition to sleep, unpleasant sensations in the regions of the liver or kidneys, some difficulty in micturition, as also in some cases a marked diminution of the general strength and tone. These effects are doubtless not unfre-

quently owing to the water being taken in too large doses, especially when baths are used at the same time.*

One of the strongest objections that has been made against the Vichy waters is that, by the alkalisation of the blood and secretions from their prolonged use, a cachectic condition, attended with great debility, is induced; and there can be no doubt that much caution and discrimination are required in their administration, when there exists any tendency to a depressed state of the system that cannot be ascribed to the presence of visceral disease, which these waters are calculated to remove. Even in the last century, Cullen expressed his apprehensions respecting the abuse of alkalies in the treatment of gout and gravel, remarking that he "never dared to persist for a long time in their use, lest they should produce a prejudicial effect upon the state of the fluids," and this apprehension has been shown to be well-grounded by the observations of pathologists of late years upon the excessive use of alkaline mineral waters. MM. Trousseau and Pidoux remark on this point: "The abuse which has been made of the waters of Carlsbad and Vichy in the treatment of gout has enabled us to judge rightly upon this serious question. The abuse of alkalies has certainly

* The Vichy waters lose little by being transported to a distance, though the action of those of a high temperature must be different from what it is at the source, where also baths form in most instances an essential part of the treatment.

produced more evil than the use of iodine. In cases, therefore, where there exists a tendency to a cachectic condition, to dropsical effusion, or in debilitated states of the constitution, alkalies or strongly-impregnated waters of this class would be likely to be prejudicial: under opposite conditions of the economy, as where there are indications of the presence of too great an amount of acidity, of which the secretions frequently afford evidence, and of a too plastic state of the blood, frequently arising from a free use of animal food and stimulants, with inadequate activity of the muscular system, waters of this class find their most suitable application." *

A late inspector (M. Petit, who made a pretty free use of the waters in endeavouring to produce by their means the disgregation and solution of calculi in the bladder), seeking to combat the impression that the quality of the blood is deteriorated by their use, remarked: "In estimating their *modus operandi* by those who entertain this opinion, account is taken only of the bi-carbonate of soda, as if the other constituent principles, carbonic acid, iron, carbonate of lime, and magnesia, muriate and sulphate of soda, silex, &c., did not modify the alkaline principle, by imparting to it a medicinal action somewhat different from that which this substance would have if administered singly. A common alkaline solution is not comparable with the waters of Vichy. Patients

* "Traité de Therapeutique."

who can drink daily of the springs eight or ten glasses, frequently cannot well digest one or two glasses of a simply alkaline water."

Though the presence of the other component ingredients of the water must in some measure modify its action, yet their aggregate is so utterly disproportioned to the great amount of soda, that the above argument is scarcely valid; and it has been shown that since the waters have been administered more moderately than they were some years ago, there does not exist much ground for apprehension from their abuse, when a proper discrimination as to the selection of the cases and ordinary precaution in the use of the water are exercised.

M. Durand-Fardel, adverting to the statement of M. Petit, remarks—"When under pretext of relieving the system from a superabundance of acids, you proceed to impregnate it with alkalies, to alkalisise textures and secretions which are naturally acid, to fluidify the blood, will it be always with impunity that you substitute this new chemical condition to that which belongs to the normal state of the economy? The action of alkalies upon the blood was already well known to the ancients; that the results of their prolonged use were general cachexy, with pallor of the countenance, puffiness of the textures, great weakness, passive hemorrhages and infiltrations. It is what the moderns have termed a 'dissolution of the blood.' " *

* "Des Eaux de Vichy."—This author observes that the alkaline reaction of the renal secretion upon the use

Cachetic states of the system, however, when produced by organic disease, or from a residence in malarious countries, are mostly removable by the Vichy waters, which directly attack the cause of the constitutional deterioration. Dr. Barthez, late physician to the military hospital, who had abundant opportunities of observing the effect of the waters in the cases of invalid soldiers who had been long stationed in Algeria, remarks upon this point—"The general opinion of physicians is, that in this kind of affections, where scorbutic lymphatism predominates, the use of alkalies is more injurious than beneficial. This opinion may be correct as respects cases in which the deterioration of the constitution is the direct result of a morbid action of the congenital lymphatic temperament; but it is not so when this general morbid state is the result of a residence in unhealthy climates, of an imperfect state of the digestive apparatus which is consequent upon organic disease of the liver or spleen, or of the ganglionic system, as also of intractable intermittent fevers. In all these cases the alkaline Vichy waters, chalybeate or others, far from lessening, re-establish the vital powers, by advantageously

of the waters is not always, as has been supposed, a proof of its saturation; it may become alkaline even after the first bath, and nevertheless, after the close of a long treatment, an attack of indigestion, or of diarrhoea, or even any unappreciable circumstance, may cause it to resume its acid character, and patients may be cured even of uric acid gravel notwithstanding that this secretion remains acid.

modifying the morbid state upon which their deterioration depends, and by arousing the *ensemble* of the digestive and assimilative functions. They also constitute the alterative specific remedy most favourable for removing the poisonous effects of marsh miasmata, the presence of which in the blood hinders the return to a perfect state of health. The waters act in these cases like fresh vegetables in scurvy, or mercurial or iodine preparations in other affections.”* Dr. Durand, the actual physician to the hospital, speaks highly of the effects of the waters in these cases.

The Vichy springs are most efficacious in a variety of deranged states of the digestive apparatus, especially connected with abdominal *engorgement* or obstruction, chronic enlargement of the liver or spleen, and their frequently concomitant hemorrhoidal complications; in long-standing stomach disorder with acidity, but not too greatly depressed powers, in some forms of gout, and in calculous affections. They are less generally employed in chronic rheumatism (to many cases of which, however, the baths would be well adapted), and in cutaneous diseases. Some patients used to begin with a cool spring before taking a hot one—the Celestins, which was supposed to be milder and less exciting—though this opinion is controverted by Dr. Barthez, owing to the greater richness of this spring in salts and gas. Its low temperature must, however, in some measure counterbalance the more exciting effects

* “Guide pratique aux Eaux de Vichy.”

of its increased mineralisation. It is not unfrequently experienced at other baths, that cool or cold waters, though more strongly mineralised than analogous ones of a high temperature, are yet less exciting in their operation. The question, however, as regards any particular spring, is a matter of experience. The Celestins has of late been employed most commonly in dyspepsia, renal, vesical, and calculous disorders. It is also much drank by gouty patients. In case of chronic gout, abdominal obstruction, or liver disease, and biliary calculi, the Grand Grille is mostly used. The Hôpital spring is used in the same class of cases, but its action is less exciting. It is also much employed in gout. The Puits Chomel is more usually recommended in stomach and chest affections.

M. Durand-Fardel compares Vichy with Carlsbad, which he considers to be the representative of alkaline waters in Germany. I should say that Ems more justly represents this class, and I have already had occasion, when treating of its springs, to show the little foundation there is for the comparison likewise made by Dr. Doring between Ems and Carlsbad, which are only similar in point of temperature, and are applicable to very different cases. It is true that the Carlsbad waters contain a proportion of carbonate of soda, as also of muriate of soda; but their distinctive predominating ingredient is the sulphate of soda, and I have accordingly placed them in the class of saline-aperient springs—their action being in almost all cases aperitive, and not unfrequently

attended with strong crises; whereas alkaline waters, as Vichy, produce rather a confining than a relaxing effect upon the bowels. "*Suppress the sulphate of soda,*" says M. Durand-Fardel, "and there exists a remarkable resemblance between the composition of the waters of Carlsbad and Ems. Carlsbad belongs, if not to the same chemical class, at all events to the same therapeutical class as Vichy."* It is true that in some cases both these springs may be applicable to the same class of complaints abstractedly considered—in the same way as various medicaments may be successfully employed to combat the same disease—but their mode of operation is essentially different; and different conditions of the system occurring in patients labouring under either of the forms of disorder of the digestive organs, of gout, or calculous affection, furnish the practitioner with data which may enable him to determine which of these waters, or whether even others of a different class, would be likely to be most applicable to any given case. The Vichy waters have, moreover, a beneficial effect when exported, whereas the Carlsbad waters require to be taken on the spot to ensure a prospect of advantage. The baths at Carlsbad form a very secondary consideration in the treatment, and though now more in use than formerly, are yet not used by most of the patients; whereas at Vichy, in the majority of instances, they are justly looked upon as an essential adjuvant to the internal use of the water. "A

* "*Traité Therapeutique des Eaux Minerales.*"

derivative action by means of baths," says M. Patissière, "is the more useful, inasmuch as many disorders of the digestion originate from suppressed perspiration, or the retrocession of a rheumatic, gouty, or dartrous principle upon the digestive organs." * Whether this theory be admitted or not, it is incontestible that baths of thermal waters are of manifest advantage in many of these cases.

In a large proportion of instances, disordered digestive function precedes the manifestation of diathetic affections, which become evident as the quality of the blood becomes more and more deteriorated, which is not unfrequently after a long series of years, and (especially as regards the gouty diathesis) as persons approach, or when they have passed the middle period of life, particularly if they have led an indolent existence, and have been addicted to the pleasures of the table. The deterioration of the constitution in these cases is usually marked by increased derangement of the digestion, defective or vitiated biliary secretion, hemorrhoids, diminished muscular and nervous energy, an unhealthy expression of the countenance, and not unfrequently more or less abdominal protuberance. It is, therefore, highly important to prevent if possible, the occurrence of this disastrous result, by having recourse in time to the agencies best calculated to remove the existing chronic digestive derangement, among which the thermal springs of Carlsbad and Vichy

* "Manuel des Eaux Minérales."

hold the first rank ; though, in some instances, a cold gaseous saline spring, as Homburg, Marienbad, or Kissingen, combined or not, according to circumstances, with baths of a thermal water, would be preferable.

Persons who have lived a too sedentary life, as those engaged in literature, or confined to offices or counting-houses during the greater part of the day, especially if breathing the confined atmosphere of a large city, even if they do not suffer from positive indigestion, are yet often subject to derangement of the digestive function with imperfect assimilation, connected with an undue preponderance of the abdominal venous circulation, inducing depression of spirits, or irritability of temper, which are often ascribed to extraneous or accidental circumstances. In similar cases the blood is too highly carbonised, and becomes further vitiated from the inactivity of the cutaneous functions, owing to want of sufficient exercise in the open air, whence noxious matters that should be excreted by this means are retained in the system. Under any similar condition, nothing is so well calculated to remedy the disorder as the employment of an appropriate mineral spring internally, combined in most instances with baths, so as to equalise the circulation by their physical operation, while at the same time the quality of the blood is improved by the absorption of the principles of the water. These objects would generally be effected by the use of the Vichy springs. In cases where acidity and constipation are pre-

dominant symptoms the Grand Grille or the Celestins springs are mostly preferable to the others. Where there exists a state of general or local atony, the derangement being accompanied by nervous symptoms, these springs would often be injurious, and of those of Vichy the Lardy would be more likely to respond to the indication, though in several of these cases a direct chalybeate water, as Schwalbach or Spa, or a light chalybeate gaseous water, as Pougues, would be attended with more permanent benefit.

GOUT.—This is a disease in which the greatest amount of benefit may be expected from the agency of suitable mineral springs; many have accordingly been highly recommended for their powers in combating the disorder, though the reputation of some in this respect has been more generally confirmed by experience than that of others. In long standing cases, even where not accompanied by manifestations of serious derangement of the digestive function, the blood has become altered from its normal condition, containing uric acid,* which is said to be always present in

* The quantity of uric acid is lessened in the urine immediately before the occurrence of a fit of gout. In patients subject to chronic gout accompanied with tophaceous deposits, uric acid is always present in the blood and absent in the urine. Either absolutely or relatively to other organic matters, the chalky concretions appear to depend upon an action around the articulations vicarious to the function of the kidneys in excreting the uric acid.—Dr. Garrod in “Medico-Chirurgical Transactions.” Vol. x., sec. 1.

these cases. Where, however, the gouty diathesis has not become fully established, there exists no appreciable alteration in the composition of the blood under ordinary circumstances. A distinguished physician of Lyons (M. Baumès), who regards the production of acid in the blood and secretions as the result of impaired nervous energy, remarks—"We know it is the opinion of several writers on the subject that the predominance of urea, or more especially of uric acid, in the blood, gives rise to the gouty diathesis; but how is this predominance produced, and how can it become a diathesis? It is only during the diathetic manifestations that this acidity of the secretions, which is far from being constant, shows itself. In the intervals of the attacks, there is nothing particular by which the blood of gouty persons is distinguished, notwithstanding that they remain under precisely the same conditions as to regimen, exercise, &c. Could this acid or any modification occur spontaneously in the blood at various periods after longer or shorter intervals of calm, in order to give rise to what may be termed a gouty manifestation? Is it not more likely to be the result of a vicious action of the nervous centres upon the organs of assimilation and sanguification at a time when, suffering from this kind of morbid want of discharge inherent to the diathetic state, they determine the fluxion to the digestive passages or to the small joints, thus constituting an attack of gout? We may hence conceive how the secreting organs of the

regions to which the fluxion is determined, being excited by it to a greater activity, may impress upon their secretions the acid, or other predominating chemical characteristic, with which the blood itself may have been impregnated by the diathetic influence. In this manner, attacks of gout may determine in and around joints concretions of urate of soda or of lime." &c. *

A chief cause of the abnormal acidity of the blood, and of some secretions, is the inactive state of the skin in most gouty subjects, owing to which much of the acid matter which should be eliminated by this means is retained in the system; and it has been even asserted that gout is wholly attributable to suppression of the cutaneous transpiration, though such an opinion is not tenable. Suppressed perspiration frequently occurs, as is well known, from exposure to cold and wet in the lower classes, who are very liable to rheumatism, but little subject to gout. It is, however, demonstrated by experience, that any hygienic influence that favours the activity of the cutaneous function lessens the tendency to the disease, which is much less prevalent in summer than in colder seasons, and is rarely met with among the natives of warm countries, emigration to which often suffices to eradicate the disposition in persons who had previously suffered from its attacks. Excess in eating and drinking checks the insensible perspiration, and this is perhaps one reason why *bon vivants* are so liable to gout, especially when to

* "Traité des Diatheses."

free living is superadded inactivity of the muscular system, which acts in a like manner. Sydenham objected to gout being treated by purgatives partly because their action diminished the amount of perspiration; and it is found that the free use of medicines which act on the bowels, though they may for a time give relief, yet ultimately do harm and predispose to a recurrence of the attacks. In fact, one physician (Dr. Turck of Plombières) advised the encouragement of constipation with a view of lessening the acidity of the system.

We may hence see why purgative waters, as Carlsbad or Homburg, though they may often be advantageously employed, when used with discrimination in cases of gout, especially where there is much complication of disordered digestion or liver affection, are yet not so well adapted to produce beneficial results as some other waters whose mode of action is as effectually carried out by means of bathing as by their internal use, and this will occur when waters of different classes are employed. That alkaline waters do not act solely by their mere chemical property in neutralising the acid state of the blood and secretions in gout and are not essential for its removal or mitigation is proved by the fact that no less beneficial effects are frequently produced in this disease by baths of a saline thermal water (Wiesbaden), or of sulphurous one (Aix-la-Chapelle); much benefit is likewise frequently derived from baths of slightly mineralised thermal waters, as Teplitz (which has only four grains of soda to the pint) and Bath, or

even Buxton, which is still less mineralised, and is only a tepid water—though it must be admitted that the benefit from these is not of so lasting a nature as that which is derived from the more strongly mineralised springs where they are well borne. M. Baumès, who thinks less of the specific action of the alkaline constituent than of the general action of the thermal water in this disease, further remarks—“It seems to me certain that these (Vichy), like all other alkaline waters, do not act chemically upon the blood of gouty subjects. They could by such means only produce a temporary action upon the effects and not upon the cause of the diathesis, nor upon the diathesis itself. But these, like all other mineral waters, exert in the first place a generally exciting influence upon the system, and a subsequently special action upon some organ or secreting apparatus, so as to produce, as respects gout, the effect of a displacement of the function. It is in this sense that purgatives likewise act.”

I think, however, there can be no doubt that the alkaline property of the water is an important element in the benefit which many gouty patients derive from Vichy; and this, which is proved by experience, is only what one would be led *à priori* to infer on perceiving its evident effects in correcting the lithic acid diathesis, as manifested by the presence of gravel and calculus with which gout is so closely connected. And these effects M. Baumès is ready to admit in these cases. “Whether they act,” he says, “by modifying the

composition of the blood, by altering the mode of vitality of the kidneys, or by their solvent action upon certain calculous concretions, or by these modifications combined, it is certain that they do exert a special action which should cause them to be placed in this category. As to their *special* beneficial effect upon the manifestations of the gouty diathesis, it is far from having been demonstrated."

Much discrimination is, however, required to determine the cases of gout in which the Vichy springs are likely to be of advantage, and several writers have adverted to the ill consequences resulting from their having been employed in improper cases or from their abuse. I have already quoted the opinion of MM. Trousseau and Pidoux on this point. "There are cases," says another writer on mineral waters, "where from the abuse of the waters of Vichy, or from other improper treatment—as by purgatives—regular gout is converted into the atonic and abnormal forms. Then spasm is replaced by atony, inflammation by serous puffiness, and edema or dropsy, amounting to complete cachexy, may ensue."* "In all the asthenic forms of acute and chronic gout," says M. Durand-Fardel, "Vichy is counter-indicated."† Dr.

* Dr. Astrie, "La Medication Sulfureuse." Paris, 1852.

† Op. Cit.—"The waters have but little action in some cases, especially in those where there is a strong constitutional or hereditary tendency to the disease, but they generally lessen the duration and severity of the attacks. Gouty patients generally bear the Vichy waters well, and

Garrod likewise remarks on this head—"Several cases are recorded of gouty subjects having died suddenly soon after commencing the Vichy treatment, but many of these patients were suffering from organic disease of some important organ in addition to gout. In other instances the disorder appears to have been more chronic from the same cause, and sufficient evidence of the occurrence of its effects has been given to make it advisable to use great caution, not only in the mode of their employment, but likewise in the selection of cases in which they should be adopted."*

It is not surprising that the bad effects here referred to should formerly frequently have occurred, when we read of patients taking from twenty-five to forty glasses of water a-day, many of whom doubtless used the baths as well. Since the quantity of water patients are allowed to take has been greatly diminished, it is seldom that these disastrous results occur, even where no material benefit is derived from its use.

"I believe them to be often injurious in chronic gout (adds this writer), especially when the system is already lowered and the rapid formation of urate deposits is taking place, either in or around the joints, or upon the surface of the body, that they sometimes increase these deposits, and still further depress the vital powers. In many forms of

drink the strongest (Celestins) in considerable quantity without inconvenience."—(Pamphlet on the Vichy waters, published by the Establishment.)

* "Nature and Treatment of Gout."

chronic gout the baths are useful, but independently of any peculiarity of their composition. In the complete intervals of acute gout, and more especially in strong, robust subjects, where the disease depends rather on increased formation than on defective elimination of uric acid, and in cases in which the liver and digestive functions are at fault, the employment of these waters is likely to prove most beneficial. In other forms of gout, mineral waters of a different class may be resorted to with greater advantage than those of Vichy. These waters, it is true, act as all other mineral waters from the amount of diluent administered to the patient; and water is a powerful therapeutic agent in gout."

From what I have seen of the effects of mineral waters in gouty cases, I concur in the main in these observations, though several waters have a specific action that is not attributable to their diluent property. I have known many great sufferers from gout who have derived much advantage from a course of mineralised baths without drinking any of the water, and some have, year after year, employed these means as a preservative against their winter attacks, which, when they could not be altogether prevented, have occurred in a greatly mitigated form.

M. Prunelle, a former inspector of Vichy, remarked that "the general property of the water is to re-animate the innervation of the whole abdominal system, whether there exists inactivity of the liver, stomach, intestines, bladder, or any

other organ. The waters even succeed in cases of inertia of the reproductive apparatus."

"When gout (he adds) has a tendency to affect internal organs, as the stomach, the Vichy water will be useful in strengthening the viscus, acting in the same way as Bordeaux or Madeira wine in these cases. There is a kind of gout that may be called *soft* gout, in which nature has not the power requisite to produce a true crisis; the patients experience incomplete attacks; it is rather an habitual state of suffering; they walk, as they say, upon sponges. In such a case the Vichy water is one of the best tonics for coming to the assistance of nature—it will favour the manifestation of the attack, and thus relieve the patient. But if the gout shows itself by inflammatory symptoms, in what way could the water be beneficial, even in the absence of crises? The organs are already too much excited by the gouty principle, without the additional stimulation of the mineral water. It would cause an aggravation of the disease. In like manner, gout should not be interfered with in old people when restricted to the upper or lower limbs, for it is then but little to be feared. The intervention of the Vichy water would cause a displacement of the gouty principle, and consequently induce dangerous metastasis. It is in similar cases that apoplexy has been known to ensue upon the abuse of the mineral water. The frankly tonic and articular gout, as it is seen in plethoric individuals, which is accompanied by fever, which recurs in attacks, and chiefly affects

the great toe, is generally very well adapted to the treatment by the Vichy waters. When administered in the intervals, they almost always have the effect, if not of preventing a recurrence, at all events of mitigating the severity of the attacks, by rendering them less frequent, shorter, and less painful."*

These remarks must be accepted with some restriction. Few persons would think of recommending the waters where there exists a tendency to acute or inflammatory action till this had been removed; and many old people may use the waters, employing ordinary precautions, without having reason to apprehend metastasis of the disease as a result of their use. Having already considered the circumstances which appear to me to indicate the preference to be given to one spring over another in particular forms of this disease under the head of "Wiesbaden," and having now presented an impartial *resumé* of the opinions which have been expressed respecting the action of the Vichy waters in this complaint, from which a tolerably accurate conclusion may be drawn as to their sphere of applicability, I need not further enlarge upon this part of the subject.

CALCULOUS DISORDERS.—The disposition to the most common form of gravel and urinary calculi being intimately connected, if not identical, with the gouty diathesis, analogous remedial means are often applicable to both cases; and as respects

* Quoted in the "Guide Pratique aux Eaux" of Dr. James.

mineral waters, where the disorder is recent, and is accompanied with a deranged condition of the digestive apparatus, the internal use of a warm or of a cold alkaline saline aperient water (Carlsbad, Marienbad, Kissingen, Homburg) would frequently suffice to counteract it, and to prevent its local manifestation. Under other circumstances, and when the disorder is of longer duration, or frequently recurs from slight exciting causes, the drinking and bathing in a thermal water (sulphurous, saline, and especially alkaline) is more positively indicated, and presents the greatest likelihood of effecting a cure, or where this is impracticable, of procuring marked alleviation of the disorder. The Vichy waters have consequently justly acquired considerable reputation in cases of gravel of the lithic acid kind, the secretions becoming speedily alkaline, and the quantity of gravel diminishing, if not altogether disappearing, soon after their commencement. In small calculi of this variety their employment is frequently attended with marked beneficial results, by preventing their increase, and sometimes by procuring their expulsion.

“Patients affected with gravel or stone, who come to Vichy to take the waters,” says the writer of the pamphlet issued by the Establishment, “experience a decided amelioration in the first days of the treatment: the urine immediately becomes alkaline, is secreted more abundantly and without pain, the glairy and purulent matters resulting from the irritation of the mucous membrane are

dissolved and carried away, and it becomes limpid. At the same time the hematuria, the nephritic attacks, the pain in the bladder, &c., caused by the presence of calculi, are allayed; the sleep, appetite, and strength are regained; and a patient who, on his arrival, was not able to stand, is enabled, after some days, to take salutary exercise.”*

The question of the actual dissolution of calculi in the bladder was warmly debated several years ago in the Academie de Medicine, and in the medical journals, on the occasion of numerous instances brought forward by M. Petit with a view to prove this solvent power; and M. Chevalier, the eminent chemist, instituted a series of experiments which showed that urinary calculi placed in Vichy water became disgregated in some instances, in others lost some of their weight after a longer or shorter period; but subsequent investigations did not tend to confirm the dissolvent agency of the water upon stone while remaining in the bladder, though the symptoms in some cases were mitigated or even disappeared for a time.† The following conclusions on this head were arrived at in the reports made to the Academie by MM. A. Berard, O. Henry, and Pelouze:—

1. The natural mineral water of Vichy indisputably acts upon urinary calculi.

2. Calculi, placed in contact with the water of

* “Notice Medicale sur les Eaux de Vichy.”

† My translation of M. Chevalier’s pamphlet, “On the Dissolution of Gravel and Stone in the Bladder,” was published in the “London Medical Gazette.”

the Vichy springs, present evident marks of its dissolvent and disgregating action, and calculi, while in the bladder, are in like manner acted upon by the urine, after it has been rendered alkaline by means of the Vichy water employed internally and in the form of bath.

3. The proofs of such action are manifested by the alteration which the urinary concretions passed by the patients have undergone; by their diminished size as signalised by cathetirism, and by direct inspection; by the presence of substances in a state of dissolution, formed at the expense of the new principles contained in the urine, and of the elements of the calculus with which they are combined.

4. The action of the alkaline bi-carbonates is exerted more upon the mucus and the animal matter which serve to unite together the particles of the calculi than upon the calculi themselves.

5. This dissolution and disaggregation of their principles may produce the result either of the natural expulsion of the calculi from the bladder with the flow of urine, or of their greater friability, which renders a cure more easy by the mechanical operation of lithotripsy.

6. It may be conceded, as a general proposition, that during the exhibition of the Vichy waters the health of calculous patients becomes ameliorated, and that the urinary passages do not undergo alterations which render surgical operations, when subsequently required, more serious.

Thus, notwithstanding that the lithontriptic

powers of the Vichy waters have not been proved, employed with discrimination, they may often act as a valuable preventive, in weakening or destroying the diathesis and in hindering the transmutation of existing gravel in stone. Subsequent to the operation of lithotrity the free use of a gaseous alkaline water, as Vichy, would likewise be serviceable in many cases, by facilitating the removal of any remaining detritus, and in lessening the tendency to a recurrence of the disease.

Some other waters have been no less praised than those of Vichy for their efficiency in these affections; and doubtless in several instances the chemical composition is a secondary consideration as respects the result. Thus, the Contrexville waters are said to have frequently produced the expulsion of calculi, and are in considerable repute in gravel, and in renal and vesical disease, though they contain but a very small proportion of mineralising substance. "All waters," observes M. Patissier, "are useful in cases of vesical catarrh; but in calculous affections, and when stone is actually formed, do they act as a solvent, or only as a means adapted to increase the urinary secretion, which, becoming more abundant, carries off with it small concretions and calculi?" There is no doubt that the latter supposition is the more probable one, for very pure waters, as Matlock and Malvern, without being mineralised, are said to produce sometimes analogous effects, when taken to the extent of several glasses daily.

The above remarks chiefly refer to the most ordinary form of calculous deposits—viz., in which lithic acid and the lithates predominate, and the objection has been raised against the employment of the Vichy water in the rarer phosphatic variety of white gravel or calculous deposit. The question was strongly discussed in the Academie, and the old objections of some physicians and chemists, as Drs. Prout and Marcet, were brought forward—viz., that the Vichy water, by neutralising the free acids of the urine, might favour and increase the deposit of the phosphates of lime and magnesia, and add such deposit to calculi already existing in the bladder. “These objections have, however, been proved by experience not to be valid, inasmuch as phosphatic gravel does not, like the uric acid gravel, depend upon the calculous diathesis, or a particular state of the system, but is purely local, having its seat in the bladder. These phosphatic deposits are only met with in persons affected with vesical catarrh, and where the urine is altered from being retained in the bladder in consequence of some impediment to its emission; the phosphatic disorder which is then manifested is but a consequence of the state of chronic inflammation of the bladder, and experience has shown that the exhibition of the Vichy waters, far from giving rise to phosphatic deposits, on the contrary, causes them gradually to disappear.

“It is by the same chemical action, the introduction of a large quantity of bi-carbonate of soda

into the economy, that the Vichy waters are applicable to all calculous affections of the urinary organs. They modify the pathological condition of the mucous membrane of the bladder, fluidify the mucous secretions, and by acting on the composition of the blood, by preventing the formation either of uric acid or of the neutral phosphates, they change the constitution of the principles of the urine, so that on reaching the kidneys and the bladder they no longer contain insoluble substances calculated to form precipitates.

“Thus, both practical facts and the deductions of chemistry are in accordance to confirm that which prior experience and observation had already demonstrated to remove prejudices engendered by a faulty appreciation of the phenomena.” *

Stomach disorder, attended with heartburn and acidity, and indigestion in the general sense of the term, are in many cases capable of being cured or materially relieved, by the use of one or other of the Vichy waters. When complicated with pain (gastralgia) and diminished power of the stomach, the Hôpital spring in some cases, the Lardy and Mesdames in others, would be most likely to have a beneficial effect; in other cases, where a more energetic action is required, the Grande Grille would be preferable. There is, however a great number of waters calculated to render service in the varieties of dyspepsia. The preference to be accorded to one kind over another in any given

* “Notice sur les Eaux de Vichy.”

case can only be properly determined after an investigation of the peculiarities by which cases are distinguished from each other. The same may be said of rheumatism and some other chronic ailments, for which recourse is very commonly had to bathing in a thermal spring, more or less strongly mineralised. Vichy would, in many of those cases, be quite as applicable as waters of a different class.

Douching, in all affections connected with defective power in the limbs, as also in liver, spleen, or other glandular enlargements, forms an important part of the treatment.

Some cases of diabetes in the early stage are said to have been cured, and others to have been ameliorated by this treatment. M. Mialhe is quoted by Dr. Barthez as having effected some remarkable cures in a few days, under the influence of strong alkalis of the system, by means of bi-carbonate of soda, calcined magnesia, and the Vichy waters. "Many of these patients," adds Dr. B., "now come to Vichy in consequence, to use the waters." He also refers to the experiments of Fremy, who, by varying the acid or alkaline nature of the food, could determine at will the presence or absence of sugar in the secretions, and his experience goes to corroborate the opinions that have been expressed by others respecting the use of alkalies in diabetes. M. Durand-Fardel, however, disproves the chemical theory. He observes, that after the first few days of using the water, the quantity of sugar in the

urine is always diminished ; but this action is not permanent, and even when the saccharine property had completely disappeared, it recurred, though not in the same proportion. Though the re-appearance may not be observed while the patients are at Vichy, it occurs subsequently, sometimes several months after their return home.

The writer of the "Notice" observes on this point : " All these patients experience at Vichy very great amelioration, if they take the waters in sufficient quantity ; the sugar gradually disappears from the urine, the thirst is lessened, vision regains its integrity, and the general strength is improved, constipation is succeeded by bilious evacuations in the first place, then by regular evacuations, sleep succeeds to sleeplessness. After a fortnight or three weeks' treatment the patients may modify the diet to which they have been subjected, resume, in moderation, bread, potatoes, and feculent aliments, without the sugar re-appearing in the urine.

" These facts are constant, they are signalised both by patients and physicians, but they have been explained in different ways ; some persons will only see in the amelioration the result of the tonic action, or of the exciting properties which are exerted by almost all mineral waters upon the skin, the secretions, and functions in general ; others, while admitting the efficacy of such excitation, find in the chemical composition, in the alkalinity of the Vichy waters, the true cause of the

favourable modifications that supervene in the state of diabetic patients.

“In this disease, the waters of Vichy are acknowledged by all to be either a very useful adjuvant, or a specific or sovereign remedy.”

From the tenth to the twentieth day of using the waters, there frequently supervene symptoms of the system becoming saturated with the water, as is also the case at several other strongly mineralised thermal springs. Excitation of the skin, and sometimes an eruption, are produced by the baths in some instances, especially when taken undiluted, or continued for too long a time. The Hospital baths are considered to be less exciting than those of the other springs; their action is more anti-spasmodic and calming, which, however, may depend upon their being generally given at a lower temperature than the others.

As respects the adaptation of the different springs to particular instances, no definite rule can be laid down, each case requiring a special investigation as to its peculiarities; but in general terms it may be said that the Celestins is more employed in calculous affections, and sometimes in gout; the Grande Grille and Hôpital in gout and dyspepsia, complicated with a congested state of the liver. The same springs in visceral engorgement resulting from residence in tropical climates, or from malaria—the latter spring being less exciting than the former, and is more applicable in nervous cases. The *Puits Chomel* likewise in similar cases, and in chronic catarrh; the Lucas

in cutaneous affections and in scrofulous and glandular enlargements; the Lardy, the Park spring, and the Mesdames, in various forms of dyspeptic, liver, and renal affection, and in nervous disorders connected or not with uterine derangement, where a more tonic effect is required than could be obtained from the other springs.

In many instances it is advisable that persons who during their sojourn at Vichy have derived advantage from the waters, should continue for some time afterwards to drink the exported water,* which may, when requisite, be combined with the use of baths made with the Vichy salts.

* Obtainable at the branch establishment in Margaret-street.

SUPPLEMENTARY NOTE.

THE omission has to be rectified of the absence of any notice on my part of the carbonic acid gas baths and douches, for the use of which only a small cabinet attached to the establishment has hitherto been appropriated, but which it is contemplated to organise more extensively, on account of the beneficial effects that have been found to result from this means in the class of cases to which it is applicable. Dr. Durand-Fardel, in his "Lettres Medicales," and Dr. Barbier, who has published a separate pamphlet on the hydro-carbonic medication, have particularly endeavoured to direct attention to the advantages that may be derived from this means, employed separately or in combination with the waters.

Both these physicians have likewise treated at length upon the benefit obtainable from the waters in cases of *diabetes saccharinus*—the number of these patients having greatly increased of late years. Dr. Willemin, *inspecteur-adjoint*, has directed the attention of practitioners, in separate volumes, to their beneficial action in some chronic uterine affections, and in cases of hepatic colic; and Dr. Durand (de Lunel), physician to the military hospital, who has been a good deal em-

ployed in Algeria and the East, has published, as a supplement to his work on "Intermittent Fevers," a notice of the *modus operandi* of the Vichy waters in enlargement of the liver and spleen, and other consecutive affections of these diseases.

Dr. Durand-Fardel remarks ("Lettres") that at least two-thirds of the patients who come to Vichy do so on account of disorders of the digestive functions; and considering such disorder to be a chief cause of the gout, he concludes that the Vichy waters tend to correct the gouty diathesis, by maintaining the integrity of nutrition, or re-establishing it when disordered. He does not seem to take into account the modification which the system undergoes in this disease by the absorption of the water internally taken, or in the form of baths (as demonstrated by the experiments of Dr. Willemin), and the alteration thus produced in the blood, by which, as is the case with respect to some other thermal baths, the diathesis is most effectually weakened, and the recurrence of attacks prevented, which not unfrequently occurs even when there does not co-exist any material digestive disorder.

With regard to uterine disease, the same physician remarks that nervous and hysterical women do not well bear the Vichy waters. These waters, though much stronger, yet greatly resemble the Ems waters in composition and temperature; and in many cases, where the indication is not to impart tone to the system, and where their too stimulating effect is not to be apprehended, they

may find their application in female complaints. As respects chlorosis, in which disease M. Petit spoke highly of the effects of the waters, it is only in exceptional cases, where their generally stimulating action would prove beneficial, that they would be likely to be of material advantage, chiefly as a preparation for the treatment by chalybeates, which is generally called for in these cases. Other thermal springs would be no less efficient for this purpose.

