

CHAP. XIII.

OF MINERAL WATERS.

WATERS holding minerals in solution are called mineral waters. But as all water, in a mineral state, is, either more or less impregnated with some mineral substances, the name *mineral waters* should be confined to those that are sufficiently impregnated with mineral matter to produce some sensible effects on the animal economy, and either to cure or prevent some of the diseases to which the human body is liable. On which account, these waters with much more propriety might be called *medicinal waters*, were not the name by which they are commonly known too firmly established by long use.

The mineral waters most esteemed, consequently those most frequently resorted to for the cure of diseases, are those of

Aix, in Provence,	Harrowgate,	Spa,
Barege,	Hartfell,	Sedlitz,
Bath,	Holywell,	Sea-water,
Bristol,	Leamington,	Seltzer,
Buxton,	Malvern,	Tunbridge,
Borset,	Matlock,	Vechy, and others
Cheltenham,	Moffat,	of less note.
Carlsbad,	Pymont,	
Epsom,	Scarborough,	

It is scarcely possible to read without a smile the numberless books, essays, and pamphlets, which have been written on this subject. It seems to be the favourite region for the exercise of fiction and fancy. The traditionary tales of ancient miracles, said to be wrought by holy wells and consecrated springs, do not much surpass in extravagance the modern cures ascribed to those favourite haunts of valetudinarians by fraud, ignorance, and credulity. In printed *Guides*, as they are called, or *Pocket Companions*, to any of those fountains of health, it may be excusable to amuse us with a little romance; but we are sorry to find the same spirit pervading many medical treatises which should be distinguished by the most sacred regard for truth, and a just contempt of puerile embellishments.

Some allowance indeed should be made for the influence of local prejudices, and for the strong bias of interest and ambition on the mind of a professional man, who, residing near one of those springs, has, perhaps, no other means of acquiring popularity and reputation, but by an encomium on its virtues, and a description, quite in the poetical style, of the beauties of the surrounding scenery. The latter is, indeed, a harmless puff; it seldom deceives any body; but is viewed in the same light as an auctioneer's advertisement of an estate, where frightful chasms are often described as curious grottos, a few furze-bushes as a shrubbery laid out by the finger of Nature, and a gallows as a hanging-wood. There is another particular, in which those highly-coloured landscapes that form the

introductory part of almost every treatise on a medicinal spring, may defeat the proposed end, and that is, by exciting a reasonable suspicion that those waters are chiefly indebted for the high reputation of their efficacy to local circumstances, to the pleasant walks and rides, or the delightful prospects round them.

A display of all the attractions of the favourite spot is commonly followed by very minute details of chemical analysis, which are just of as little use to the generality of readers as the description of the scenery. A knowledge of the contents of any mineral water by no means implies a knowledge of its medical properties. These are to be learned by repeated experiments. Were it not for the evidence of facts, the late discoveries in chemistry, as far as they respect the analysis of mineral waters, would only tend to lessen their credit, by showing the little difference between them and any common water of the same purity and temperature. For instance, if we confined ourselves to mere speculation on the subject, how could we suppose that a quarter of a grain of the oxyd of iron suspended by a little fixed air in a whole quart of Tunbridge water, the largest quantity usually taken in the course of a day, could produce any remarkable or peculiar effects? The same thing might be said of the most celebrated springs in the kingdom; and many physicians of great professional eminence, arguing from this principle, have not hesitated to assert, that the cures performed by those springs were not owing to the ingredients with which they were impregnated, but to the simple elementary part, or what may be called pure water. It would not be easy therefore to determine, whether chemical analysis has furnished more arguments in favour of, or against, the boasted superiority of mineral waters.

Dr. Falconer, the author of one of the very few books relative to this subject, that contain something more than the gratification of idle curiosity, candidly confesses, that "chemical analysis, as far as it has been hitherto prosecuted, seems to give us a very imperfect view of the methods by which these effects (*i. e.* the medicinal effects of the Bath-waters) have been produced; and this circumstance has induced several persons to deny the truth of the facts altogether, or to represent them as highly exaggerated, and that such advantages (if any) as might be in truth received, were owing to collateral circumstances of uncertain and indeterminate efficacy, as change of air, diet, manner of life, and the like."

It is not therefore to the landscape-painter, or to the chemist, that we must look for any useful information on those points, but to the modest and judicious practitioner, who, like the author now quoted, watches with care, and reports with fidelity, the bad as well as the good effects of the waters he describes, the instances of their failure, as well as of their success, in various disorders. I am sorry to add, that the fund of such truly valuable materials is as yet very scanty, and that I must confine myself to general remarks on the most frequented of our medical springs, so as to direct invalids to the fountain, from the use of which they may form some reasonable hopes of relief. As more particular instructions will often be necessary when they get to the spot, I feel it my duty to caution them against choosing for their medical guide any man, however high his reputation may be, who has distinguished himself

as the loudest or most eloquent trumpeter in the indiscriminate praise of the waters near which he resides.

The like caution may prove still more serviceable to such of our countrymen as resort to foreign springs for medicinal purposes. A popular advocate for the use of any remedy is seldom to be relied on as a good physician; and we have always strong reason to suspect the skill or the integrity of a man, who speaks in a tone of confidence of the infallible efficacy of the waters which he prescribes. Some of those foreign waters being also frequently imported into this kingdom, and used here medicinally, I shall give a short account of a few of them, which are found to possess virtues superior to any of our own in the cure of certain disorders.

Classification of Mineral Waters.

Mineral waters are usually classed according to their sensible qualities, as perceived by the touch, sight, taste and smell, or according to some well-known ingredient, which may predominate in this or that particular spring. The most obvious division is into cold and hot fountains; but both these, being too comprehensive, are again subdivided into *chalybeate*, *saline*, *sulphureous*, and *calcareous*, from their being impregnated with *iron*, *salts*, *sulphur*, or *lime*. There are many still minuter distinctions, where two or more of those ingredients may be found united in the same spring, or combined with different sorts of *air*, which must have a very powerful effect in the internal use of the waters.

The first class of mineral waters, which I shall notice, are those called *chalybeates*, from a Greek word that signifies *iron*, the taste of which is very perceptible in them when fresh from the spring, though they lose it on being exposed for some time to the atmosphere. The reason is, that the small quantity of iron which they contain, being kept in solution by *fixed air*, when this evaporates, the iron sinks to the bottom, forming the fine ochre that lines the channel or water-course. As iron abounds in almost every part of the earth, it is no wonder that so many springs should be impregnated with it, in a greater or less degree, according to the quantity of fixed air they contain, by which the iron is held in a state of solution. Some of those waters have, in conjunction with the iron and fixed air, a pretty strong mixture of purgative salt, and are very different from the others in their effects as well as their taste. In order to distinguish each by a specific name, the former may be called *simple chalybeates*, and the latter *saline* or *purging chalybeates*. Tunbridge-Wells standing in point of reputation, or of fashionable resort, at the head of the one, and Cheltenham at the head of the other; they may be very properly chosen as examples or illustrations of the various medicinal effects of this numerous class of waters.

TUNBRIDGE-WELLS. MEDICINAL PROPERTIES, &c.

It has been already intimated, that the water of Tunbridge-Wells is found, upon being analyzed, to differ from that of common springs only by containing in every gallon a grain of iron sus-

pended by about three table-spoonsful in bulk of fixed air.* Yet its medicinal effects are very considerable. It gives a gentle stimulus to the relaxed nerves, and contributes to restore their proper tone. It affords great relief in many complaints of the stomach, in flatulencies, bilious vomitings, irregular or imperfect digestion, and other consequences of either debility or intemperance. It promotes the circulation of the blood, and the various secretions; but more particularly that of urine: and this latter circumstance is one of the best proofs of its agreeing with the habit of the patient. In short, its natural tendency in the cases to which its stimulant and tonic powers are adapted, is to raise the spirits, and increase the general vigour of all the functions.

The Tunbridge-waters are eminently serviceable in what may be called the sexual disorders of females, arising from a great weakness or derangement of the uterine system; such as an immoderate flow of the *menses*, green sickness, *fluor albus*, and other similar indispositions, which are not only relaxing and painful in themselves, but are often the cause of abortion, or of sterility. If the profuse flow of the *menses* should be accompanied, as it often is, by feverish symptoms, by pain in the back, and local irritation, the stimulus of the waters might then prove injurious. Indeed, they are improper in all inflammatory cases, except the feverish irritation which attends the green sickness, and which is more frequently abated than increased by the use of chalybeates.

In all obstructions of the urinary passages, and other complaints of that region, those waters are found of singular efficacy; for though, as before observed, they in some degree promote every secretion, yet their chief and most regular determination is to the kidneys; and experience has fully proved the good effects of their gently stimulant and diuretic properties.

We may proceed still farther in our recommendation of the Tunbridge-waters, and prescribe them with great probability of success in such chronic disorders as arise from slow beginnings, and are attended with great laxity and weakness of the solids, but without much organic disease. It is necessary to attend to this material exception; because a general weakness may be often brought on by morbid affections of the mesentery, of the lungs, or of some other important organ, to the cure or relief of which they would be very inadequate. Even in complaints where they have commonly proved efficacious, cases must often occur that require the exercise of the nicest judgment and discrimination.

* A recent analysis of the Tunbridge-Wells says: "A single dose of half a pint will contain, according to the analysis which has been given, and the statement made agreeable to Dr. Murray's views, of solid ingredients, about 14-100ths of a grain of oxide of iron; 9-100ths of muriate of lime; 8-100ths of a grain of muriate of magnesia; 9-100ths of a grain of the sulphate of soda; 2-100ths of a grain of carbonate of lime, and a minute portion of manganese; and of gaseous ingredients, half a cubic inch (or a $\frac{1}{2}$ oz. in bulk) of carbonic acid; 11-100ths of a cubic inch of azote, and about the same quantity of atmospherical air." These minutiae, be they ever so correct, are of no use in practice; and we merely give this as a specimen of that species of chymical ear-wiggling which the author of the "Domestic Medicine" so justly and so humorously disclaims, while he goes at once into the more solid utility to be derived from frequenting mineral springs for the cure of disease and the improvement of the general health. Dr. Scudamore's book has neither index nor table of contents, consequently it was never intended to be referred to. (For a general survey, analysis, properties, &c. of the mineral waters, see "NATURAL and MEDICAL DIETETICON, &c.") Ed. 3

But it is not enough to consider well the propriety of having recourse to those waters in any particular instance; some caution is also necessary in using them. Persons of a full habit should not begin to drink them, without losing a little blood, or without some other evacuation. When the stomach is foul, a purgative is commonly preferable to emetics. What the immediate effect of the waters may be, can only be known by trial. They often purge very briskly at first, but this effect soon ceases; and as their continued use has some tendency to occasion costiveness, gently-opening medicines from time to time are necessary. The water itself may be easily converted into a purging chalybeate, by the addition of a little magnesia or Glauber's salts, when necessary. In the removal of other obstructions, those more especially to which females are subject, the occasional use of the warm-bath will be found an excellent auxiliary.

Directions and Cautions to be observed in the Use of these Waters.

In entering upon a course of the Tunbridge-waters, it is always best to begin with a small dose, not exceeding a quarter of a pint, about half an hour before breakfast, to be repeated, at regular intervals, once or twice in the forenoon, according to the pleasantness of the sensations it excites. The quantity may be soon augmented to half a pint or even more at each dose, if agreeable, or necessary, as the waters lose much of their medicinal effect by continued use, the stimulus wearing off in about six or eight weeks, and making no peculiar impression on the stomach or habit. The usual hours for the three doses are eight o'clock, ten o'clock, and twelve. A light breakfast at nine will not impede the proper action of the waters; and as one of their effects is to improve the appetite, its indulgence should be under the control of moderation. But I have elsewhere enlarged so fully on the advantages of temperance, as well as of early hours and exercise, that I need not stop here to point out their importance in promoting the salutary operation of any course of medicines either natural or artificial.

As some persons may be too soon prejudiced against the use of chalybeates by any unpleasant or unexpected sensations at first, it is proper to inform them, that giddiness and sometimes a heaviness of the head, nausea, vomiting, a slight pain about the heart, and a sense of fulness over the whole body, though by no means uncommon symptoms on beginning a course of these waters, will disappear after a little use. It is only when they stubbornly continue, that they should be regarded as a proof that the waters are not suited to the nature of the complaint or to the patient's constitution. The nausea or sickness being often occasioned by the coldness of the fresh-drawn water, acting on an empty or a very weak and irritable stomach, it is advisable, in the first instance, not to drink the waters fasting, till the stomach becomes gradually reconciled to them; and, in case of extreme irritability, it is a common and judicious practice at Tunbridge to immerse in hot water a bottle filled with the chalybeate, and well corked, that the chillness may be diminished, with as little evaporation of the fixed air as possible. Where this abounds, as in the waters of the Ger-

man Spa, or still more in those of Pyrmont, it need not be preserved with so much caution; but a sufficient quantity of boiling water may be added to that which is taken from the spring, to bring the whole to a moderate temperature.

Remarks.—There are many springs of *simple chalybeate* water in different parts of Great Britain, and even in the neighbourhood of London, which probably are little inferior in medicinal virtue or intrinsic strength to Tunbridge-Wells, though these have acquired a higher reputation. Pure air, temperate living, regular and early hours, active diversions, agreeable company, and a total exemption from all concern, except a rational desire to promote health, are the only circumstances that cause any real difference in the use of waters so similar in quality. This difference, however, is considerable; and the want of some of those co-operating circumstances will always prevent the springs of Islington or Hampstead from being set in competition with those of Tunbridge, for the certainty of their effects. The remarks, which I have made on the proper method of drinking the latter, as well as on the disorders and particular habits of body to which they are adapted, are equally applicable to all waters of the same description in our island. But there are a few *chalybeates* on the continent, particularly those of the German Spa and of Pyrmont, which, being more active and powerful in their operation, require to be used with greater caution and delicacy.

PYRMONT AND GERMAN SPA, &c., compared with the *Tunbridge Waters, &c.*

ON drinking a glass of the Spa water, the taste immediately perceives a strong infusion of iron blended with an agreeable acidity. The latter is owing to the abundance of fixed air, which amounts to near half the bulk of the water, and holds in solution more than four times as much iron as we find in the like quantity of Tunbridge water. The effects are not less perceptible than the taste. A full draught of the Spa water, especially in hot weather, or upon an empty stomach, will produce a swimming in the head, and a sort of intoxication, which sometimes continues for half an hour, and is very like that which arises from spirituous liquors, though it does not leave the same debility after going off. A patient, therefore, should not drink more than a gill at first about an hour after breakfast, and another gill after an interval of two hours more. In three or four days the quantity may be increased, and the dose more frequently repeated; but in these particulars every body's experience will be the best guide. I before suggested the propriety of mixing as much boiling water with the *chalybeate* as will bring it to a degree of tepid warmth, and thereby prevent any unpleasant sensations, which its natural coldness might excite in a very weak or a very irritable stomach.

If some evacuation was recommended to persons of a plethoric habit, before drinking the Tunbridge water, how much more necessary must it be to prepare in the same manner for the use of a far stronger stimulant? This very active property of the Spa waters must also render them still more improper than those of Tunbridge in inflammatory complaints, attended with determination to the

head, flushing of the face, or any other strong indications of feverish heat. But if the febrile symptoms are very slight, the Spa waters, used cautiously and moderately, may prove beneficial. They quench thirst more than common water; and they have been frequently known to afford relief in ulcerated sore throats.

What has been said of the efficacy of our own simple chalybeates in cases of nervous relaxation, or of general weakness, many affections of the stomach and bowels, in disorders of the kidneys and bladder, or obstructions in the urinary passages, and in various complaints peculiarly incident to females, may be asserted with still greater confidence of the waters of the German Spa, because of their superior strength. Yet they do not equal the activity of the Pyrmont waters, which contain as much iron and twice as much fixed air as those of the Spa, besides a larger proportion of earthy salts. The directions already given, will apply to them both, under similar circumstances. Where the stimulus is evidently stronger, more caution is at first necessary; but every patient must learn from experience what quantity of either of those chalybeates the stomach or general habit will conveniently bear; and this quantity, when ascertained, whatever it may be, whether one, two, or three pints in the course of a day, must be continued without farther increase.

It may be thought worthy of remark, that the waters of Pyrmont and Spa, though in their own nature somewhat intoxicating, afford the most refreshing and wholesome draught, to relieve in the morning a weakness of the stomach occasioned by the too free use of the bowl or the bottle the night before.

The only peculiarity in the virtues or medicinal effects of the Pyrmont waters is, that, when diluted with new milk, they are found very serviceable in gouty cases, and may therefore be safely prescribed in this form, during the intervals of the fits and the absence of inflammatory symptoms.

It is fortunate for a patient who cannot go to drink either of those waters at the fountain head, that they may be conveyed to any distance, and will retain their medicinal properties, with little or no diminution, for two years, if they are inclosed in bottles well corked and covered with cement. They contain so much fixed air that it is usual, after filling the bottles, to leave them uncorked for a while, in order to let the excess of the fixed air escape, as its expansion might burst the bottles, if they were to be instantly corked and removed to a warm place.

The other species of this class of waters, which come next to be noticed, are the saline or purging chalybeates, so called partly from their contents, and partly from their mode of operation. Besides iron and fixed air, which they have in common with the simple chalybeates, they hold in solution such a quantity of purgative salt as gives them a regular and strongly marked determination to the bowels. Any chalybeate, whether of the milder sort, as the Tunbridge-water, or of the rougher, as those of the German Spa and of Pyrmont, will often purge briskly at first; but this is not their certain or constant effect. It seems to depend on the previous habit, or the actual state of the patient's stomach and bowels. It also goes off very soon, and is followed by a tendency to costive-

ness. But the *purging chalybeates* commonly operate in the same regular, constant, and uniform manner, as long as they are continued. The chief springs of this description in England are those of Cheltenham and Scarborough, upon the medical properties of which I shall now make a few remarks.

CHELTENHAM WATERS.

THE Cheltenham-waters require no preparation; but the quantity sufficient to produce the desired effect on the bowels, can only be known by experience. Half a pint is as much as any patient can well drink at a time, and this may be repeated three or four times, at proper intervals, in the course of the day, according to its operation, or to the intention with which it is taken. Four doses of half a pint each contain about a quarter of an ounce of purging salts, with somewhat more than a grain of iron held in solution by four ounces in bulk of fixed air. As purgatives act very differently in different habits, the quantity here mentioned will operate briskly upon some patients, but so weakly upon others, as to render the occasional addition to the crystallized salts necessary, when a powerful and speedy effect is desired. On the other hand, the quantity of the water, or the number of doses, may be lessened, when it is used merely as an alterative. But even persons of very delicate habits may divest themselves of their usual prejudices against cathartics, as those saline chalybeates do not occasion griping or languor. The only unpleasant sensation, which they sometimes excite on first drinking them, is a sort of giddiness, or slight head-ach, which soon goes off; but their agreeable and salutary effects are not so transient. They improve the appetite, strengthen the stomach, and promote general alertness, while they correct and carry off the impurities of the whole system. Hence it is that they may be persevered in for a considerable length of time, and the body kept *moderately* open by their uninterrupted use, without the least debility or inconvenience. These remarks, however, admit of some exceptions, particularly when the constitution is either naturally very weak, or much enfeebled by disease, without any marks of obstruction, or of acrimony in the fluids. A constant operation on the bowels would in such cases prove very injurious.

Cheltenham-water has often been found of the greatest service in glandular and visceral obstructions, in a variety of bilious and scrofulous complaints, in the first symptoms of a dropsical disposition, and in many of the most distressing scorbutic eruptions and ulcerations on the skin. But the obstinacy of some of these can only be overcome by perseverance. In our endeavours to obtain a cure of any disease of the chronic kind, we should not forget that complaints, slow in their progress, go off also very slowly; and that, according to the judicious remark of CELSUS, time is necessary to remove the deep-rooted evils which time has occasioned.

The proper season for drinking the waters of Cheltenham is the summer; and as the warm-bath may also be advisable in some of the cases to which the waters are suited, the town is well supplied with accommodations for that purpose.

SCARBOROUGH WATERS.

THE saline chalybeate at Scarborough does not contain above a third part of the purging salts which are found in a like quantity of the Cheltenham-water. Of course, it cannot be supposed to operate with the same force and activity, unless larger doses are taken than most stomachs will bear, or unless the powers of the water are increased by the addition of some opening salts of the like kind as those which it already holds in solution. In its natural state, it is chiefly employed as an alterative, but may, by the artificial means just mentioned, be adapted to all the complaints in which the Cheltenham-water is found efficacious. Neither of them will keep well even in close bottles, or bear to be carried to any great distance, as the iron is deposited in a few days, though the saline impregnation continues. By evaporating the water the purgative salts are procured, for the purpose of being again dissolved in some more water from the same spring, to increase its operation on the bowels.

The inferiority, in point of strength, of the Scarborough-water, is more than counterbalanced by other advantages which Cheltenham does not possess. In the first place, near the saline chalybeate spring there is another spring of *simple chalybeate* water, like that of Tunbridge-Wells, which is very convenient for patients in cases where a determination to the kidneys may be desirable. But the situation of Scarborough on the coast is an object of still greater importance, as it affords an opportunity of bathing in the sea, so conducive to the cure of many of the disorders for which those springs are resorted to. The elevation of the ground, and the uncommon purity of the air, deserve also peculiar notice in a medical survey of the local advantages of Scarborough.

It is remarkable, that all the saline chalybeates in our island are cold, while many of those on the continent are hot, and are used as baths, as well as internally, in a number of diseases very difficult of cure. I shall therefore reserve my account of one or two of the most celebrated of them, till I come to describe our own hot baths, though the foreign ones, on account of their principal ingredients, may be said more strictly to belong to the class of waters which I have just been considering.

The details before entered into respecting the external and internal use of the sea-water, and its admirable effects not only as a grand preservative of health, but as an efficacious restorative of that blessing in various complaints, preclude the necessity of saying much of the second class of mineral waters, denominated the *simply saline*, and differing from common water only in being impregnated with some purging salts. We have several of these springs near the metropolis; but they are little used, as it is so easy to procure the sea-water, which is much superior to all others of this description, in the strength of its saline ingredients, and the certainty of its effects. Epsom-water, though one of the first of the salt springs that was brought into use, is now seldom or never prescribed. Bagnigge-Wells, those at the Dog and Duck in St. George's Fields,* as well as at Kilburn and Acton, have also had

* The waters of the "Dog and Duck" have long ago been disturbed by the less

their day of medicinal reputation; but even recommendatory essays and pamphlets can no longer prop up their fame. The portion of salts which they contain is not sufficient to act with certainty on the bowels, unless they are taken in such large quantities as delicate stomachs cannot bear, and as very few people can swallow without difficulty and disgust. Two or three pints must be taken one after the other, in a short space of time, to ensure the full purgative effect. On this account, when they were in vogue, it was a common practice to administer more convenient doses, smaller in quantity, but strengthened by an additional solution of some of the same salt as that which they already contained. But this differs so little from an artificial dose of physic, as almost to destroy the idea of a remedy prepared by nature. Besides, the facility which our insular situation affords, of procuring salt-water of the greatest efficacy from its grand reservoir, must lessen the value of those substitutes. Local convenience has certainly contributed its share to the high repute of a spring of the like kind at Sedlitz, a village in Bohemia, which, being much more strongly impregnated with *bitter purging salt* than the Epsom-water, can be more relied upon for its medicinal effects, and is therefore very justly esteemed in a part of the continent far removed from the sea.

SELTZER WATER.

BUT there is another saline spring in Germany, a more particular account of which must be interesting to the English reader, not only from the peculiarity of its nature and virtues, but because large quantities of it are imported into this country for medicinal purposes. Few mineral waters have acquired a greater degree of celebrity than those which are brought from Seltzer, and which may be said to form a peculiar species, being *saline* and slightly *alkaline*, with a strong impregnation of *fixed air*. This quickly evaporates on being exposed to the atmosphere, so that the water designed for exportation must be instantly bottled, and kept closely corked, with the mouths of the bottles well covered with cement, or it will soon become not only vapid but putrescent. If well preserved, when poured into a glass, it is perfectly clear and sparkling, and has a gentle saline, and somewhat pungent or acidulous taste: but if the fixed air be suffered to escape, through the least neglect, the water appears turbid, is offensive to the smell, and entirely loses its pungency. The stone-bottles, in which it is brought to England, contain about three pints each, a sufficient quantity for a day, to be taken in half-pint glasses at convenient intervals. Its natural flavour is rather agreeable, and its effects on the spirits are in general exhilarating. Persons of very irritable stomachs may dilute it with milk; in which mixed state it is particularly recommended in cases of hectic fever with expectoration. It corrects and diminishes the discharge from the lungs, checks the violence of the sweats, and contributes very much to the patient's repose.

The Seltzer-water is also used with considerable benefit in nervous affections of the stomach and bowels, in cases of indigestion,

medicinal but more inebriating and destructive substitution of those of Hodges; and Barclay, Perkins, &c.; a public-house having been erected on the spot. Ed.

foulness, bilious vomiting, acidity, heart-burn, spasmodic pains in the alimentary canal, and various diseases of the urinary organs. Its rapid determination to the kidneys, the action of its stimulus, and perhaps some considerable power as a solvent, may concur to produce the very agreeable effects that are experienced from it, in the latter complaints especially. In any of the former, it is advisable to take some gently-opening medicine every two or three days; and the easiest method of doing this is to add to the dose of Seltzer-water such a quantity of vitriolated magnesia as will keep the bowels in a regular state.

Though this water cannot be prescribed with so much confidence, it may be very safely tried in miliary pustules, and the like sudden eruptions on the skin, attended with general irritation. I consider it merely as a good diet-drink in these disorders; for the relief of which, greater reliance is justly placed on regimen than on medicine.

HARROWGATE WATERS.

In a few of the waters already described, we can discover a slight impregnation of sulphur; but where this principle abounds or predominates, the waters are distinguished by the name of *sulphureous*, from their chief ingredient. The springs of Harrowgate take the lead in this class, and are certainly deserving of the reputation they have acquired, though they are also very frequently used with great indiscretion: and as the same error is very common in drinking the other strong purgative mineral waters, I shall take this opportunity of enlarging upon it.

A very hurtful prejudice prevails in this country, that all diseases must be cured by medicines taken into the stomach, and that the more violently these medicines operate, they are the more likely to have the desired effect. This opinion has proved fatal to thousands, and will, in all probability, destroy many more, before it can be wholly eradicated. Purgings is often useful in acute diseases, and in chronical cases may pave the way for the operation of other medicines: but it will seldom perform a cure; and, by exhausting the strength of the patient, will often leave him in a worse condition than it found him. That this is frequently the case with regard to the more active mineral waters, every person conversant in these matters will readily allow.

Strong stimulants applied to the stomach and bowels for a length of time must tend to weaken and destroy their energy; and what stimulants are more active than salt and sulphur, especially when these substances are intimately combined, and carried through the system by the penetrating medium of water? Those bowels must be strong indeed which can withstand the daily operation of such active principles for months together, and not be injured. This, however, is the plan too generally pursued by those who drink the purging mineral waters, and whose circumstances permit them to continue long enough at Harrowgate, and the like places of fashionable resort.

Many people imagine that every thing depends on the quantity of water taken, and that the more they drink, they will the sooner

get well. This is an egregious error; for, while the unhappy patient thinks he is by this means eradicating his disorder, he is often, in fact, undermining the powers of life, and ruining his constitution. Indeed, nothing can do this so effectually as weakening the powers of digestion by the improper application of strong stimulants. The very essence of health depends on the digestive organs performing their due functions, and the most tedious maladies are all connected with indigestion.

Drinking the water in too great quantity not only injures the bowels, and occasions indigestion, but generally defeats the intention for which it is taken. The diseases, for the cure of which mineral waters are chiefly celebrated, are mostly of the chronic kind; and it is well known that such diseases can only be cured by the slow operation of alteratives, or such medicines as act by inducing a gradual change in the habit. This requires length of time, and can never be effected by medicines which run off by stool, and operate chiefly on the first passages.

Those who wish for the cure of any obstinate malady from the Harrowgate-waters, or others of the sulphureous or saline class, ought to take them in such a manner as hardly to produce any effect whatever on the bowels. With this view, a half-pint glass may be drank at bed-time,* and the same quantity an hour before breakfast, dinner, and supper. The dose, however, must vary according to circumstances. Even the quantity mentioned above will purge some persons while others will drink twice as much without being in the least moved by it. Its operation on the bowels is the only standard for using the water as an alterative. No more ought to be taken than barely to move the body; nor is it always necessary to carry it even this length, provided the water goes off by the other emunctories, and does not occasion a chillness or flatulency in the stomach or bowels. When the water is intended to purge, in cases where the nature of the patient's complaint requires a strong determination to the bowels, it may be necessary to drink a pint or two before breakfast.

I would not only caution patients who drink those waters over-night, to avoid hearty suppers, but also against eating heavy meals at any time. The stimulus of water, impregnated with sulphur and salts, seems to create a false appetite. I have seen a delicate person, after drinking the Harrowgate-waters of a morning, eat a breakfast sufficient to have served two ploughmen, devour a plentiful dinner of flesh and fish, and, to crown all, eat such a supper as might have satisfied a hungry porter. All this, indeed, the stomach seemed to crave; but this craving had better remain not quite satisfied, than that the stomach should be loaded with what exceeds its powers. To starve patients was never my plan; but I am clearly of opinion, that, in the use of all the strongly purging mineral waters, a light and rather diluting diet is the most proper;

* When I speak of drinking a glass of the water over-night, I must beg leave to caution those who follow this plan against eating hearty suppers. The late Dr. DAULTREY of York, who was the first that brought the Harrowgate-waters into repute, used to advise his patients to drink a glass before they went to bed; the consequence of which was, that having eat a meat-supper, and the water operating in the night, they were often tormented with gripes, and obliged to call for medical assistance.

and that no person, during such a course, ought to eat to the full extent of what his appetite craves.

Exercise is not less conducive to the salutary end in view than temperance. It promotes the operation of the waters, and carries them through the system. It may be taken in any manner that is most agreeable to the patient; but he ought never to carry it to excess. I scarcely need repeat a remark often made in other parts of this work, that the best kinds of exercise are those connected with amusement. Every thing that tends to exhilarate the spirits, not only increases the efficacy of the waters, but acts as a medicine. All those who repair to the fountains of health ought therefore to leave every care behind, to mix with the company, and to make themselves as cheerful and happy as possible. From this conduct, assisted by the free and wholesome air of those fashionable places of resort, and also the regular and early hours which are usually kept, the patient often receives more benefit than from using the waters.

During my residence at Harrowgate, I met with many instances of the most mischievous effects produced by drinking the waters in cases where they were absolutely improper, and adverse to the nature of the disease. When people hear of a wonderful cure having been performed by some mineral water, they immediately conclude that it will cure every thing, and accordingly swallow it down, when they might as well take poison. Before patients begin to drink the more active kinds of mineral waters, they ought to be well informed of the propriety of the course, and should never persist in using them, when they are found to aggravate the disorder.

On the other hand, I often witnessed the happy issue of experiment made with judgment and caution at Harrowgate, when the greatest benefit was derived from the proper use of the waters in various eruptions on the skin, of the most distressing nature; in rheumatism complicated with scorbutic complaints; in obstructions of the glandular and lymphatic system; and in diseases of the first passages, accompanied with, or proceeding from, inactivity of the stomach and bowels, acidity, indigestion, vitiated bile, worms, putrid sores, the piles, and jaundice. They answer two very important purposes; first, when taken in small quantities, acting as an alterative, and inducing, by their mild operation, a gradual change in the habit; and, secondly, when employed in larger doses where purging is indicated, fulfilling that intention in the most desirable manner, without irritating the nerves, or weakening the patient so much as other purgatives. After a little use, almost every body can drink them without any great disgust, though they are at first no less nauseous to the taste, than offensive to the smell.

I shall only add, that the external use of the Harrowgate-waters being justly deemed a very powerful auxiliary in many of the disorders for which they are resorted to, particularly those of the cutaneous class, there are proper baths for this purpose, to the supply of which three springs out of four are devoted, that which is reserved for drinking being more strongly impregnated with salt and sulphur than the rest.

MOFFAT WATERS.

THE sulphureous and saline waters of Moffat in North Britain are almost as much resorted to as those of Harrowgate. The impregnation of the former, indeed, is not so strong as that of the latter, and their effects are of course somewhat different. Two or three quarts of the Moffat water may be drank in a morning, without any sensible effect but that of increasing the flow of urine. It now and then purges; but this is so far from being its constant or regular mode of operation, that opening medicines are almost always necessary during a course of it. Its evident determination to the kidneys renders it of essential service to persons afflicted with the stone and gravel, particularly the latter. It has likewise afforded great relief in many bilious complaints, and in the early symptoms of a scrofulous habit. But its chief point of celebrity, and that in which it may be said to rival the springs of Harrowgate, is the cure of cutaneous eruptions of every kind. In these cases, the external application of the water, warmed to a considerable temperature, is very judiciously made a material part of the plan of treatment. One disadvantage, however, attends this process both at Moffat and Harrowgate. The waters, while heating, unavoidably lose in vapour some of their sulphureous impregnation, on which part of their efficacy, even when externally applied, must depend. So far, therefore, a preference is justly due to the natural hot sulphureous springs of Aix-la-Chapelle and Baresges, of which I shall take some farther notice, after I describe the thermal springs in our own island, which constitute the next and last class in my arrangement of mineral waters.

In the introductory part of this section, the waters which now remain to be considered are specifically distinguished by the title of *calcareous*, because they contain more lime or calcareous salts than they do of any other solid substance. I adopted this title, however, in compliance with custom, and merely as a nominal distinction, rather than from considering it as an important characteristic, or by any means expressive of the grand cause of the efficacy of such waters. It is not to chemical analysis, but to experience that we are indebted for a knowledge of their virtues; and, instead of giving them a name taken from a part of their contents, which conveys no useful information, we had better simply call them hot springs, as every body will then have a clear idea of the most perceptible difference between them and all the other mineral waters in our island.

BATH-HOT SPRINGS.

IN this part of our description, the hot springs of Bath have the most indisputable claims to precedence. The fame of their medical virtues is more widely diffused and more firmly established than that of any other springs in the known world. It is no wonder, therefore, that the pen of industry, of genius, or of ambition, should have been often exercised upon so popular a topic. Amidst such a multitude of books, Dr. Falconer's "Practical Dissertation on the Medicinal Effects of the Bath Waters," is acknowledged to be

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the best account which has yet appeared of what he justly calls a "powerful, but (in many instances) nice remedy." His situation as physician to the Bath Hospital must have afforded him the best opportunities of observing the effects of those waters; and he has given the most satisfactory proofs of his being well qualified to profit by those opportunities. One of his remarks is really of more consequence than a whole volume of chymical investigations, which have thrown just as little light upon the efficacy of the waters as the fables concerning Bladud, or the frequently-discovered fragments of Roman antiquities. Chemistry, indeed, makes us acquainted with the component parts of those waters, and tells us they contain a good deal of calcareous salts, but little, if any, neutral alkaline salts; and that they are impregnated with about a sixtieth part in bulk of fixed air, which holds in solution so very small a quantity of iron as to be scarcely appreciable, though it gives a slight chalybeate taste to the water when hot from the spring. But what inference could we deduce from these and the like amusing details, in the treatment of any particular disease? It is, then, to the enlightened practitioner, as I said before, that we must look for useful information; and, in this view of the subject, we cannot wish for more respectable authority than that of Dr. Falconer.

According to this writer, the Bath-water, when drank fresh from the spring, has in most persons the effect of raising and rather accelerating the pulse, increasing the heat, and exciting the secretions. The action on the nervous system is felt at the same time, so that the stimulating properties of the water must be very diffusive; and, what is farther remarkable, though these symptoms come on suddenly, yet they often continue much longer than we can suppose them to be excited by the actual presence of the water in the body.

Medicinal Properties.—The Bath-waters not only promote urine and perspiration, but also increase the salivary discharge; and quench thirst better than other fluid, in cases where there is no tendency to fever. If any disposition of this kind should appear, a hot stimulant would be evidently improper.

It has been generally imagined, that those waters were somewhat astringent, on account of the costiveness which frequently accompanies the use of them. But this effect is more reasonably ascribed to their heating qualities, and to their power of exciting the other secretions. As a proof of this, when perspiration is checked in cold weather, they sometimes prove slightly purgative.

The relief which the Bath-waters afford in the colic, in convulsive retchings which often attend the gout in the stomach, and in many other similar affections, is a sufficient evidence of their antispasmodic powers.

This account of the primary and immediate effects of the water used internally will enable any patient to judge, from his own feelings, whether it agrees with his constitution or not. If it excites, on being first taken, a pleasing glow in the stomach, followed by an increase of spirits, and of appetite, particularly for breakfast, and, above all, a rapid determination to the kidneys, there is the greatest probability of its proving serviceable. But if it occasions head-ach, thirst, and dryness of the tongue;—if it sits heavy on the

stomach, or produces sickness, and does not pass off by urine or perspiration;—it may be fairly concluded, that its continuance would do injury, unless these symptoms can be removed.

If we come next to consider the external application of those waters, we shall find, in the first place, that they unite all the medicinal advantages of warm-baths, from about a hundred and six degrees of heat to any inferior degree that may be desired. The extent also of the baths, which affords room to move about in them freely, and the permanence and uniformity of their warmth, are not unimportant recommendations. But Dr. FALCONER is of opinion, that the Bath-waters possess some farther powers or specific qualities superior to those of common water of the same temperature. He thinks that their action on the nervous system is more stimulating than a common warm-bath;—that they raise the pulse and heat of the body to a higher degree, yet are much less apt to produce a violent perspiration;—that they remarkably increase the urinary discharge;—and that, so far from causing any relaxation or weakness, the bathers are observed to be in general more alert and vigorous, and to have a better appetite on the days of bathing than in the interval. As far as my own opportunities of observation extended during a few short visits at Bath, they are in perfect concurrence with the Doctor's opinion.

The diseases, in which this eminent practitioner very accurately describes the good effects of the Bath-waters, are the green sickness, particularly before any considerable affection of the stomach takes place, or any feverish symptoms appear; visceral obstructions, when the consequences of intermittent fever, or of long residence in hot climates, if the disorder in these cases has not advanced too far; the palsy, from a great variety of causes; the gout, in that stage of the complaint, when the inflammatory symptoms, if any have preceded, have in a good measure abated, and a degree of weakness and want of tone in the system begins to take place; the chronic rheumatism, and the acute also, provided the feverish disposition be previously allayed by proper evacuations; white swellings on the knee; hip cases; weakness of the organs of digestion; the colic, accompanied with hysteric symptoms, or produced by the poison of lead; the jaundice, when arising from simple obstruction of the biliary ducts; hypochondriac and hysterical complaints; St. Vitus's Dance; spasmodic affections of the womb and painful menstruation; and, lastly, in many cutaneous, but more especially leprous eruptions.

I have confined myself here to a bare outline, which may be sufficient for the general direction of valetudinarians, who must avail themselves of more particular advice at the fountain-head. Almost every case will require a peculiar mode of treatment; and great caution will be found necessary to prevent fatal mistakes. I cannot too often repeat, that the more powerful any remedy is, the more liable it is to abuse; and though the efficacy of the Bath-waters has been fully established in a variety of the most stubborn and afflicting disorders, yet their misapplication has also been often attended with very serious consequences.

Even when the use of the Bath-waters may be deemed safe or proper, consideration must be had, as Dr. FALCONER justly ob-

serves, to the quantity taken in, when they are drank; and to the time of stay in the bath, heat of the water, &c. when they are externally used.

The safest method is to begin with drinking a glass, containing about a quarter of a pint, before breakfast; and to judge from its effects how often it may be repeated, or the quantity enlarged. If it feel easy, warm, and cordial, to the stomach and spirits, and excites no pain or sense of fulness in the head or eyes, a second glass of the same size may be taken the same day at noon, and this quantity gradually increased to a pint in the day, taken at two or three times, as convenience may suit. This is deemed a proper medium for the generality of people, though in some cases, where the habit is not very irritable, the daily allowance may be augmented to a pint and a half, with safety and benefit. The Cross Bath-water, the temperature of which, when fresh from the spring, is 112° , is usually recommended at the commencement of a course, especially when there is any affection of the head, or when any tendency to plethora appears in the system. After some time, the more powerful water of the King's or the Hot Bath, which is four degrees higher in temperature, may be used; and this change will prevent, in some measure, the disgust which is apt to come on after a long trial of the Bath-waters.

No less regard should be paid to the proper use of the Bath. A short stay of five or six minutes is most advisable at first; and if this trial produces no symptoms that are disagreeable, but, on the contrary, seems to improve the health, spirits, and strength, a longer stay may be gradually indulged, till it comes to half an hour, but never to cause lassitude, faintness, or disgust. The choice of the baths is often a matter of importance, as there is a still greater variation in the temperature of the waters when in the baths than at the pumps, the waters in the King's, or the Hot Bath, being from eight to twelve degrees warmer than those of the Cross Bath. There are also private baths of any temperature to suit the peculiarities of every patient's habit or complaint. The best time in general for bathing is the morning; and it may be repeated twice, or at most thrice a-week. As the public baths are emptied soon after nine o'clock, a much earlier hour is usually chosen for bathing; but the private baths may be prepared at any hour of the day. Where a greater stimulus than mere immersion is thought necessary, or where a partial application of the water is deemed preferable to a general one, the part may be pumped upon, so as to increase the forcible action of the water on that part, and yet prove less heating to the system at large.

BUXTON WATERS, &c.

THERE are no springs in our island besides those at Bath, which can be strictly called hot, though a few others have got the name, and are referred to this class of thermal waters, from being, invariably in every season, and independently of the state of the atmosphere, warmer than the general average of the heat of common springs. The temperature of Buxton-waters is only 82° , yet approaches nearest to that of the hot springs at Bath, which, in their coolest state, are never lower than 90° . In other sensible proper-

ties the Buxton-water differs very little from common pump-water.

The medicinal effects of the Buxton-waters, however, are far from being inconsiderable. Taken internally in small doses at different intervals, amounting to near a pint before breakfast, and the like quantity before dinner, they afford very great relief in heart burn, flatulency, sickness at the stomach, and other distressing symptoms of defective digestion and derangement of the alimentary organs, the sure attendants of indolence and luxury. In such cases, the body must be kept regularly open by means of medicine during the use of the waters, if these do not, as they sometimes will, produce a laxative effect which is always salutary.* They are no less serviceable in alleviating painful affections of the kidneys and bladder; and here also the external use of the waters is often found to promote their internal operation.

But the employment of the Buxton-waters as a bath is not confined to the relief of gravelly complaints. They contribute far more effectually to restore the healthy action of particular limbs, that may have lost their moving powers in consequence of long or violent inflammation, occasioned either by external injury, or preceding acute rheumatism. But if the rigidity, weakness, or impaired functions of the parts affected be the consequence of a paralytic stroke or of gouty inflammation, more benefit will be experienced from the warmer temperature of the Bath waters.

In general, the Buxton bath is well suited to such a languid, enfeebled, or very irritable state of the habit, as cannot bear absolutely cold water, but may be excited to easy and salutary re-action by a milder stimulus. The slight shock, which people feel at the instant of immersion in the Buxton waters, is almost immediately followed by a pleasant glow all over the body; and this is precisely the effect aimed at. But I have expressed myself so fully on the nature of the particular infirmities to which the lukewarm bath is adapted, as to render any farther observations on this head unnecessary.

MATLOCK, &c.

The tepid springs at Matlock approach still nearer to cold water than those at Buxton, being sixteen degrees lower in point of temperature. The shock, which they give on immersion, is consequently stronger, and requires greater powers of re-action in the habit; but they form a good intermediate bath between Buxton and the sea. They are, therefore, very properly employed in preparing invalids for the latter, when this is necessary to complete a cure, as is often the case in the chronic rheumatism. They are used internally as a pure diluting drink, but are not known to possess any other remarkable medicinal properties.

BRISTOL HOT WELL, &c.

THE Hot-well, as it is improperly called, near Bristol, is not,

* A dose or two of some aperient medicine is advised to be taken preliminary to the use of these waters; and gouty patients, to whom also they are recommended, ought not to begin a course unless they are well prepared, and rendered free from every discoverable sign of an acute state of the disposition to an attack of their complaint.

indeed, so cold as the springs at Matlock, but does not rise to the temperature of those at Buxton, being only 74° , or twenty-two degrees below the ordinary warmth of the blood in a state of health. The Hot-well water is not made use of to bathe in; but, taken internally, it has acquired very high reputation for curing the incipient symptoms of consumption, and affording considerable relief in the more advanced stages of this disease. As the effects it produces are very gradual, its agreeableness to the palate is a fortunate circumstance for a class of patients, who can only hope, by long and steady perseverance, to check the progress of one of the most insidious destroyers of the human species. There is no doubt but they are also indebted for a part of the relief they experience to the mild, sheltered, yet sufficiently ventilated situation of the Hot-wells, and to the judicious plan of diet, exercise, and amusement pursued there.

The other complaints, in which the purity and temperature of the Hot-well water render it very grateful and of no small efficacy, are relaxations of the stomach and bowels, brought on by long residence in hot climates; bilious diarrhœa; slight dysentery; and a disorder still more difficult of cure than any of these, I mean the diabetes. I do not know any natural remedy better adapted to relieve its various symptoms; such as the constant thirst, the impeded perspiration, the dryness and frequent desquamation of the skin, the feverish quickness of the pulse, and the preternatural discharge of urine. A regular course of the Hot-well water has been found to moderate this almost unquenchable thirst; to keep the skin moist and perspirable; to allay the fever; and to render the urinary organs fitter to receive benefit from the medicines usually prescribed to remove their debility and that of the system in general. It may be farther necessary to observe, that, as this water contains but a very small quantity of purgative salts, which are also counteracted by a larger solution of calcareous salts, it must have a stronger determination to the kidneys than to the bowels, so that the use of a gentle aperient medicine becomes in several cases advisable.

Particular habits and complaints require variations in the quantity to be taken of this, as well as of any other mineral water. The full dose is half a pint, to be drank early in the morning, and repeated before breakfast, at the interval of at least half an hour spent in gentle exercise. Two more doses of the like quantity, and with the like interposition of active amusement, are to be taken between breakfast and dinner, at the longest distance from each of those meals. As this water is also used at table and for domestic purposes, every invalid unavoidably takes more than the above quantity every day; but in consequence of its altered temperature, and of the loss of the fixed air it contained, it cannot be in so high a state of medicinal perfection as when drank fresh from the spring. The same remark must of course apply to the immense quantities that are bottled for exportation, though the almost proverbial purity and softness of the water, as well as its excellent property of keeping untainted for a great length of time in hot climates, must render it a very valuable water for long voyages.

CONTINENTAL HOT SPRINGS, &c.

I SHALL subjoin to these observations on the medicinal virtues of our own thermal waters, a short account of the most celebrated hot springs on the continent.

There is none of the foreign watering places more resorted to than the German Spa, of which I already took notice among the cold chalybeates, and Aix-la-Chapelle, about twenty-four miles distant from the former, and equally famous for waters of a very different quality and temperature. Their celebrity is traced back even to the days of CHARLEMAGNE, who resided for a long time at Aix, and took so much delight in the use of the waters, as frequently to hold his levee in the bath, with all his attendants.

The exact degree of the heat of these waters is given differently by different observers; but, taking the average of their accounts, it may be reckoned in the well of the hottest bath at 140°, and at the fountain where it is drank, about 120°. It requires to stand several hours in the large baths, before it is sufficiently cooled for tepid bathing, without the addition of cold water. It contains an uncommon quantity of sulphur, and emits a smell like that of Harrowgate water, but far more penetrating. From its heat, and its stronger impregnation of the sulphureous principle, it is also more powerful in all the diseases of the skin, for which Harrowgate is resorted to. The baths at Aix-la-Chapelle are looked upon as a cure for almost every cutaneous eruption; but the water should be used internally at the same time, to carry off impurities, and keep up the full perspiration promoted by the bathing. These baths are equally serviceable in stiffness of the joints and ligaments, which is left by the inflammation of gout and rheumatism, and in the debility of palsy, where the highest degree of heat which the skin can bear is required. In obstinate cases, the vapour-bath, formed by the steam of those very hot waters, is recommended by the German physicians.

Numberless instances serve to establish the efficacy of the waters of Aix as an internal medicine in painful affections of the kidneys and bladder, as well as in disorders of the stomach and biliary organs occasioned by luxurious indulgence and intemperance. The common dose is half a pint, to be repeated more or less often, according to its sensible effects, and to the intention with which it is prescribed, either as a purgative or a diuretic. It is a striking proof of the power of habit, that the palate and stomach are soon reconciled to the use of such waters, though at first extremely disgusting and nauseous.

The hot sulphureous springs at Bareges, two little hamlets on the French side of the Pyrenean mountains, are, indeed, inferior in the degrees of heat and strength of impregnation to the waters of Aix-la-Chapelle, yet are found very beneficial in the like complaints. Their highly detergent powers, owing perhaps to a small portion of oily or bituminous matter, added to the other medicinal properties which they possess in common with those of Aix, render them peculiarly efficacious in deep-seated ulcers, and those morbid affections of the womb, which French ladies call, though not with medical correctness, *depots de lait*. In such cases the waters are

injected. They are also very frequently used in the form of *douche*, or by way of pumping on the part affected, as well as for general bathing.

In the interior parts of France, particularly in the central provinces of Auvergne and the Bourbonnois, now included in the Department of the Loire, there are several hot springs, but of the *saline chalybeate* class, the efficacy of which, as an internal medicine, is greatly increased by their higher degree of temperature, in the disorders for which Cheltenham is resorted to in our own country. Those French springs derive another very important advantage from their heat, that of being used as a bath in all cases which may require that salutary stimulus on the surface. In many of these, the internal and external use of the waters co-operate with wonderful effect; and particularly in the sexual complaints of women, arising from any defect or irregularity in the functions of the uterine organs. Catherine de Medicis, the mother of several French princes, is said to have been much indebted for her fertility to the waters of Bourbon Lancy, not far from the town of Moulins, a place consigned to immortal fame by Sterne's affecting story of "Maria."

There is a village on the confines of Bohemia, where the waters may be said, in the strictest sense of the word, to boil up with vehemence from the spring, and are often used for scalding hogs and fowls, to loosen the hair and feathers, the heat being quite sufficient for these purposes. The temperature of the *Prudel*, or *furious fountain*, as it first issues forth, is as high at 165°, and keeps invariably to the same point. Of course it requires to be very much cooled before it can be used as a bath, or even drank. Those waters are said to have been resorted to, and first brought into considerable notice, by the Emperor Charles IV. in 1370; to which circumstance the village owes its name of Carlsbad, or Charles's bath. The natural history of its waters would afford a great variety of curious and interesting particulars; but the limits of my present plan confine me to a short medical notice of their extraordinary virtues in all the diseases for the cure of which *saline chalybeates* are internally or externally employed.

MALVERN WATER.

MALVERN, in Worcestershire, has for many years been celebrated for a spring of such remarkable purity, that it has acquired the name of the Holy Well, from the reputed sanctity of its waters, and the real extensive benefit long derived in various cases from its use.

The great benefit arising from the use of Malvern water as an external remedy in diseases of the skin and surface of the body, has led to its employment in some internal disorders, and often with considerable advantage. Of these the most important are painful affections of the kidneys and bladder, attended with the discharge of bloody, purulent, or fetid urine; the hectic fever produced by scrofulous ulceration of the lungs, or very extensive and irritating sores of the surface of the body, and also fistulæ of long standing that have been neglected, and have become constant and trouble-

some sores. Though unquestionably of benefit in many of these cases, it is in general a safe application, and may be used with the utmost freedom, both as an external dressing for sores, and as a common drink; and this is particularly the case with common people that resort to this spring for diseases of the skin or other sores, who are in the constant habit of dipping their linen into the water, dressing with it quite wet, and renewing this application as often as it dries. The perfect safety of this practice on a preternaturally irritated surface, has been ascertained by long experience; and is in itself an important circumstance in illustrating the effect of moisture on the surface of the body.

The internal use of Malvern water is sometimes, on first beginning to use it, attended with a slight nausea; for the first day or two it occasions some degree of drowsiness, vertigo, or slight pain of the head, which comes on a few minutes after drinking it. These symptoms, however, subside spontaneously in a few days, or may readily be removed by some mild purgative medicine.

The effects of the Malvern water on the bowels are not at all constant; it frequently purges briskly for a few days, nor is it at all uncommon for the body to be rendered costive by its use, especially with those accustomed to malt liquors. In all cases it decidedly increases the flow of urine, and the general health of the patient; his appetite and spirits almost invariably improve during a course of the water, if it agree in the first instance.

In addition to the benefits to be derived from the use of the Malvern water, the pure mountain air, added to the romantic beauty of the situation, which solicit the invalid to active exercise, contribute greatly to the convalescent state; and the temperance generally observed by patients of every rank in these places, assists materially in securing the advantage which has been gained from the use of this mineral spring.

A course of Malvern water must vary very considerably in duration, on account of the different kinds of disease for which this spring is resorted to. Cases of obstinate scrofulous sores, especially with caries in any bone, are always long in healing, and require a residence here for a considerable time. The same may be said of very obstinate herpetic eruptions; but where the cutaneous affection is mild, or where a tendency to it comes on at stated times, which is sometimes the case, this habit may be checked by a short use of this water; and hence some persons who are liable to this disorder, make an annual visit to this salubrious spring.

ALUMINOUS CHALYBEATE SPRING IN THE ISLE OF WIGHT.

This spring, discovered by a Mr. Waterworth, is situated on the south-west coast of the Isle of Wight, about two miles to the westward of Nitron, in one of those romantic spots for which that coast is so remarkable.

From a tabular view of the diseases which preceded a course of this mineral spring, furnished by Dr. Lempriere, who had the opportunity of witnessing the effects of this water upon an extensive scale, it appears that many patients, labouring under continued fever, agues, pulmonic diseases, chronic dysentery, chronic rheu-

matism with emaciation, diseases of the abdominal viscera, dropsy &c. were benefited.

"In giving this water," observes Dr. Lempriere, "I was very forcibly struck with the rapid effect it produced on the appetite and spirits, and the confidence it inspired in the mind of the patient." The improvement of the appetite was soon succeeded by an increase of strength, and a return of the natural complexion. The water did not appear to produce any effect upon the pulse or skin, nor did it act particularly on the kidneys; its tendency to increase the appetite and raise the spirits was the only evident effect to be observed during the early course; and a return of strength, and general appearance of improved health, marked its later progress. In administering the water, it was a rule previously to devote one day to clearing the bowels by some suitable aperient; and Epsom salts were the medicine generally preferred. Under this preparative, the water seldom produced any disagreeable effect on the stomach or bowels, or rendered it necessary, during the course, to take laxative medicines; an advantage which does not attach to other chalybeate waters, unless they hold in solution a considerable portion of some aperient salt.

It is advisable to begin the use of these waters in very small proportions, using it in a diluted state when, from peculiarity of constitution, it appears to excite nausea, increasing it gradually when this may be done with safety, combining with its use a nutritive diet, without excess, paying strict attention to the state of the bowels, so as to avoid costiveness, early hours, particularly early rising, exercise in the open air, more especially on horseback, and sea-bathing, when not otherwise prohibited.

CHAP. XIV.

VEGETABLE POISONS.

ALL vegetable poisons act upon the nervous system. Those of an irritating nature are MONKSHOOD, MEADOW SAFFRON, MEZEREON, BEAR'S FOOT, HEMLOCK DROPWORT, WATER HEMLOCK, WALL-PEPPER, &c. The general symptoms they produce when taken are, an acrid pungent taste, with more or less bitterness, excessive heat, great dryness of the mouth and throat, accompanied with a sense of tightness there; violent vomiting, and the efforts continued even after the stomach is emptied; purging, with great pain in the stomach and bowels; pulse strong, frequent, and regular; breathing often quick and difficult; appearance of intoxication; the pupil of the eye frequently dilated; insensibility, resembling death; the pulse becomes slow and loses its force, until death closes the scene.

Externally applied, many of the vegetable poisons produce violent inflammation of the skin, with vessications, or pustulary eruptions.

TREATMENT.—If vomiting has been occasioned by the poison, and the efforts are still continued, they may be rendered easier by