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OUR BATHS AND WELLS.

OUR BATHS AND WELLS:

THE

MINERAL WATERS

OF THE BRITISH ISLANDS, WITH A LIST OF SEA BATHING PLACES.

BY

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Wie Gott giebt mir,
So geb'ich dir.

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PREFACE.

WITHIN the last few years I have visited most of the health-resorts of Great Britain and Ireland, and I have also had the opportunity of comparing them with all the chief foreign ones. It is now more than a dozen years, since any general work whatever on the subject of English Spas has appeared, and very much longer, since the Irish and Welsh springs have taken their place in such a work. A comparative view of the present condition of the Spas of Great Britain, is therefore unquestionably a desideratum.

It was my intention in the first instance, to have made this book larger and more systematic, but in the absence of new writings of much research respecting the operation of any, except our best-known waters, or of many important new chemical analyses of them, I found that I could not attain the precision I aimed at.

Nevertheless, I have thought, that a common-sense view of the whole question, a concise exposition and

rearrangement of the subject, would both be directly useful in practical medicine, and also help to reawaken interest in our own mineral waters.

I have the satisfaction of being able to show, that England was not so far behind the rest of Europe in balneological knowledge, in the sixteenth and especially in the seventeenth centuries, as has been usually supposed; and I hope that a few slight sketches of the past, which have been introduced, may not be considered an inappropriate substitute for professional jokes, interviews with local medical men and landlords, and descriptions of inns, with which it has often been sought to enliven books on English Spas. There is some excuse for this, when it does not, as has occasionally happened, lead to intolerable prolixity; for, from their very nature, works on this subject must be of a more or less popular kind.

This book is essentially one of facts; but it would have loaded its pages unnecessarily, if references had been given to all the authorities that have been consulted.

It does not in any way compete with guide-books, whether local or general.

I have not reprinted all the old analyses of waters; but I have given the essentials of their constitution, mentioning everywhere their proportion to the imperial pint, in grains or in cubic inches. I have not included all the minute constituents, as such details, while they swell the page, confuse the eye, even of professional men, who are not familiar with the subject.

I might have been expected to say more about the healthiness and the climate of particular places. But on the first subject no accurate information can be had, until the results of the new Census are known. Besides, the condition of persons visiting new and generally airy houses in the outskirts of a town, cannot be fairly compared with that of the poorer and more fixed classes, living in its older and more crowded portions. Again, statistics would often make a watering-place unduly insalubrious, owing to diseases such as scarlatina and measles, to which they are peculiarly subject, because convalescents from these affections are sent to them so early, that they have not ceased to be foci of contagion.

The account given of the climate of places is imperfect; but this is of less importance, as visitors of spas

seldom go to them, except during the summer or warm season; besides, a full account of climates would have greatly increased the size, and altered the character of the book.

I would beg to return thanks to many gentlemen, who have had the kindness to reply to me on questions of local information.

In conclusion, as it must be admitted that balneology is not a department of medicine, that has been cultivated much of late years in England, and as German writers, perhaps not without reason, say, that we are behind even the French in this respect, I would call attention to some observations written by Dr. Fothergill, of Bath, eighty-four years ago. They will find their application at the present moment, just as much, as they did at that period. Indeed, the comparative position in European medicine, of English balneology, was better in the last, than it is in the present century. The italics are Dr. Fothergill's.

"Since the nature and qualities of mineral waters can only be ascertained by a series of experiments and observations instituted on the spot, it were earnestly to be wished, *that a new and accurate*

analysis of all our principal springs were undertaken by authority, as a matter of public concern.

"That in the interim the resident practitioners would expedite the work, by preserving accurate journals of the principal cases committed to their care, candidly noting down the unsuccessful, as well as the successful, events. The result of such an inquiry, impartially stated, would redound much to their honour, and afford the public more satisfactory information concerning the waters, than they have ever yet been favoured with. It would also rescue our medicinal springs from the opprobrium of being frequented, as they now commonly are, on no better foundation, than that of fashion or caprice. Distant practitioners would then be enabled to form a more practical judgment concerning them, and would then be competent to determine their choice with propriety."

35, CURZON STREET, MAYFAIR,
April 20th, 1871.

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OUR BATHS AND WELLS.

I.—GENERAL.

CHAPTER I.

BATH LIFE AND ITS ACCESSORIES.

Arise betimes, to pump repair,
First take the waters, then the air;
Most moderate be in meat and drink,
And rarely, very rarely think.

Rhymes, Bath Guide..

TAKEN as a whole, there is probably no class of remedies, that maintains its position as steadily, as mineral waters do. A particular well may, indeed, decay in favour, while another springs into popularity. Or the waters of a well may be employed after different fashions at different periods. Still, their use is in a great measure independent of the prevailing medical theory, and their value is admitted by all practitioners, whether orthodox

or heterodox. This or that remedy may, after having been employed for an age or two, be discovered to have been used unnecessarily—nay, may be declared to have been a most noxious agent. There may have been periods of neglect of them, but there never has been a crusade against mineral waters.

The reasons for this are so multifarious, that they can be barely hinted at in a special account of the mineral waters of Great Britain. But some of the causes that have maintained them in favour may have been these :— Their great variety of nature, fitting them for a variety of ailments ; a sort of innate faith, which most people have in the superiority of nature's handiwork over man's mixtures. Probably, also, the fact that unless they are used very carelessly, and in very large quantities by patients, they do not usually act violently. Then, again, their use necessarily leads to the employment of a larger quantity of water than usual, either externally, or internally, or both. It also involves as a consequence change of air, and change of scene, early rising, and exercise in the open air, and relaxation—which in themselves, unaided by waters, are in many cases no small elements of cure. They are remedies, most of them, agreeable alike to the real and to the imaginary invalid ; they are welcome to those also who do not profess to suffer from any malady. The relaxation or the idleness of bath life has always been attractive to votaries of pleasure, and Goldsmith certainly was mistaken in

supposing, that English baths were at first frequented by those only who sought relief for their sufferings. He wonders how lovers of pleasure ever chose to live with those whose disorders create a certain gloom, and is of opinion that it was the gaming-table at baths that attracted them. But bath life is attractive without gambling, and from the very commencement of a spa, there is never a time, when a considerable number of its visitors are not present simply for their own entertainment. In fact, in all ages baths have been resorted to for purposes of amusement as well as for purposes of health. Business has not been often transacted at English, though it often has been at foreign baths. Witness the very serious occurrences which took place a few months ago at Ems, involving the fate of nations. The history of watering-places as places of amusement reflects the manners and the fashionable pleasures—nay, even the religious feeling—of different ages, and affords curious illustrations of the state of society. A few records of this kind will be found in these pages in the notices of particular baths. The fact is that, unless under very peculiar circumstances, no spa will remain long in favour, if it does not offer sufficient recreations. And for the great majority of those who resort to spas, it is desirable that it should be so. Besides the benefit to be derived directly from the use of the waters, they stand in need of relaxation, whether they think they want it or not, and their friends and families certainly desire it. A

place that attracts by the variety of the amusements it offers, or invites to exercise in the open air by the beauty of its walks, and to longer excursions by a picturesque neighbourhood, will justly command popularity more readily than a spa that is deficient in such attractions. If Englishmen—I do not mean the young, but men full of the cares of business or of politics—would leave their eating cares behind them, and go about their cures less solemnly, and unbend a little more, they would gain more by their visits to spas than they often do. In saying this, I am merely repeating what every author who has written on the subject, has said with monotonous reiteration.

I shall now say a few words on the general grounds for visiting baths, and on the patient's behaviour as to diet and amusements.

Advice of this kind can only be of a general nature, and as there can be no novelty in it, perhaps I cannot do better than quote the directions of the first writer on English baths, Dr. Turner, Doctor of Physic, and Dean of Wells, who wrote in 1557. Some of my readers may think the advice too grave, and patients are not apt to visit wells in the serious spirit recommended by him. Still there is a great deal of common sense in what he says; and those who have the patience to read his quaint English, will find that he lays down all the general rules inculcated by later writers. The same advice is given them now, only proffered in a different phraseo-

logy :—"Then after you have confessed yourself before Almighty God, and to such as you have offended, in the name of God take counsel with some learned physician who is sent of God, and not of some self-made idol, who is only sent of himself. If he use all lawful means to heal you, yet you feel yourself no better, then shall it be high time to go to the baths as to the sheet-anchor. But before going to the baths, in any wise you must go to some learned physician, that by his advice you may go unto such baths, as he shall think most mete for your disease. If thou be rid of thy disease by the bathing, offer unto Christ in his your members, such offerings of thanksgiving as you can spare: but if thou be not healed the first time, be patient and live virtuously until the next bathing time. Some if they be not healed in the bathing, crye out both upon the bath which healeth many other sick in the same diseases, and the physician also that counselled to come to the bath. Such men must learn, that they must not appoint God no time to heal them by the bath. Therefore let such be patient, and for the space of a month keep the same diet that they kept in the bath, and, if God will, they shall have their desire. When as you go homeward, make but small journeys, and beware of surfeiting and of colde, and when you are at home use measurable exercise daily, and honest mirth and pastime with honest company, and beware of surfeiting in any wise, and of anger, and of too much study or carefulness."

Dr. Turner thus tells us to try to forget anything that worries us; to try ordinary treatment for our ailments in the first place, and not to have recourse to a quack: to ask a skilled physician to what bath you are to go—not to be surprised if there is no instant cure; that sometimes we do not feel the benefit of our visit, till some time after it is over; that if we are partially cured, we are to visit the bath next season; finally, that when we go home we are to take care of ourselves. Dr. Turner, however, overlooks all details as to the conduct of the patient at the bath—he says nothing of diet, of exercise, and amusements, nor of the necessity of consulting the doctor on the spot.

On these subjects a few words appear to be required, and first as to diet. A great deal is laid down in a very arbitrary way about it. Most physicians, and skin specialists in particular, have various dogmas, more or less arbitrary, respecting the injuriousness of certain articles of food. Professors of the Banting cure, absurdly so called, often furnish their patients with long lists of articles to be used and to be eschewed, in which there is much that is ridiculous, although the general principle of them is correct. At foreign spas, especially at German ones, long lists are submitted of things allowed, and of things forbidden. I shall not follow one of them, but give my readers the benefit of the advice of Dr. Deane, of York, in 1626. He gives us a tempting picture of the variety of food which was to be had at Knaresborough

in those days. "Let the drinkers use a moderate quantity of meat and drink, of light and easy digestion, good and wholesome, affording laudable juice; but such as breed crude and bad humours must be refrained, and also variety of dishes eaten at the same meal; and all pickles, spices, sauces, and fat in dressing. They must also avoid all salt meats, beef, bacon, pork, lard, and larded meats, hare, venison, tripes, and all other entrails of beasts, blood pudding, geese, pigs, swans, teale, mallard, and all other water fowl, being of hard digestion and ill nourishment. And among fish, salmon, eels, lamprey, herring, and salt ling; all salt fish, sturgeon, oysters, anchovies, cockles, muscles, and shell fish. I likewise disallow of the white meats, milk, curds, cream, old cheese, custards, white-pots, pudding-pies. Of fruits, apples, pears, plums, codlings, gooseberries, and all such summer fruits, either raw, or in tarts and pyes; and all peas and beans, cold sallads, raw herbs, onions, leeks, chives, cabbage, colewort, pumpions, cucumbers, and the like; nor should they use much exercise after dinner, nor sit heavy, sullen, dull, musing, or slumbering; but a little walking or cheerful conversation, to stir a little, and to raise up the spirits for an hour or two by some fit recreation. Let, therefore, their diet be hens, capons, pullets, chickens, partridges, pheasants, turkies, and generally all wood and mountain fowls; veal, mutton, kid, lamb, rabbits, young hare and leverets, rather roasted than boiled, except use or constitution

require the last. Of fish, trouts, perches, loches, and all scaly river and brook fish; smelts, soales, dabbs, whitings, turbut, gurnet, and all such others that are not heavy and unwholesome. These may be altered with mint, hysop, or anise. Also cray-fish, crab-fish, lobsters, and the like; raisins with almonds, bisket-bread, and marshpan stuff suckets, well kneaded and leavened white bread, old well brewed beer, but not stale, tart, sharp, or soure; nor by any means let it be mixed with spaw water. Instead of cheese at meals, eat candyed lemon or citron peel, or comfits of anise, fennel, carvy, or coriander, to warm and strengthen the stomach and expel wind; sweet butter and new cream cheese."

The most important part of Dr. Deane's advice is to be found in his first sentences. If patients will practice the moderation he enjoins, they cannot go very far wrong. With that general principle before them, they should refer to their own experience of what agrees and of what disagrees with them, and also take the advice of the doctor on the spot, for no general directions given in any book, can be expected to meet the case of particular individuals at particular spas.

I am rather surprised at Dr. Deane's proscribing vegetables in those days before potatoes, when foreigners attributed the prevalence of scurvy in England to the small consumption of vegetables by the English; but Dr. Wittie, fifty years afterwards, was as positive in

disallowing sallets of cold herbs, as they are now at most baths at home and abroad, and, I think, with reason.

One does not wonder at Dr. Deane's advising that the beer should not be mixed with Harrogate water; such a mixture would be so inconceivably nauseous, that one can scarcely imagine its ever having been made trial of —he must have meant one of the mild chalybeates. Dr. Deane says nothing of wine, but Dr. Wittie judiciously advises a glass or two of sack or claret to favour concoction, and Dr. Madan, a little later, that meals be begun with a glass of white wine. A small allowance of sound wine is certainly desirable for those who are in the habit of taking it, and, indeed, if they are accustomed to it, it is not very easy to make them give it up, even when there are special reasons for so doing.

On the subject of drink at meals, I shall only further remark that it is to be regretted, that we have not in England any of the acidulous waters so common in parts of Germany and of France, such as Seltzer, Schwalheim, St. Galmier, or Pougues. However, they can always be procured in bottle. Perhaps the artificially-prepared Seltzer is pleasanter than the real.

As to the mode of life to be pursued at a bath, I think most of the directions that have been so often given, are thrown away. Dr. Wittie would have the afternoon spent either in some pleasant discourse or in walking about or reading, or in some innocent recreation, as bowling, &c.; and sleep was by all means to be

avoided. But those quiet delights of old Scarborough or of Knaresborough would in these days be counted tame indeed. Scarborough, Harrogate, or Leamington require something much more exciting. Indeed, they did so a long time ago. In modern times we are apt to look very much to Homburg, Baden-Baden, and other foreign spas as centres of excitement; and it is usual to regard English spas as far behind Continental ones in this respect. It is, therefore, curious to find Wieland, in 1782, when seeking for some place to compare with the dissipated life of the ancients at Baiæ, fixing on for the comparison, not one of the Continental spas, but our own Bath and Tunbridge Wells.

Although no guide is required to them, still the amusements of baths have always occupied so prominent a place, that a few words respecting them seem almost to be required. Bath amusements vary in different ages in their modes, but remain the same in their essence. Thus, passing by times before the Reformation, they were, from the date of the reign of Queen Elizabeth, something of this kind. In the earlier period they were often of the ruder sort, such as bull-baiting, cock-fighting, pig-racing, grinning through a horse-collar, swallowing scalding hot frumenty, varied by playing at the quentin, at bowls, at foot-ball, at *trowle-in-madam* for the ladies, seeing mountebanks or jugglers; on great occasions having masques. Music, too, even of the simplest kind, was always prescribed to drive away melancholy. A

century or less later, bowls, dancing, and the theatre and music were in request, while gambling became a fashionable accomplishment. There was no very great change in the succeeding century. Constant dances and assemblies, and minute regulations respecting deportment at them, are characteristic of this period; and many of the laws of the masters of ceremonies at the various watering-places sound very ludicrous to modern ears. But dancing was evidently regarded as no small element of treatment. Grave men took up such subjects with all seriousness.

A medical writer about the year 1780 complains, with evident feeling of personal mortification, that the fashionable custom of introducing French and German dances into an assembly-room, instead of our easy country dances, excluded persons of thirty years and upwards from the very agreeable exercise of dancing. For such persons had scarcely the time to spend—indeed, it was not seemly that they should spend their time—in learning these new dances, and they rather gave up dancing, than strive to figure away in those difficult mazes. Our author seems to have been an enthusiast in dancing, for he thought that executing country dances of a morning, was perhaps to be preferred as a hygienic measure to either walking or riding exercise. Though the present age does not attach this degree of importance to dancing, still it remains the chief pastime of modern spas. Need we say what are the other common amusements now-a-days? Music and walking about the

grounds of the bath-house—croquet for the ladies, or archery, in place of *trowle-in-madam*—concerts, theatres, excursions to places of interest in the neighbourhood; these are the chief occupations of the day. Nor are cards and gambling forgotten among us. Amusements are in one sense important elements of a bath cure; but the mass of patients will readily enough discover these pleasures for themselves. They do not require to be told to shun cares and banish melancholy; on the contrary, they too often turn a deaf ear to anyone, who will tell them to enjoy their pleasures in moderation.

The patient, having now received some hints as to the life he will find, and is to follow at a bath, may next wish to learn something of the ingredients of the waters, for the sake of which he has left his home.

CHAPTER II.

COMPOSITION OF WATERS.

> As physic has found out, by colour, taste, and smell,
> Which taught the world at first the wonders of the well.
>
> *Polyolbion.*

WHAT are called mineral waters are fountains which have attracted attention owing to some peculiarity, such as their abundance, their purity, their intermittent flow, their temperature, their taste, their colour, or that of the sediment which they deposit. It is remarkable how often in England the discovery of a spring has been ascribed to observing pigeons picking up the saline particles of the effervescence of the soil. Quite apart from wells of pure water, which wrought miraculous cures through the god or the saint that presided over each, a certain number of them were from an early period believed to have various very remarkable inherent properties; and the popular ideas current in England on this subject 200 years ago, are amusingly represented by Dr. Peter, of Lewisham, who has jumbled up together ancient and modern examples:—"Pliny

relates that in Hetruria the water makes the oxen white that drink it, and that Cephissus and Aleacmon, a fountain in Macedonia, have the same effect on sheep; and, on the other side, that Peneus and the river Melas make them black." He also tells us that "the river Aleos makes men hairy that drink of it. The river Nus, in Cilicia, Marcus Varro relates, makes men quick-witted; and Pliny tells us of a spring in the isle Cea, which makes them blockish. Ovid says of a river in Macedonia—

> "'He that takes of it but a moderate draught,
> Trips even like him, that with new wine is caught.

"In the province of Cyrene the water of the Fons Solis is always frozen at noon, and very hot at midnight, and every day as it grows cold it grows sweet, and as it grows hot it becomes bitter. There be two fountains in the Fortunate Islands; they that drink of one of them will laugh till they die, and can have no remedy unless they drink of the other. There is a lake in Ireland in which if you stick a staff, that part which is in the mud will be turned into iron, and that part which is in the water into a whetstone. I have heard it reported by creditable people in Ireland, that in the province of Ulcester there is a fountain, in which whosoever shall wash himself two or three times, shall never become gray.

"Of all which, as possibly they may appear to some as improbable, and as much past belief as the most ridiculous relations in Mandeville, I shall endeavour

to make some of those instances, which seem most anomalous, to lie level to Nature's rule and their understandings, and shall leave the rest for the reader to solve, as a whetstone to actuate his intellectuals."

It is unnecessary for us to follow Dr. Peter and other writers of his age, into a discussion respecting the origin of fountains, or to whet our intellectuals on the subject of subterranean heat. These questions, and others particularly interesting at the present moment respecting the purity of water, must be passed by. But it may save repetition afterwards, if I make a few general observations on British mineral waters and their constituents. A knowledge of the latter may not perhaps entirely clear up their operation on the system, but it certainly goes a long way towards explaining it; thus we are pretty sure that iron waters will prove tonic, saline ones purgative.

There are numerous abundant fountains of pure water in Great Britain—perhaps St. Winifred's, in Flintshire, and a spring near Sprinkell, in Dumfriesshire, are among the most remarkable.

We have few wells of high temperature, and they are: one in the bed of the Taafe near Cardiff; Matlock, 68°; Mallow, in Ireland, 66° to 72°; Bristol, 74°; Buxton, 82°; and Bath, with its hottest spring, 120°.

We have no direct concern with intermitting fountains, although the English ones were viewed with considerable awe. None of the British medicinal ones are intermittent. Mineral waters do, indeed, vary a little in

abundance and in strength at different seasons of the year; they are sometimes affected by droughts or by heavy rain, and the quantity of gas they contain, varies a little with atmospheric pressure; yet, on the whole, their composition remains singularly constant.

The gases occurring in our English waters, besides atmospheric air and oxygen, are nitrogen, carbonic acid, carburetted and sulphuretted hydrogen.

Many waters contain an excess of nitrogen, especially our warm ones—Buxton, Bath, and Mallow. However, many of the waters, whose abundant supply of nitrogen is boasted of, do not in reality possess more of that gas, than ordinary rain water contains. There is much uncertainty as to how waters receive this large supply of nitrogen; but water seems to have a great tendency to retain the oxygen of its atmospheric air, and to let go the nitrogen. Heat has evidently a good deal to do with the separation of nitrogen.

No one in reality knows much of the action of nitrogen on the human system. Its qualities seem to be chiefly of a negative kind, and it would appear to serve chiefly, to dilute the too-stimulant oxygen of the air. Nitrogen has been collected in various baths abroad, and has been thought useful in chest affections. The same might easily be done in England; but there is little evidence to show, that the inhalation of the gas is really advantageous.

Unfortunately, carbonic acid gas is very deficient in

our English waters. It is this gas which acts as a grateful stimulant to the stomach in common soda-water, and which, when present in large quantities, has given the names of wine and champagne fountains to various chalybeates. The presence of carbonic acid renders many waters tolerable which in its absence would be nauseous; and in England we can only make up for its absence by adding it artificially, as is done by some manufacturers. There can be no talk of carbonic acid baths, or of the local application of that gas, in England, which were at one time rather in vogue abroad.

Carburetted hydrogen need not detain us. It is only interesting in so far, that it sometimes collects over springs in quantity enough to be inflammable.*

* Wells giving off inflammable gas, often associated with petroleum, were observed at a very early period, as mentioned by Holingshed, and were regarded as very strange phenomena. In England they were called "kettles of hell, or the divil's kettles, as if he should seethe the souls of sinful men and women in them." Indeed, the yells of the poor souls suffering in them were heard at times.

Such notices make it easy to understand, how Pope Gregory the Great mentions as nothing extraordinary, that he had heard in his youth of a certain deacon of Rome, some years deceased, being discovered acting as a bath servant in one of the natural vapour baths or stufas. He was doing this as a portion of his purgatorial penance. The early Church continued the heathen belief that Avernus was the entrance to Hades. Petroleum has been thought from the earliest ages, and continues to be, a good application in skin affections.

Sulphuretted hydrogen, although it is palpable to the sense of smell in sulphur water, usually exists in but very small quantities; for instance, in the strongest Harrogate water there is only two-thirds of a cubic inch of this gas in the imperial pint, or there is less than one part by weight in the 10,000 parts of water. When sulphuretted hydrogen is recognised by the smell, but cannot be detected in its free state, it is usual to ascribe its presence to the sulphurets or sulphides of soda, lime, or magnesia, which are found in the water. In this case, too, the quantity of those substances present is extremely small, varying from less than a quarter of a grain to the extreme amount of even five grains in the pint; but in no English well quite reaching two grains. Water, however, loses its sulphuretted gas so easily, that I conceive there is much uncertainty as to the actual quantity present in our English springs.

Of the action of those minute quantities of sulphur on the system very little is known with accuracy. In old medicine it was said that there was no more safe or active medicine than sulphur. Waters of this kind have been frequently found to act at first as stimulants to the system. They act very distinctly on the kidneys, and probably on the skin. Under their use the skin exhales a peculiar odour, and the evacuations become dark. They have always been considered useful in cutaneous affections, in dyspepsia, in chronic affections of the liver, and in chronic rheumatism. It was said truly eighty

years ago, that their mode of action in these diseases has not been accounted for in a satisfactory manner, but experience confirms their use. In many cases we must attribute something of the effects, to the salts associated with the sulphur of mineral waters. Their smell is something so positive, that sulphur waters are seldom entirely abandoned by the public.

Waters impregnated with iron are tonic and strengthening, giving tone to the fibre, and improving the quality of the blood. As they are found useful generally in diseases arising from debility, the field for their employment is necessarily very large. It has been calculated, that the system contains about seventy grains of iron, and that it takes in about one grain of iron daily with the food, and parts with about one grain. Under ordinary circumstances the system does not, therefore, require a large supply of iron. It is not likely that the system ever takes in more than about one grain of metallic iron or two grains of its carbonate daily; it is, therefore, evident that there is no necessity for the chalybeate being a very powerful one. If it be so, the water irritates, and most of its iron is rejected by the system. Dr. Cullen wrote with much wisdom on this subject:— "Mineral waters often produce cures which we in vain attempt to perform by the combinations in our shops, even although those waters contain nothing but iron. This is manifestly owing to the weakness of the dose; in proof of which we find that the strongly-impregnated

waters seldom answer so well, as those weak ones we reject."

Sulphates of magnesia and of soda, or Epsom and Glauber salts, are contained in many English waters. Every one is aware of their purgative properties. In large doses they act freely on the intestinal canal, and relieve the abdominal circulation, thus acting on the liver. In smaller doses they produce alterative effects on the system.

Common salt is in large doses emetic and purgative, but it is a less depressing purgative than the sulphates, although apt to be irritating. In small doses it is an excellent alterative, useful in dyspepsia, and in the strumous diathesis. It is pleasantest in foreign carbonated waters—as Kissingen or Homburg—but English salt springs might be used more extensively; nor, indeed, is the old employment of sea water entirely to be repudiated.

The presence of lime is the cause of hardness in drinking waters. Many mineral waters contain the sulphate or the carbonate or the chloride of lime. Lime is an important constituent of the human frame, and it has been thought that, as rickets and similar affections were supposed to depend on a deficiency of lime, an extra supply might be afforded by such waters. But usually it is not the supply of lime that is wanting—it is the power of the system to make use of it. Sulphate of lime makes water unpleasant, and interferes with its use-

fulness; the chloride is looked on more favourably, but is probably chiefly purgative; it is mainly the carbonates that are of some value in dyspepsia, and occasionally even in gravel, probably from lime being an antacid.

Alum occurs chiefly in connection with some strong iron waters, which are too styptic for drinking; and although alum is a good astringent, and has sometimes been used in diarrhœa, the external use of alum waters, is all that can be recommended.

A great many other substances have been discovered in English mineral waters. And sometimes one finds the doctor or the owner of a well greatly pleased, that chemical analysis has discovered traces of such a substance as barium, for instance.

We have no reason, based on accurate observation, to believe, that strontium, barium, fluorine, silica, borax, manganese, and the like, in the quantities in which they occur in mineral waters, are of the slightest importance, except as chemical curiosities.

Even in the case of more important substances occurring in somewhat larger quantity, as lithium, bromine, or iodine, they occur associated with so large a quantity of other salts, along with which they must be drunk, that the action of the salts must entirely supersede the action of a minute quantity of iodine or bromine. For instance, in the case of the strongest iodine and bromine spring in England, one cannot swallow one grain of

the salts of iodine and bromine combined, without swallowing half-an-ounce of other salts. The virtues of these minute quantities must, therefore, be chiefly imaginary, and the beneficial effects experienced from their use, may be fairly attributed to the alterative effect of small doses of common salt. Such doctrine, however, is seldom palatable, and least of all to those who are taught to believe in the imaginary effects of minute quantities of iodine or bromine; and it is almost a pity to destroy their faith, as faith undoubtedly is an important agent in medical treatment.

I have hitherto spoken only of the substances entering into the composition of mineral waters, and of their effect on the system without reference to the temperature of the water. But something also depends on their temperature. Thus some waters are better borne by the stomach when heated—for instance, some of the Harrogate ones, and those of the Bridge of Allan—while our warm or tepid waters, such as Bath, Buxton, or Bristol, have owed something of their effects to their having been drunk warm. Some of them have certainly been found useful in various complaints, and, as their mineral contents are feeble, we naturally attribute a good deal to their temperature. And this leads me to remark what is curious and interesting, that on the first introduction of tea and coffee, it was not the using of a new herb in infusion that

was the novelty, so much as the drinking of the infusion hot.*

It is not necessary to say much of the effects of English mineral waters used as baths. On the whole, our wells of pure cold water have been most used for medicinal purposes externally, while our mineral waters have been more drunk than bathed in, with the exception of our warm and tepid waters. It is now nearly established, that healthy skin absorbs scarcely any portion of the mineral constituents of a bath, and that, although the skin under certain circumstances absorbs gases readily enough, it probably absorbs scarcely any gas from waters not charged with more gas than most English waters contain. Unless, therefore, in the case of sea water or, still more, of brines, which may be strong enough to act in some degree as stimulants to the skin,

* When Jorden, in 1631, recommended the internal use of Bath water, provided he were satisfied that it was pure, he added, "I know a worthy gentleman of excellent parts, who, for many years, has used to take his drink hot, and, being now about eighty years old, enjoyeth health of body and vigour of spirits. We find, also, that it is in use at this day, both in the East Indies and in Turkey, where they have a drink called *Capha*, sold ordinarily in their taverns, and drunk hot, although in summer." Also, at a later period, a German author remarks :—"What famous effects in the prevention from and mitigation and curing of disease, the drinking hot water possesses, is well known to those who know the virtues of the herb *Thea* infused. But whoever attributes this effect to the exotic herb are very much in the wrong. There is a good plenty of hot water in which it is infused, which is the principal cause."

the effects of baths must be referred to the simple operation of hot and cold water on the system. Their elementary action I have endeavoured to explain elsewhere,* and it is laid down in many books on bathing. It is sufficient to say here, that we have very important remedial agents, the value of all of which has been recognised by man at various periods from the earliest ages—in hot air, hot vapour, and hot water baths, in cold baths, in the alternation of hot and cold, and in the various operations of hydropathy, technically so-called. Before proceeding to another subject, I would beg the reader to keep two things in mind: that the excessive drinking of pure water often produces giddiness and unpleasant feelings in the head; while excessive and continued bathing in any kind of water brings out rashes and boils, and the phenomena called crises, which are also sometimes attributable to change of diet, and to want of attention to it.

Various cures, forming an important supplement to mineral waters, and now popular on the Continent, were formerly well known to us. For instance, the cures by drinking goat or ewe milk-whey in Scotland, Ireland, or Wales. It was said in their favour, that the goats fed, in a pure air, in high places, on tender, light, and aromatic plants, which imparted some of their virtues to the milk, just as they now boast of such

* "Baths and Wells of Europe."

properties in Swiss milk. Such cures could be revived, if they were wanted.

We have no salt air from walls of evaporating faggots, nor pulverised salt waters for inhalation, as they have abroad. I think I have read of the heated vapour of salt-pans being used in England; but I do not look on any of these remedies as of much importance. Besides various baths of monstrous vegetable and animal compounds known in other parts of Europe, we have had artificial mineral baths of all description, and have them at the present day. They have been in use in England, with periods of popularity and periods of neglect, for the last two hundred years.

Various forms of, I may say, more simple baths, such as the sand bath, mud bath, anointing parts locally with the sediment of mineral waters, have at times been in ordinary employment.

Peat baths, I believe, have never been tried, but there is ample scope for making the experiment. We have no want of bog earth in Great Britain, nor of chalybeate springs in bogs, with which to impregnate the earth.

Another adjunct of mineral water cures in especial favour of late years is mountain climate. This, in the sense of elevation above the sea, is scarcely to be had in Great Britain. We have only country and highland air to offer. Our highest bath is Buxton, about 1000 feet high, and Shap is as high, but it is as little

visited at present as Pannanich wells, which are probably 600 feet high. The plateau of Llandrindod I should guess to be about 500, while Harrogate can scarcely be considered 400 feet high.

Having thus hinted at what England can offer, I may say a few words of comparison of home and foreign health-resorts.

England has in Bath a watering-place that comes up to anything of its class abroad. In Buxton we have a bath at least equal to Schlangenbad. We have as good salt springs for drinking and for bathing in, as Kreuznach, if they were only properly used. No countries excell us, few equal us, in sea bathing-places. We have as good cold sulphur wells as they have abroad. We have plenty of purging waters, but not so good as the best foreign ones. We have very fair chalybeates. But we are greatly deficient in carbonic acid, in alkaline, and in warm springs generally.

The arrangements at our chief spas, will bear comparison with those of foreign spas, but the arrangements at our small ones, are often very inferior.

As regards the amusements of bath life, though we are pretty well provided with them at larger places, there is no doubt that the change of scene and life, the observation of the ways of foreigners, the better music, present more variety and amusement to an Englishman, than a visit to one of the home spas. But if the tide of fashion were to set in towards them

again, no doubt they would soon supply more sources of amusement to their visitors. There must always be a great difference in the cookery, and in the wines, in going abroad, and this entire change of diet is, I think, advantageous to the great majority of those who visit baths, although they may grumble at it.

But as to very many amongst us, it will always remain more convenient, not to have to cross the Channel, it is very desirable that no trouble should be spared in adding to the attractions of our own spas.

CHAPTER III.

SELECTION OF BATH FOR PARTICULAR AILMENTS.

Some assist the eyes, some the nerves ; some relieve complaints of the lungs and the viscera ; some soothe the intestines, others cure inveterate diseases despaired of by doctors.—*Seneca.*

In what affections are the waters, whose general constitution has been just examined, practically available? I need scarcely say, that the answer to this question must be of a very general kind. As Dr. Cheyne remarked, the determination of the specific mineral water must be left to the sagacity of the physician in ordinary, and to the kinds, degrees, and several stages of the distemper; and, besides, in the present state of balneological knowledge in England, it would be simply affectation, to lay down minute distinctions as to the shades of disease, and variety of spas suited to them. I shall endeavour to avoid the common error of overstating the virtues of popular remedies ; and if the reader finds these directions too brief, he will, I hope, find fuller information under the heads of the respective spas.

Beginning with affections of the digestive organs and their appendages, we come to one of the commonest and

most difficult diseases to treat, *dyspepsia.* It may be said, that every form of dyspepsia will improve for a time, from mere change of scene and habits.

Its catarrhal forms are probably best treated by recourse to some of the milder salt and sulphur springs, for instance, the weaker Harrogate ones, Moffatt, Strathpeffer, Gilsland, Nottington, Builth, Llandrindod, Llanwrtyd, Lisdunvarna; salt springs generally, that have not too much chloride of lime. Atonic and neuralgic forms will benefit especially by Bath waters, bathing in them not being neglected; also by Buxton, just as the waters of Pfeffers are found useful; by some springs of pure cold water, as Malvern; and by the great majority of mild pure chalybeates, as Tunbridge Wells; or of chalybeates in which a little common salt is present, as some of the Harrogate and Welsh ones.

Liver affections generally, including gall-stones, and I shall not pretend to define them minutely, require the stronger aperient waters, such as Leamington, Cheltenham, the strong Harrogate. Waters, such as the Streatham ones, once in favour, might, no doubt, be again usefully employed. Of course I only talk of affections of the liver, in which something is to be gained by improving the abdominal circulation; but such are the vast majority of them.

The reduction of *obesity* by dieting may be aided, by the use of any of the waters of this class.

Constipation is to be combatted by much the same

measures, as also the abdominal obstructions, which are at the root of hemorrhoidal affections and their many discomforts. These last may also profit by hot baths, and by attention to dieting.

Diarrhœa, especially when colicky pains are present, may be alleviated by the careful internal and external use of Bath waters. Pure chalybeates like Tunbridge Wells have been found useful; but I know of no one water to be confidently recommended in this obstinate disease, especially in its tropical forms. For many years the now-forgotten Tilbury water was counted a specific.

In *worms* the strong Harrogate, sea water, and the various stronger purgative waters are found useful—both drunk and used as injections.

In affections of the *bladder* and *kidneys* much benefit is often derived from the use of the Bath and Buxton waters both internally and externally; also occasionally from the use of mild chalybeates; but only a limited amount of benefit must be expected.

Uterine affections are to a certain point to be treated on general principles (and, I would venture to say, that constitutional treatment is often in the present day kept too much in the background), and much of what is good for chlorosis and anæmia is suited to them. Warm and cold bathing and douching are among the most important remedies, and here the Bath waters are invaluable. Our salt springs, such as Woodhall, and still more

our brines, as at Ashby or Droitwich, might be very useful in many of the cases for which Kreuznach has obtained its reputation; but their systematic employment has not been attempted—a more methodical use of sea water is also required.

As regards *nervous* affections. When the nervous system is merely unhinged by overwork, almost any spa may be found useful, as in the case of dyspepsia and of hypochondriasis. As to affections of a more serious nature, the benefit to be hoped for depends mainly, on whether there is mischief of the nervous centres of a progressive nature. Such cases as those of tabes dorsalis, can scarcely be even alleviated.

The recovery from the effects of *apoplexy* is often much accelerated by the use of hot waters, as Bath, or of tepid, as Buxton.

Waters of the same class are of eminent service in local paralysis, and most especially in chronic *lead* colic, and palsy. They are also useful in chronic *mercurial*, and *syphilitic* poisoning, for the two are much mixed up together. Warm sulphur waters here put in a strong claim; but, failing them, the cold sulphur waters of England and Scotland should not be overlooked. Hydropathists profess to treat these conditions successfully.

Local *neuralgias*, whether with a gouty or rheumatic or malarious foundation, are often relieved by hot waters. *Sciatica* often benefits, but confirmed *tic*, like

confirmed gout, will not yield to any waters. Chalybeate and alterative waters may assist in such cases.

Hysterical affections of the joints are sometimes treated by cold sea baths or hydropathy; but warmer baths are usually more successful.

Rheumatism, in its severer chronic forms, is treated with great success at Bath and Buxton, sometimes also by hydropathy. In its milder form, concurrent testimony, which it is hard to disbelieve, would show that many of the sulphur waters are useful — almost any one of them may be selected. At Lisdunvarna in the wilds of Clare, and at Strathpeffer in the Highlands of Scotland, you hear of the same cures of rheumatism as at Harrogate, and, I must add in fairness, at wells of pure cold water, as at St. Winifred's.

Gout, when it has once fixed itself in the system, is best treated at Buxton, or at Bath; but cases are seldom sent there in a sufficiently early stage. Before it is localised, the general diathesis may be combatted with Leamington, Harrogate, or many other alterative waters.

Scrofula profits most by sea air and sea-bathing, by open country air, by the use of small doses of salt springs, among which the Scotch ones of Bridge of Allan, or the similar ones of Tenbury and Admaston, may be included, or of sea-water itself. Mild chalybeates are useful.

Anæmia and *chlorosis* may be taken together, as the general indications of cure are often the same in both;

change of scene and of habits, exercise in the open air, cold bathing used with due precautions, and the internal use of chalybeates or salt waters, and especially of the former, are the chief remedies.

A good deal of what has been just said applies to *hysteria*. I believe, it is also often treated with success by hydropathy.

Spleen is best treated by change of air, and by ordinary chalybeates. In some cases aperient ones, as those of Scarborough, may be useful.

Skin complaints have been, by common consent, handed over to the dominion of sulphur waters, and, accordingly, they are treated, wherever waters have a sulphurous smell; but it should be remembered that, in addition to the use of sulphur waters, both local and constitutional treatment are usually required. In some of the more chronic and indolent and squamous forms of skin disease, the Bath waters appear to deserve more attention, than they have obtained of late years.

Injuries, *sprains*, and *old wounds*, and the results of accidents, benefit much by Bath and Buxton, but a great deal of the success depends on the proper application of friction.

Affections of the *eyes* and of the *ears* are not very much a subject of treatment at any foreign baths, and as to England, it is scarcely necessary to say, that the so-called eye-waters, as at Buxton, have no special virtues, and that benefit in such affections only results

from the general improvement in the condition of the patient.

At present English waters are not used in early *phthisis*, in *chronic laryngitis*, or in *asthma*, although in former times the employment of the Bristol waters was very constant, and sulphur waters were occasionally used, as they are now abroad. We have no inhalation-rooms of sulphuretted hydrogen or of nitrogen gas.

England is so deficient in alkaline waters, that we can offer none that are very efficient in *urinary* affections, or in *gall stones*. Bath and Buxton waters have already been mentioned as useful diluents in the former. The stronger purgative waters may be used in the latter.

The above are only a few hints, but with an old author, I think, that one or other water may be easily found, that will greatly alleviate the complaints of most valetudinarians.

CHAPTER IV.

HISTORY OF BRITISH WELLS.

"It seems all waters have their ebbing and flowing: I mean in esteem."—*Fuller.*

It is a very common impression that the use of mineral waters in England dates from only a very recent period. It is difficult to say what has given rise to this belief, which is certainly without foundation. Indeed the very reverse is the case, and it would be more correct to say that their use dates from the earliest times.

Without going into a minute history of mineral waters, I hope to show that, especially in the earlier periods, England has not been so much behind the rest of Europe, as has been generally supposed.

I trust that a short sketch of this subject will not be entirely uninteresting, while it will contribute to a better understanding of the whole question of mineral waters in these islands.

Their remains show that the Romans had discovered and made use of Bath and of Buxton. At the first of these places their works were very considerable. For

some centuries after the Roman date, we know very little of the history of baths in England; but in the twelfth, thirteenth, and fourteenth centuries we have incidental notices, which show that the waters of Bath were in use. We hear also during the same period of the wonders worked at the well of St. Winifred, at the wishing-well of Walsingham, at the well of Wye in Kent, and at similar fountains.

In the year 1517, when there was the second epidemic of the sweating-sickness in England, the English were accused of gross feeding, of much intemperance, and of causing relaxation of their skin, by spending so much time in hot-air baths. This shows that these baths remained popular in England, at a time when they were beginning to be less used abroad. The strange practice of cupping was in those days, and for a long time after, associated with hot baths.

The Scotch historian, Hector Boece, in 1521, mentions a petrifying spring in the north of Scotland, and a petroleum spring near Edinburgh, which was used for external applications. The people thought it very medicinal against cankers and scalls. Leland described Bath and its waters, and mentioned other English springs in 1545. Shortly after this, or in 1557, appeared the first English work on baths in general, by Turner, giving a popular account of the most frequented ones on the Continent, and of Bath in particular. He was followed by Dr. John Jones in 1572, who described Bath and

Buxton. In 1580 a broadside appeared in Aberdeen on the virtues of a chalybeate outside that city. Camden, in 1586, enumerates several English waters, especially one at Leamington, another near St. Neots, and the petrifying waters of Knaresborough and of Stony Stratford. In 1587 Dr. Walter Bayley wrote an account of the waters of Newnham Regis in Warwickshire, the fame of which soon came to equal that of Bath. While praising his own waters, he mentions having visited others, and expressly says, that baths and medicinal waters had of late years been discovered in many parts of England. I may notice, as characteristic of the age, that Dr. Bayley remarks that though mineral waters may be permitted to be employed in leap years, yet he would not rashly counsel their use in such years. Our literature now becomes somewhat scanty: we find, however, a curious pamphlet, published in London in 1600, entitled, "News out of Cheshire of the new-found Well," which the anonymous author describes as rising in Delamere Forest. We learn incidentally from this pamphlet, that the waters, of St. Vincent's Well, near Bristol, were already in repute. In 1615, a Dr. Barclay, who had spent twenty years in France, again recommended the Aberdeen Spa, under the strange title of "Callirrhoe; or, The Nymph of Aberdeen." Such quaint titles as Spadacrene, and Pidax Petreia, were common in those days. In 1613, Drayton, in his "Polyolbion," mentions the two wells of Hail Weston,

near St. Neots, one sweet, the other salt. Of the powers of the sweet one he says, that it

"Should cure the painful itch and loathsome leprosy;"

Of the other,

"That it should ever cure the dimness of the sight."

In 1618 Dr. Anderson, of Edinburgh, gave an account of the cold spring of Kinghorn Craig, in Fife. A few years after this, or in 1626, the Queen of Charles the First and the Court spent some weeks at Wellingborough, which suddenly came into fashion, and was nearly as suddenly forgotten. In the same year, Drs. Deane and Stanhope appear to have visited Knaresborough and the neighbouring springs of Bilton and of Harrogate Head. The books of both, especially that of the former, contain a great deal that is interesting and amusing, a specimen of which has already been given. The year 1628 produced a short treatise by Dr. Thomas Venner on the waters of Bath, and a censure of the neighbouring ones of St. Vincent or Bristol. It contains much curious matter. It is not quite so serious in style as Dr. Turner and Dr. Jones, the latter of whom gave a form of prayer, to be used by the patient meekly kneeling, before he entered the bath; but it recommends the confession of one's sins before starting on a journey to a bath, as Turner had done.

In 1631 a work of much importance appeared, that of Dr. Jorden—on whose name there was many a play of words—on natural baths, and on Bath in particular.

He was followed next year by Dr. Stanhope, who wrote a second work, a fanciful but not incorrect account of the "Cures effected without Care" by the waters near Knaresborough. In that year, or 1632, Dr. Lodowick Rowzee, of Ashford, published the first account of Tunbridge Wells, then styled the Queen's well. The imprimatur to his work of the College of Physicians states, that new mineral waters are daily found out; and Powell confirms this, for he remarks in 1631 :—"Let them find out some strange water, some unheard-of spring; it is an easy matter to discolour or alter the taste of it in some measure, it makes no matter how little. Report strange cures that it hath done; beget a superstitious opinion of it. Good fellowship shall uphold it, and the neighbouring towns shall all swear for it." In 1634 Dr. Johnson wrote on Bath; and in 1636 Dr. Moor, future Mediciner in the University of Aberdeen, wrote on the chalybeate waters of Peterhead, in that district. During the civil wars it was only natural, that mineral waters should be little thought of; and for nearly twenty years we have only Chamberlen's treatise in 1648, a pamphlet on hot and artificial baths, which he attempted to set up in London. However, a committee of the College of Physicians reported to Parliament unfavourably on his scheme, mainly on the ground that the baths would revive the old immoralities of the hot-air baths. In 1652 Dr. French again directed attention to the waters of Harrogate; in 1656 Doctor R. Short wrote on cold-

water drinking; and the waters of Moffatt were introduced for the first time to the world by Dr. Mackail in 1657. About this time various wells, some of them known a little earlier, in the neighbourhood of London, grew into importance. Fuller (1662) tells us, that "London is in this kind stately attended, having three medicinal waters within one day's journey thereof—viz., Ebsham or Epsom, Barnet and Tunbridge. The citizens of London proclaim the fame thereof." Shortly after this the waters of Northall, near Barnet, attained immense popularity; and Dr. Wittie, in writing the first account of Scarborough Spa, in 1669, favours us with this doggrel of a friend of his:—

> "Let Epsom, Tunbridge, Barnet, Knaresborough be
> In what request they will, Scarborough for me."

From 1670 to the end of the century was perhaps the most flourishing era of mineral waters in England. The wells of Astrop, dedicated to St. Rumbold—"a child which spake as soon as he was born"—near Banbury, of Buttersby near Durham, of Dulwich, or Lewisham, of some springs near Dublin, the waters of Ilmington, those of Islington known as Saddlers' Wells, of Streatham, Hoxden, Sunning Hill, all became candidates for favour, while the writings concerning Bath continued to multiply. Dr. Willis, one of the most eminent men in English medicine, talks in 1678 of the chief spas at that time being Tunbridge, Barnet, Northall, and Astrop. He also speaks of arti-

ficial waters. Sydenham and Morton constantly recommend London waters. About 1684 a host of treatises appeared. Hot baths and medicated ones known as the "Duke's Bagnio," the "Hummums," &c., became popular. Dr. Byfield, a great concoctor of books of the kind, said of his balsamic baths that he had provided "that no disrepute may be cast on them by countenancing the entertainment of luxury and needless diversions, and so becoming an unhandsome rendevouz." Artificial mineral waters were also manufactured. Lister, Boyle, Leigh, and others began to study the philosophy of mineral waters, and at the end of the century, Sir John Floyer's book on cold bathing, created quite a revolution in Europe. At that time physicians were as afraid of cold baths, as they had formerly been of hot drinks.

About this time systematic works began to appear. It would be unnecessarily fatiguing the reader, to go into details here respecting the subsequent history of English baths, as a short history must be given afterwards of each particular one.

During the first thirty years of the eighteenth century, less seems to have been written. The Ipswich Spa was pressed on the public as the Hydrosidereum. A spring was found at Canterbury. The wells about London continued in favour. They were thought best at the spring, but they were brought into London daily for sale, as they had been for a long

time. Thus we learn by an advertisement in 1717, that Streatham water was to be had fresh every morning at Child's coffee-house, and at other places. It was judged to be the best for purging in England. After 1730 there were treatises on Road water in Wilts, on Hampstead well, on Withan in Essex, Dunse in Scotland; and in 1756 the Welsh wells became more generally known. Acton Spa became very fashionable about 1750. Perhaps the list of waters supplied for sale by Mr. Owen, in 1769, at the original mineral-water warehouse, Fleet Street, will give the best idea of what waters were popular about that period:—"Seltzer water, German Spa, Pouhon, Pyrmont, Bourn water, Harrogate Spa water, Holt water, Tilbury alterative water, Malvern water, Shadwell water, Cheltenham water, Bath water, Scarborough water, Bristol Hotwell, Jessop's well or Stoke water, Acton, and Dog-and-Duck water, Hanly's Spa, Tar water made agreeably to Bishop Berkeley's directions, Sea water in its utmost purity, taken up several leagues at sea."

This sale of sea water reminds me, that Dr. Russell's work on it in the middle of the century produced nearly as great a revolution, in the way of making sea-bathing and sea-water drinking popular, as Floyer's book had made in the use of cold water. About 1750, Priestley's experiments on gases, gave a great impulse to the manufacture of artificial waters. Within

the last century, the chief mineral waters that have attained any great popularity, have been Cheltenham, Croft, Leamington, Gilsland, Strathpeffer, Bridge of Allan, Llandrindod in Wales, Lisdunvarna in Ireland. But as much will be said subsequently of the history of those places, and of some minor spas, as the reader will care for. The introduction of Struve's artificial waters at Brighton, about 1820, should not be overlooked in a history of mineral waters, nor the great development of late years of hydropathic establishments, of Turkish baths, and of swimming baths in large cities. Within the last century, the chief chemists who have illustrated the mineral waters of England, have been Murray, Kirwan, Marcet, Daubeny, Thomson, while Dr. Gairdner published in 1832 the most philosophical work on the whole subject of mineral waters, that has appeared in England. Short and Rutty, about a hundred years ago, published two very good accounts of English waters. They were followed by Monro and others. General works on English waters have, during the last thirty years, been few. I can only enumerate Granville, James Johnson, Edwin Lee, and Dr. Glover's judicious book, published in 1857. But none of them touched on Wales or Ireland, or indeed gave any very general view of the whole subject.

II.—ENGLAND.

CHAPTER V.

PURE WATERS.

STRICTLY speaking, simple water could scarcely find a place in an account of mineral waters, but many waters which have cured, and continue to cure disease, cannot fairly be entirely overlooked, because they are found to be merely very pure waters. In these days we ascribe the virtues of those wells, simply to the internal and external use of water; at least, the majority among us no longer believes, that such wells are efficacious because they are holy, although this was the ordinary creed of our ancestors, and not only of unprofessional people, for philosophers, like Van Helmont, expressed their belief in the presence of an Eudaimon, or benevolent spirit, in healing waters.

I shall commence with a brief allusion to a very pure form of water. May-dew was for a long time believed in England, to have special virtues. Philosophers have entertained various strange views, about

spirits that might be extracted from it, and comparatively recently, country people have mixed it with sulphur, and found it efficacious in itch, while the fair sex has used it as a cosmetic.

Every one recollects, how Horace promised a libation of wine, garlands and a kid to the fountain of Bandusia: and in this he was merely following the usages of his times.

The old heathen worship of fountains, was by no means extinguished by the introduction of Christianity. If somewhat altered in form, it still continued in force in England, as in other countries, and a Saxon king, Edgar, in 963, issued a law against the superstitious use of wells. A relic of the old belief is to be found in some parts of England, where the practice of annually decking or dressing the wells of the parish is still retained, and it appears to be a very pretty ceremony. In many cases it is managed by the clergy, when the ceremony assumes a religious aspect, those who take part in it seldom being aware, that it is merely a Christian modification of the ancient worship of the powers of nature. The practice is kept up more in Derbyshire, than in any other county. There is an annual dressing or decorating with flowers of the wells of Buxton, accompanied with dancing: and a recent number of the *Illustrated Midland Times* gives a full description of the services held at Tissington, where the decorations of the wells appear to have been

unusually fine, and the visitation of them was conducted with some pomp. Many wells have their special holiday, generally in the month of May, when the young people assemble to drink the waters, and bring themselves good luck for the year.

Traces of the old beliefs are to be found in most parts of England. For instance, a well near Newcastle is called Ragwell—from the shreds of cloth hung up near it as offerings. At St. Oswald's, near Newton, the shirt of a sick person was thrown into the well, and, if it floated, the patient would recover. At St. Madern's well, in Cornwall (and there are a great many holy wells near Land's End), were to be had, not only cures of disease, but divinations, for a foreknowledge of coming events was to be got, by shaking the ground round it, and watching the rise of the bubbles.

Perhaps the most important curative holy wells in England were: one of St. Chad, a great patron of wells, at Stow, near Lichfield; the one at Wye, in Kent; one at the Abbey of Walsingham, an account of his visit to the holy well of which place has been given by Erasmus. The well of St. Magnus retained its power up to the eighteenth century among the visitors of Knaresborough; and Glastonbury was always in great repute. All these seem to have been great places of pilgrimage in times gone by. In fact, intractable cases of disease were taken from one saint's well to another, just as they are now dragged from bath to

bath. Glastonbury is perhaps the last well in England, that has been sought for its miraculous powers. "In the year 1751, there were great numbers of people resorted thither to drink and to bathe in the water, in consequence of a dream of a certain person afflicted with an asthma, who was cured by taking it. Some believe the virtue of the water was owing to its passing over the graves of holy men: but, be this as it will, the infatuation is now over (1769), and it is generally thought to be no better than any common water."

The wells of Malvern and of Ilkeley furnish a good example of pure waters attaining much popularity, and also of some of the effects of simple water.*

The Holy Well and St. Ann's Well at Malvern enjoyed popularity for a long series of years. The waters were considered a sovereign remedy in a great variety of diseases. Many cures were attributed to drinking the waters, especially of the St. Ann's Well. They were sometimes drunk in large quantity, when they were found often exciting; on their first use they sometimes produced nausea, others they purged slightly, and proved diuretic in all. In some in-

* London in early times had a fair supply of baths of cold water :—The old Roman Spring Bath, Strand Lane; St. Agnes le Clair, Tabernacle Square, Finsbury; Peerless Pool, Baldwin Court, City Road; Queen Elizabeth's Bath, Queen's Mews; floating river baths, given up because they produced scenes of dissipation; the Cold Bath, near Bagnigge Wells—still in use.

stances they were found to produce drowsiness, swimming in the head, and headache. As to the external employment of the waters, "those who bathe for cutaneous affections usually went into the water with their linen on, and dressed upon it wet. This method, odd as it is," says Dr. Wall, "has never yet, that I have heard of, been attended with ill consequence, though I have seen it used by several very tender persons." Exactly the same was said a century earlier of St. Magnus's Well at Harrogate, also a pure water. "Nay," said Dr. French, "many tender women, who dare scarce to wash their hands in cold water, will adventure to go into it, although it be colder than ordinary water, with their linen about them, and when they be come forth go to the next houses and lye in their wet linen all night, and towards morning begin to sweat, and by that means are cured of many old aches, and swellings, and hard tumours and agues." At Malvern, too, wet compresses and the water dressings which afterwards became popular were used at an early period. It is curious in all this to see the germs, of what has rendered Malvern so famous in modern times.

Malvern possesses great natural beauty, has excellent houses and excellent hotels, and its climate is pure and invigorating. Malvern is, however, exposed to the east wind, and has little shade in summer, when the sun is hot. The mortality is said to be only 18 in 1000.

I think it useless to load my pages with analyses

of waters purer than ordinary drinking water—all except the chalybeate, of which I have no analysis. Altogether, Malvern is one of the pleasantest inland summer residences in England. In winter it is too cold.

Ilkeley has, like Malvern, great natural advantages, a fine bracing climate, a cheerful river (the Wharfe), and the high open land of Rumbold's Moor. The mortality is said to be 20 in 1000. Its abundant well has been utilised for hydropathic purposes. This water obtained considerable repute at an early period. Dr. Shaw made some sensible remarks on it. "I am convinced that before it can produce a great effect, many aids are wanted—I mean bodily exercise, a plain table, pure air, early hours, and a mind as much at ease as possible."

But enough of our springs of pure cold water. They were never much used for drinking cures; it was mainly in bathing that their virtues were developed. There can be no revival of their use now; nor, indeed, is it required, when all the effects of cold water can be obtained so much better in our hydropathic establishments. Never having resided in one, I cannot talk from personal experience of such places. As far as I can learn, strict hydropathic treatment, in the old sense of the word, has been abandoned, and drinking cold water is but little used in the cures. Hydropathic establishments are hotels with *tables d'hote*—a superior class of *pensions*—at which you can live at a moderate rate, subjecting yourself to treatment or not, as you please. You

generally move to an airy house in a healthy neighbourhood, meet a variety of people, and are obliged to keep regular hours, and have a regulated diet. That this should be useful in many cases is only natural. That hydropathic treatment, when not overdone, is often beneficial, is beyond doubt. There are still many patients who really go to hydropathic establishments for treatment, and in many of whom the element of faith is largely developed; although they do not believe in the virtues of holy wells, they believe in something more than rational hydropathic treatment. I have known ladies attribute an amount of medical sagacity to female superintendents of water-cures, far greater than they ever attributed to members of the faculty. I have also known them say, that a part of the cure, they believed, was owing to the prayers of the heads of the establishment, who were really pious people. It is also somewhat remarkable, that clergymen have so frequently written pamphlets in praise of particular institutions.

Generally speaking, almost every variety of bath may be obtained in hydropathic establishments. Turkish baths, in particular, to which the English were particularly addicted some centuries ago, have come very extensively into use in them. A few have baths of compressed air, a remedy the exact value of which is not quite ascertained. The situations of hydropathic establishments have generally been selected most judiciously, and they are to be found in very attractive

parts of the country. There are many at Malvern, several at Matlock, four at Ilkeley, one at Richmond, and many elsewhere. Many of these establishments are the property of companies. I believe that there are few of them now, that are not under the charge of regular medical men, who practise hydropathy rationally. I fear that there are still some hydropathic practitioners, who must be considered irrational, who undertake to cure every case, who inveigh against regular medicine, and proclaim hydropathy a panacea.

CHAPTER VI.

THERMAL AND EARTHY WATERS.

THE thermal and earthy waters of England may be conveniently treated of in one chapter. The history of mineral waters in Great Britain centres in Bath. Its waters were used by the Romans, and of them it can be said with perfect justice, that at the present day no bath of their particular kind in any part of the world is superior to them. Drayton has well said—

> "So Nature hath purveyed, that during all her reign,
> The baths their native power for ever should retain."

The history of Bath has been written over and over again, by learned antiquarians and by accomplished physicians. I shall therefore be very brief in my notice of it, and spare my readers the legend of Bladud. We know that a leper hospital was attached to the abbey as long ago as 1131. Nesham, a monkish writer of the thirteenth century, records the praise of Bath waters in Latin verse. Gilbertus Anglicanus, a writer on medicine about the year 1320, recommended the waters of Bath. In 1450 Bishop Beckyngton

issued his order against the promiscuous bathing of men and women without coverings. Leland, in 1545, gives an excellent account of the baths before the disruption of the monasteries. Turner, in 1557, and Jones, in 1572, published treatises on the water. From Bayley's account of springs in Warwickshire, in 1580, we learn that Bath was still in repute. Drayton, in 1613, employed his muse on a notice of the Bath fountains, in his "Polyolbion." And about the same time the Queen of James I. paid a visit to the healing source, when she was startled by seeing a sudden flame on the surface of the water: it was she, who gave her name to the Queen's Bath. After this Venner and Jorden wrote, and the literature respecting the place, medical and general, grew in time to be enormous, but I cannot enter into it in much detail. In 1628 Venner complained bitterly of the touting from inns, with which all strangers were assailed on their arrival. Jorden, in 1631, pointed out that many improvements were required at his time, when proper arrangements for the supply of the waters were sadly wanting. Evelyn, in 1652, who had travelled abroad and visited other baths, said that the King's Bath was esteemed the finest in Europe, but that the streets of the town were narrow, rough, and unpleasant. Grammont, in 1663, records the amusements of the Court when on a visit to Bath. Pepys, in 1668, gives a better account of the streets, was greatly pleased with the place and its

amusements, and considered the Cross Bath the only one fit for gentry. It is always interesting to hear what a foreigner says of us. Dr. Clermont, of Lorraine, wrote in 1770:—"Hither men and women of all ranks, and of all kinds, flock together from all parts of Great Britain, for the sake of health, and also of pleasure. The city is, according to English ideas, by no means inelegant, and the baths are furnished with convenient porticoes for those who wish to meet their friends, and there is also private accommodation for those who desire it." In 1675 Pughe draws a comparison between Aix-la-Chapelle and Bath, by no means unfavourable to the latter. For fifteen years after this, Bath continued at the zenith of its prosperity, and I am satisfied, that the descriptions of the discomforts of Bath at this period, have been greatly overdrawn by historians. There was, however, a short period of comparative decay at the end of the seventeenth century, which seems indicated by the circumstance recorded, that the dancers of an evening did not exceed ten couple. It is to this period, that the architects of new Bath, justly proud of their own successful labours, seem to me, on the whole, to have alluded in terms of unnecessary disparagement. The new era of Bath commenced in the beginning of the eighteenth century, Queen Anne visited it in 1703, and for the greater portion of the century it remained a seat of fashion and amusement, such as no other place in England, scarcely even the

metropolis, has been. Before the middle of the century, magnificent streets and crescents began to rise, and by the end of it, Bath had become what it is—one of the finest cities in the kingdom. With accounts of the reign of Nash, and of his successes as master of the ceremonies, most of us are familiar; and Goldsmith's life of him gives us a good insight into the life of the day, and the prominence and importance assigned to the arrangements about dancing cannot fail to strike us. During the season, there were two dress balls and two fancy balls every week. The theatre, too, was a great object of attraction, and served as a school for some of our first actors. But all these things are told in the pages of Goldsmith, of the "Bath Guide," and of Smollett, better than I can tell them. The concourse of visitors is thus described by the last:—

"One is amused to find so small a place, so crowded with entertainment and vanity. Here we have Ministers of State, judges, generals, bishops, projectors, philosophers, with poets, players, chemists, fiddlers, and buffoons. Clerks and factors from the East Indies, loaded with spoils of plundered provinces; agents, commissioners, and contractors—all of them hurry to the bath, even the wives and daughters of low tradesmen. If one makes any stay in the place, he is sure of meeting some particular friend, whom he did not expect to see."

Some notion of the feminine amusements may be

gathered from the following extract from the same source :—

"Hard by the pump-room is a coffee-room for the ladies: the booksellers' shops are charming places of resort. There we read novels, plays, pamphlets, and newspapers, for so small a subscription as a crown a quarter, and there all the reports of the day are discussed. From the bookseller's shop we make a tour of the milliners and toymen, and generally stop and have something at the pastrycook's. There is a place called Spring Garden, opposite the Grove, to which company can pass over in a boat; a sweet retreat, laid out in walks and paths and parterres of flowers; and there is a long room for breakfasts and dancing. I have been twice to the play. After all, the great scenes of entertainment at Bath are the two public rooms, where the company meet alternately every evening; they are spacious and lofty, and are generally crowded with well-dressed people, who drink tea in separate parties, play at cards, walk or sit and chat together, just as they are disposed."

Sometimes ladies attended lectures on the arts and sciences, which were frequently taught there "in a pretty, superficial manner, so as not to tease the understanding, while they afforded the imagination some amusement."

Or, putting it in the words of Anstey :—

"Oh, the charming parties made,
Some to walk the South Parade,

Some to Lincomb's shady groves,
Or to Simpson's proud alcoves ;
Some for chapel trip away,
Then take places for the play.
Or we walk about in pattin's,
Buying gauzes, cheapening sattins," &c.

Goldsmith thus describes some of the bathing arrangements :—In the morning the lady is brought in a close chair, dressed in her bathing clothes, to the bath, and when she has got into the water, which she does to the sound of music, the woman who attends her, presents her with a floating dish, like a basin, into which the lady puts a handkerchief, a snuff-box, and a nosegay. She then traverses the bath—if a novice, with a guide ; if otherwise, by herself; and having amused herself as long as she thinks proper, she calls for her chair and returns to her lodging.

Ladies were on such occasions objects of an unpleasant scrutiny from the spectators in the galleries, and a young lady's first appearance at the bath and her deportment there, were matters of no mean importance, and were canvassed in polite circles. Ladies robed in flannel continued to bathe in the same bath with gentlemen, up to about a century ago.

Public gambling reached such a height, that it had to be put down by law, and its suppression caused the fall of the monarchy of Beau Nash.

In the present century, and since the Continent has been so much resorted to, Bath is no longer a place of

fashion: it has become rather a comfortable and very desirable place of residence. Amusement in moderation is to be had, but not the round of excitement of its old days, or of modern Scarborough. Its healing waters have been very much neglected; but there are very positive signs, of their beginning to regain their legitimate position in the eyes of the public. Some twenty years ago only 2500 baths were given in the year; their number has now risen to 52,000, as Dr. Falconer tells me.

There are four hot springs in Bath—one that supplies the hot bath, of the temperature of 120°; one that supplies the King's and Queen's Baths, which are practically the same, of 117°; the one supplying the Kingston Bath, 108°; and the Cross Bath, 104°.

The abundance of these fountains is such, that there is an ample supply of water to all the baths, and the temperatures vary so much, that the physician has a very considerable choice in selection of the one most appropriate to a particular case. It seems quite unnecessary to mention the particular baths in detail. They are described in all the Bath Guides. They are most comfortable, and fitted with every appliance. The new baths, under the same roof with the new hotel, and particularly complete, deserve a special word of notice. The baths vary in price, according to class; there are gratuitous ones for the poor. There once was a bath for horses.

The taste of the Bath water is not very pleasant, nor is it very disagreeable, and one soon gets accustomed to

it. It is clear and colourless when it first issues, but soon gets a whey-like or greenish colour. Its essential ingredients are 11.1 grains of lime, and, if we accept late analyses, .13 of carbonate of oxide of iron. Its salts are essentially sulphates, for out of 18 grs. of solid contents, 13 grs. are sulphates. It contains about 3.8 cubic inches of free carbonic acid. There is a quantity of free nitrogen gas, but it is probable that as much nitrogen is often present in ordinary rain-water. The force of theory is illustrated by the fact, that it was stoutly maintained up to the middle of the eighteenth century, that the waters of Bath were sulphurous, until this opinion was demolished by an excitable but useful author, Dr. Lucas, who led a troubled life.

Bath water resembles more closely the Lorenz Spring of Leuk than any other. They each contain ten grains of sulphate of lime, and Bath has only four grains more of solid ingredients. The highest temperature of the Leuk baths only exceeds the highest of Bath by three degrees. Taking temperature and all things into consideration, Leuk, Teplitz, Gastein, Lucca, are the foreign baths, that most closely resemble the Bath waters.

I shall say a few words of the effects of the water—1st, when used in baths; 2nd, when used internally.

On the whole, it is to their effect as baths, that these, like most other thermal waters, owe their reputation.

"Itinerant exotic" though he may have been termed by a more fortunate brother of the craft, I think Dr.

Clermont's opinion in 1670 worthy of quotation :—" It is the established belief, that these baths cure those weakened by paralysis, or who have loss of sensation in their limbs, or who have them distorted by rheumatism, those who have convulsions—in short, all who suffer from cold affections. Also I do not doubt that they benefit those who suffer from pains of colic, or of the kidneys." Dr. Carr, in 1691, in a letter recommending a friend to send his wife to Bath, in the hope of her becoming a mother, says :—" The place has got an illustrious name in restoring the paralytic, curing sciatica, softening indurated viscera, and in overcoming uterine obstructions, while it has admirable doctors." Opinions similar to this, have been repeated over and over again during the last two centuries, and I find that in his returns of the Bath Mineral Water Hospital Dr. Falconer's most satisfactory results were in paralysis, and especially in local paralysis, and in paralysis from lead poisoning ; the results were also satisfactory in sciatica, and in some skin affections, as at Leuk, in chronic eczema, and in lepra.*

It has always been a disputed question, how soon after a paralytic seizure the bathing treatment should commence, and the general opinion at present seems to be, that it ought to be adopted at the earliest safe period,

* In such cases possibly the effects of prolonged immersion, as at Leuk, might be worth trying.

instead of being put off too long. But though very frequently much benefit may be expected from the treatment, it is often difficult to say which cases will profit most by it. Much need not be looked for in hemiplegia or paraplegia, or in loss of power of the lower extremities referable to disease of the spine.

Dr. Falconer's results in rheumatism are also satisfactory, if not so striking as in lead paralysis. The Bath waters are invaluable remedies in the latter disease. Bath has always had a reputation for cures of chronic rheumatism; in lumbago and in sciatica it often gives great relief. The effects of accidents and injuries can be treated here as efficiently as in any corner of Europe.

The younger Dr. Oliver a century ago explained, in what cases of gout these waters are serviceable, when the tendons and their sheaths are beginning to get thickened and contracted, and before the formation of chalk-stones. Here, as at Teplitz, patients must be mplored to come in an early state of the disease. In flying nervous gout, Dr. Oliver recommended the lower temperature of the Cross Bath.

In early times the waters were little drunk. Dr. Venner was, perhaps, the first to recommend their internal use. Dr. Jorden, in 1631, suggests that the waters should be drunk, if sufficient precautions were taken for their purity. But their free employment internally appears to date from 1683, when Sir A. Frazer, the Court physician, contrived a convenient way of

supplying the drinking pump with clear water. The waters are used internally with great advantage, although we can scarcely explain theoretically, how this should be. Their active agencies consist mainly in their temperature, and in their containing eighteen grains of salts, chiefly lime, with a proportion of iron approaching in quantity to that of a feeble chalybeate.

Practically, they quench thirst, and have a very distinct action on the kidneys, when given even in small quantities. They are useful in ordinary as well as in gouty dyspepsia. They are not without their use in chronic colicky pains, and in irritation of the bladder. Along with their use in bathing, they are of undoubted service in irregularities of the female constitution; hence their old repute in sterility. In general conditions of nervous exhaustion, dependent on over anxiety about business, which have been described by the late Dr. Tonstall, of Bath, as brain-fag, and by Dr. Myrtle, of Harrogate, as jaded brain, they are of much use; but there is nothing in this respect special to Bath. According to Continental views, small doses of these waters might be serviceable in chronic laryngitis, although Oliver said that, owing to their exciting effects, they were best drunk cold in consumption. It may be remarked that in former times, as the waters are not aperient, it was usual to add to them some laxative medicine, or preface a cure, by the use of some purgative mineral waters.

The chronic affections which are the chief subject of

the Bath cures are not of a nature to be very speedily removed, and I observe that the average duration of treatment in the Bath Hospital was from sixty to seventy-five days.

The ordinary way of bathing, is to take a bath every second day. It is commonly of twenty minutes' duration, and the patient is desired to move himself about, and not to immerse his head. If douching is employed, two days' bathing and two days' douching during the week, are considered sufficient. The average temperature of the water employed in the Bath Hospital is 105°. In former days bucketting used to be considered a peculiarity of the Bath practice. Some of the old charges are curious—pumping in the King's and Queen's Bath, 2d. each hundred strokes; at the dry pump, which meant a local douche, 4d. each hundred strokes.

In drinking the waters, the full quantity is now considered to be a pint to a pint and a half, in divided doses, during the course of the day.

The Bath waters may be used at any season of the year, and Bath is particularly adapted for winter cures; and I would venture to say, that skin affections are best treated at that season. May and June, and September and October, are perhaps the best warm months, as July and August are hot; but it may be remembered that Karlsbad and other Continental spas are much hotter at that season.

Bath has a very favourable climate. The hills shelter

it in a great measure from northerly and easterly winds, although I have felt a cutting east wind in March. The temperature is from 3° to 5° warmer in winter than it is in London; but the place gets very hot in summer. The soil is generally porous and dry, and all the new parts of the town are situated high, so that the drainage ought to be good. The lower part of the town is not so favourably situated, and its climate is thought relaxing. Notwithstanding so many concurring favourable circumstances, Bath does not appear to be particularly healthy, and, indeed, has rather deteriorated of late years, as regards mortality. But this, surely, can only apply to the lower part of the town. Bath ought to be a healthy place.

From the year 1737 to 1780, Lincomb, in the immediate vicinity of Bath, used to be mentioned as a chalybeate, acidulous water, having a slightly sulphurous smell, and a small quantity of purgative salts. It was said to make those giddy who were not accustomed to its use, and was much employed as a chalybeate. It is now forgotten.

Bath had from an early period a near neighbour in the Hotwells, or St. Vincent's Well, at Bristol, which at times almost rivalled it in popularity. These waters issue so close to the bed of the Severn, that they are influenced by the tide. They lie almost at the base of St. Vincent's rocks, now spanned by the magnificent suspension bridge.

They were mentioned in early accounts of Bristol, and are known to have been in use in 1600. Dr.

Venner, of Bath, wrote a "censure" of them in 1628, and Clermont, in 1670, described them as being employed in his day. But it was in the last half of the eighteenth century that Bristol attained its great popularity, when Drs. Randolph, Keir, Carrick, and others favoured the world with their various treatises. The well yields about forty gallons a minute; the water is of the temperature of 74°, and contains only six grains of salts to the pint, about one and a half of carbonate of lime, of sulphate of lime, and sulphate of soda each, and one grain of common salt. Its contents, therefore, are unimportant. A similar water was reached by boring from one of the hotels on the bank above. The water has but little taste, although Clermont says it made him sick. Perhaps these waters are best characterised by what has been said of them, namely, that there are no mineral waters, in the use of which a patient runs less risk, in being his own physician.

In Clermont's time these waters were considered very useful, when drunk in large quantities, in affections of the bladder and in gravel. There is probably a modicum of truth in this, as earthy waters even now are sometimes in credit for such affections. In later times these waters were considered of use in dyspepsia and chronic diarrhœa, in diabetes, and in irregularities of the female system.

But in the end of the century the waters were

chiefly used by consumptive patients, who resorted to the neighbouring Clifton from the middle of April to October, and always supported the use of the waters by a strict milk diet. It was in the first stages of consumption, that these waters were found exceedingly good, and the draughts of lukewarm water may have been of use then, as they are now considered to be abroad, in chronic laryngitis.

Accounts of the old novelists represent much the same style of life at Bristol as at Bath. At Bristol they had their master of the ceremonies, and all his enactments respecting deportment at assemblies. The Bath theatrical company performed one half of the week at Bristol. "Among the most rational amusements of the place was to be reckoned a circulating library, kept by the celebrated Mrs. Yearsley, which was well filled with books of light reading, and few others could be recommended to invalids." Who was Mrs. Yearsley? When I last visited Hotwells, I found that the pump-room had been pulled down, and there appears to be no intention of replacing it. The old colonnade and the shaded walk of trees will find no further use.

As to climate, a residence at the Hotwells was sheltered enough; but patients usually lived in Clifton, the climate of which has always been a favourable one, and the fact of the Registrar-General's returns some years ago making the mortality of its residents

high, is accounted for by his returns including some of the low-lying parts of Bristol.

It is worthy of remembrance, that probably no water was used so extensively for medical purposes all over England, as the Bristol water, and that it was especially sent in large quantities to the West Indies. It is also an interesting fact, that at the time of the Lisbon earthquake of 1755 these waters turned red.

The petrifying or dropping well at Knaresborough was mentioned by Leland and Camden, and was in repute, long before the neighbouring chalybeates and sulphur springs came into use.

There is no recent analysis of the well, I believe, but it is said to contain about twenty grains of lime, chiefly sulphates; in short, it is a strong Bath water.

In former times it was used in fluxes of the belly, diabetes, hectic fevers, and wastings. It was also good for cures of stone (and even in one instance made a patient cough up several stones), in these respects resembling the Bristol water. It can now be merely considered an earthy astringent water.

The well is picturesquely situated on the banks of the Nid, near the scene of Mother Shipton's oracles, and makes a pleasant excursion from Harrogate.

There are various such calcareous wells in England. Newtondale, some nine miles from Whitby, and Ball, near Henfield, in Lincolnshire, used to be mentioned in books, as well as the petrifying springs at Matlock.

Matlock was known as early as 1698, but it did not come into much favour till the middle of last century. There are several springs of the temperature of 68°, they consist of very pure water; they have, however, a slight impregnation of lime, and some of them have enough of lime to be petrifying springs. There were several baths here, which remain in use; indeed, the water was used more for bathing than for drinking, as the name Matlock Bath indicates.

Theoretically, not very much can be expected from these waters, as their physiological action when drunk is very slight. Nevertheless, they were in former times recommended for a good many affections, and it is interesting to observe, that, notwithstanding their imperfect acquaintance with their chemical constitution, our predecessors used all their earthy springs, much in the same way.

Matlock waters were found of use in hectic fevers and atrophies, when associated with the use of â milk diet. They were used internally in dyspepsia and bladder affections. The baths were found efficacious in muscular rheumatism after acute attacks, and in some forms of erratic gout.

Matlock appears to have been a very pleasant and sociable place. In former days—that is, in the beginning of this century—"the bath was rendered more pleasant by the politeness of the company, and from the easiness of the charges; for here they pay nothing for lodging or bathing, and the total expense is three shillings a-day

for meals and tea in the afternoon. The company that comes to this place, are for the time being in some sense one family, for they breakfast, dine, and sup together."

Matlock lies in a narrow valley, amongst beautifully wooded limestone cliffs. The sun disappears early, and the fogs are apt to lie, but anyone in search of a few days' quiet and repose, cannot do better than seek Matlock, and there are the most beautiful excursions to be made in the neighbourhood. It is now chiefly visited for the sake of the large hydropathic establishments in its neighbourhood.

There are similar mineral springs at Middleton baths, two miles S.W. of Matlock. Stony Middleton, perhaps nearer Buxton than Matlock, is supplied with a plentiful spring. So also, I believe, is Bakewell; while the intermitting well of Tidewell is one of the wonders of the district.

Buxton is next in antiquity to Bath, among the English waters. It seems to have been known to the Romans. Its holy well was a place of pilgrimage to the sick before the suppression of the monasteries. Dr. Jones's account of the place in 1572 followed soon on Dr. Turner's account of Bath. His description of the old hall is the first account we have, of a building in England specially devoted to the reception of bath visitors. The history of Buxton about this time is all the better known, owing to the repeated visits to it of the unfortunate Mary of Scotland. Besides the other ailments for which she

visited the bath, we read how she had a fall from her horse and sprained her back, and how the baths did not at first do her back as much good as she expected. We read also how jealously she was watched, and how she got into trouble, for receiving the letter of a beggar-woman, and directing her women to give her a smock through an opening in the wall of the house. It is well known, how Elizabeth arranged to remain for three weeks in the neighbourhood of the bath, in order that Leicester might have a supply of the waters brought him daily; also how Burleigh, after exciting his mistress's suspicion by his first visit to the bath, afterwards got permission to go and drink the waters, and how he drank daily four and five pints, and mixed it with sugar, when he thought it resembled whey, and how others of the company drank six or eight pints daily.

For the next century the history of Buxton is rather obscure. Thomas Hobbes of Malmesbury, however, described his visit to it; and Macaulay's exaggerated account of its discomforts has been shown to rest on a misapprehension. Sir John Floyer, in 1700, writes of Buxton as a well-known bath, and it has remained ever since in favour. It has kept up its reputation deservedly, for it is the only water in England, that corresponds at all in character with the *aquæ ferinæ* or *wild bads* of the Continent, having a moderately warm water in a hilly country, at an elevation of 1000 feet above the sea. Buxton used to be described as an insignificant village,

lying in a pleasant bottom, and surrounded with hills of most rugged aspect. Towards the end of the last century the recreations were these. "For gentlemen there was plenty of grouse or moor game for those that love shooting, and of trout or grayling for those who were fond of fishing. The ladies were accommodated with a good assembly-room, in which the company dined and supped together, and after supper they usually had a ball." Visitors in these days will find many of the neighbouring hills clothed with wood, and the poor village turned into a handsome town, with its excellent hotels and entertainment for strangers. Guide-books describe the agreeable pleasure-grounds, the crescent, the baths, the Devonshire Hospital, and the magnificent new Palace Hotel. Nor is it necessary to describe in detail the arrangements of the natural baths or of the heated ones. It is sufficient to say that the arrangements of all kinds appear to be most excellent and convenient.

The Buxton water is a very pure one, of the temperature of 82°, largely charged, however, with nitrogen gas, of which it contains 63 cubic inches to the pint. It has, therefore, been very properly termed a tepid nitrogenous water. It issues at the rate of 300 gallons per minute, so it is sufficiently abundant. The water has a slightly sweet, pleasant taste. When drunk in small quantities, its effects are not very obvious; but it is considered to be primarily a stimulant, and secondarily an alterative. When drunk in large quantities, it has caused a certain

amount of giddiness and excitement; but this property it shares with all waters when drunk to excess.

The water when drunk, is found useful in weak digestion and in dyspepsia, and is a useful diluent in affections of the bladder, and also in a general way in supporting the bathing treatment. It has likewise been considered useful in former days in diabetes and bloody urine, in bilious colic, in atrophies, in dry asthma, and very frequently in sterility. The water has been drunk in various quantities at different times, and the quantity should be proportioned to the object for which it is drunk. Two or three pints in the course of the day is generally sufficient. A weak chalybeate is also to be had here, and a water called the eye-water, supposed to be of use in eye affections.

But the great fame of Buxton is as a bathing-place, and as curing gout in the first, and rheumatism in the second place. "With joy and gratitude," says Mr. Pennant, "I reflect on the efficacious qualities of the waters. I recollect with rapture the return of spirits, the flight of pain, and the reanimation of my long, long crippled limbs." The baths, as already said, are most efficacious in gout and rheumatism, next, perhaps, in hysterical affections of the joints, to a certain degree in sciatica, thickened joints, and paralysis; but as a general rule, a higher temperature than that of Buxton waters is required, to obtain the greatest amount of success in these last. In this respect the artificially-heated

baths supplement the natural waters; but it is found practically, that the operation of the natural waters is more powerful than that of the heated ones. The amount of benefit to be derived, depends very much on the amount of friction of the affected part in the bath.

It has been inferred by Dr. Robertson, who has written much that is valuable concerning the Buxton waters, that their good effects depend on the absorption of the remedial agent of the waters through the skin, and that this agent is nitrogen gas. But this is a purely theoretical assumption, and its correctness becomes daily less probable, when nitrogen is found in abundance in many other waters.

The first feeling on immersion in the Buxton waters is that of a slight shock. Ten minutes is the average duration of a bath.

Many gouty patients have told me that, though they did not appear during their use of them, to derive much benefit from the Buxton waters, yet they always afterwards thought themselves the better for them. Gouty cases cannot, of course, be expected to profit much, after they have reached the stage of the formation of chalk-stones.

The air of Buxton, and the pleasantness of life at it, make it a place where cases merely requiring relaxation, do particularly well.

The great charm of Buxton consists in its locality, in

being placed in Derbyshire, a county affording so many objects of interest for excursions.

The air is pure and bracing in summer, when the place is usually full to overflowing. It is cold and exposed in winter, and at that season not sought by invalids. Its mortality is a good deal below that of London.

Every year something is done to make Buxton more attractive, and I learn that a covered promenade is being constructed in the gardens, which will be a great convenience in wet weather.

CHAPTER VII.

SALINE WATERS.

ENGLAND abounds in waters containing Epsom and Glauber salts, which may be called purging salts. The neighbourhood of London is full of springs containing Epsom salts. Warwickshire and Gloucestershire waters contain the Glauber rather than the Epsom salts, and have, most of them, a large proportion of common salt. As long as active purgation was a characteristic of English practice, it was natural that such waters should be in much favour. They appear to have been used more in the last half of the seventeenth century, than at any other period before or since. All the springs in the neighbourhood of London were crowded at that period. All their waters were for sale in the London shops. They were often taken as a preparation for the Bath waters, or taken along with them, when action on the bowels was desired. And to such an extent were they employed, that in 1673 Mr. Chapman, writing in praise of Bath, deemed it necessary to raise a voice of caution. He says of a water sixteen miles from Bath, called Alford, that for one year there was such a rush to it;

that applicants could not be served; but that it never after was in much request, owing to the diseases and mortality that seized on abundance of people, in a very short time after they had drunk thereof! He also propounded the question, whether it was not owing to the drinking of such waters being so much in use, that a "not only painfully torturing but mortal malady, as the bills of mortality shew, that doleful disease, griping of the guts (one form of which was cholera), had caused more deaths in London about that period, than ever in former ages."

The following table gives some notion of the composition of the chief English waters of this class :—

	Cherry Rock.	Purton.	Victoria Spa.	Streatham.	Beulah.	Kilburn.	Cheltenham.	Leamington.	Scarborough.
Sulphate Magnesia .	16	14	4	56	61	38	17	—	28
,, Soda . .	15	9	60	—	9	14	14	35	—
Chloride Sodium .	7	4	9	—	17	—	52	30	4
,, Magnesia .	—	—	—	—	—	4	—	11	—

If we examine the amount of solid ingredients present, according to this table, we shall find that none of these waters are actively purgative, unless when taken in considerable quantity. The strongest is only half the strength of the popular purgative now much used, the German Friederichshall, which again is only half the strength of the Püllna. All the stronger and more certain English purgatives, are deficient in carbonic acid

to make them palatable; indeed, some of them are slightly impregnated with sulphuretted hydrogen, which makes them none the pleasanter to drink. Statements showing the presence of any large amount of alkali, as of thirty-one grains of carbonate of soda at Streatham, of seven grains of it in Filey water, or of nearly four grains of carbonate of potass in Purton Spa, must be received with much caution. The English purging waters were in old times usually either drunk warm, or mixed with milk, or made into possets. On the whole, our English waters cannot be very conveniently given as purgatives, as for purgative effects you must drench the system with water. They must be considered rather as being laxative alteratives.

In enumerating the purgative waters about London, I have very much to deal with the past, for I believe Streatham to be the only one of them now in use. To commence with those in London itself. There were, in or near the valley of the Fleet, St. Chad's well, resorted to by a few within the memory of the living; Bagnigge's wells, discovered in 1757; St. Pancras, in those days a pleasant walk from Bloomsbury; a little farther off was Kilburn, which was in use certainly up to 1790, and a recent visit to which induces me to think that its well has lost most of its salts. All those places had their tea-gardens, bowling-green, ball-room, and popular amusements. There was and still is a weak purgative, little known, at Kensington. Crossing the river to

Lambeth, we had the Dog and Duck, a most popular place of resort for the lower orders, especially on Sundays, up to a comparatively recent period, but no longer existing.

A second circle was formed by another set of springs. The well of Streatham, discovered in 1659, and long resorted to, had its water supplied for many a day to the London hospitals. It survives in great plenty, and is still served out from a humble pump-room, in a small garden. The water is clear, and wonderfully little unpleasant, considering the strong flavour of Epsom salts.

There was a celebrated purging water, that appears to have been variously called Dulwich, Lewisham, or Sydenham wells.* It was noticed as early as 1648. It rose on Westwood Common, on the Kentish side of the hill. It enjoyed considerable repute for more than a century. The newer and less important Dulwich well was discovered in 1739, near the inn called the "Green Man,"

* In 1681 Dr. Peter, in his account of this well, does not mention the name of Sydenham. Bowen's Atlas, about 1747, says that the medical spring of Dulwich was called Sydenham wells, after the famous physician of that name, on account of his approbation of those waters, and further says, that they and Streatham wells were much frequented during the proper season. The Sydenham well seems to have existed in 1820. St. Philip's Church is believed to be built on its site. It would appear, that the "Green Man" and the well at Dulledge, as it was sometimes written, are no longer to be found.

nearly a mile south-east of the College. It was popular for a time, but forgotten by the beginning of the next century.

An attempt was made about 1830 to create a spa at Beulah, and grounds were laid out nicely around it, and various attractions offered. But it met with no success, and the well is at this moment disused, and is within the grounds of the hotel, now turned into a hydropathic establishment. There is a similar well lower down the hill, and by the roadside, which is occasionally used by the people in the neighbourhood. To the west of London, there was a well at Richmond, never of any importance; and the exceedingly well-known wells of Acton, very fashionable from about 1730 to 1790, when Acton races and wells were much frequented. On the north there were Barnet and Northaw, with not very powerful waters, but wonderfully popular in the reign of Charles the Second. As a sum of £1 annually was left for the Barnet well, it still survives, and is marked by an iron pump and leaky tin mug, in the centre of a field. The Northaw one was in a bottom, half a mile east of the village. A little farther east was Chigwell, known almost as early, but which never attained any great popularity.

But we may say, that there was still an outer circle of these wells, at the head of which comes Epsom, or Ebbesham, owing to its name having been given to sulphate of magnesia—the one best known of all. It seems to have been first discovered in 1611; was much

frequented about 1660; was popular through the first half of the eighteenth century, when it was visited by Prince George of Denmark, and when as many as sixty carriages might be seen in the ring, and when its "New Inn" was considered to be the first establishment of the kind in England. Notwithstanding the bracing air of its downs (and the neighbouring Banstead Downs were reckoned to have the best air near London), it was reported in 1769 not to be so much frequented as formerly, and its chief well is at present enclosed in a private garden, and quite forgotten. The water is by no means pleasant, and it probably never was one of the strongest of the kind. There were west of Epsom, the scouring well in Ashtead Oaks, with some brickwork over it still; two miles further west, the better-known Jessop's Well, at Stoke, in the centre of the forest. It still has a pump-room over it, but is quite neglected. There is also a purging well at Ewell; further off the weak waters of Windsor Forest, and stronger ones on the road from Windsor to Ascot. There was also a host of such wells in Essex, near Rumford, at Brentwood, at Colchester. The water at Upminster was found "very pleasant, and wholesome after hard drinking"; there were two well-known wells at Tilbury, though it is doubtful whether they were aperient. And as late as 1842, an attempt was made to establish a spa at Hockley, some seven miles from Southend; but the attempt has been abandoned.

London was, indeed, in this way amply supplied with aperient waters, but they all required to be drunk in large quantities. This may have been one reason for their being given up, for they were forgotten, while the system of active purgation was still in full force in England. Those nearer town were naturally disused, as the neighbourhood became built over, and as they ceased to be in the country, and those not yet built over, did not afford the change of air and scene offered by a trip to more distant places, such as Cheltenham and Leamington, which sprang up and eclipsed their popularity.

The original well at Cheltenham was first noticed in 1715. It soon began to creep into use, but its reputation was first established by Dr. Short, in 1740, who declared it to be superior to anything of the kind in England. It continued to be well-known for many years, but in 1781 was reported to be not so much frequented as formerly. By 1785 it had begun to revive, for Dr. Fothergill, in his very sensible account of the place, says:—"The company have increased of late years, and the spa is now become a place of very genteel resort during the summer months, insomuch that a master of the ceremonies has lately been appointed, to preside over its amusements." Fortunately, the double row of elms was planted at an early period, and before the end of the century afforded a magnificent promenade. About this time, or in 1788,

a visit paid by George III. confirmed the reputation of the place, and Cheltenham became, for the first twenty-five years of the next century, perhaps the most fashionable watering-place in England. It became especially a resort of officers on their return from the East, as Bath became less in favour. Dr. Jameson wrote an elaborate book on the waters in 1803. Dr. Saunders spoke highly of them in 1805. A great many fresh springs were discovered, new establishments sprang up, and there were no fewer than four of them for drinking the waters: the old wells (now little used); the Montpellier, with its lofty dome and adjoining gardens; the Cambray chalybeate spring; the Pitville garden, with its extensive pleasure-grounds. But Cheltenham is now little resorted to for its waters, and, therefore, a detailed account of its establishments is not required here, even if it were not to be found in every local history.

The chemical constitution of the various wells at Cheltenham, appears to be less constant, than is usually the case with mineral waters. At all events, the analyses made of them vary very much, and a new authoritative account of them is much required. Meantime, these springs afford various combinations of sulphate of soda and sulphate of magnesia, with common salt, and with some iron. You may have nearly equal proportions of the purging salts and the common salt, or you may have the common salt in

five or six times the quantity of the purging salt, so much so, that some may be considered to be almost brine springs. The Cambray well, theoretically, ought to be an excellent chalybeate, and is a very pleasant, sparkling water if drunk fresh. Minute traces of iodine, found in the saline spring, are wholly unimportant. Most of the wells have a slight smell of sulphuretted hydrogen. The two wells chiefly in use, are the following, with the main contents of a pint of their water :—

No. 4 Montpellier Spa.	Cambray Chalybeate.
Common salt, 52.4 grains.	Carbonate of iron, .88 grains.
Glauber salt, 17.2 „	Other salts 6 „
Epsom salt 14.2 „	

Although, as already said, the Cheltenham waters are not much resorted to by strangers, yet their value on the spot must be appreciated, for about 13,000 doses of the water are sold at a penny a-piece in the course of the year, and salts are manufactured from the water to a considerable extent.

Their chemical constitution indicates pretty distinctly the chief use of these waters, and I believe not much can be added to the old accounts of authors, who represented them as singularly efficacious in all bilious complaints, obstructions of the liver and spleen, dyspepsia, loss of appetite, and in habitual costiveness. These are the affections, and some derangements of the kidneys, in which they are now recommended. They are not to be used, when there is irritation of the mucous membrane of the intestines, especially in dysentery.

Their action is considered to be partly purgative, partly alterative. As there is considerable variety in the springs, so there is room for considerable selection among the saline springs, according to the requirements of the particular case. For the benefit of old Indians, it used to be said, that the waters restored a lax habit, whether induced by long residence in a hot climate, free living, or the use of mercury. It is obvious that the chalybeate may be useful, in the great variety of cases in which iron is indicated.

The Cheltenham waters were formerly drunk in much larger doses, than at present. Spring and summer are the seasons for drinking the waters.

Cheltenham has many attractions for residents, besides its waters. It is a handsome city, with open streets, squares, and crescents; and the rows of trees planted throughout, the streets, remind one much of a foreign town. It has great educational advantages, offers a sufficiency of balls and amusements, and is the centre of many hunting appointments.

Cheltenham enjoys a mild and equable climate, being nearly on a par with London, as regards mean temperature, but having a smaller range both monthly and annually. The summer is more than two degrees colder, while the winter is nearly three degrees warmer.

The prevailing winds are from the south-west. They are most frequent from October to February, bearing with them the warm air from the sea, saturated with

moisture, which is precipitated in the form of rain. The annual rainfall seems to be about 33 inches. The south-easterly winds, which frequently bring rain and fog, occur from February to October.

It is, no doubt, in connection with its clay subsoil, that a good deal of moisture is given out by evaporation, and this is probably, why some people talk of the climate being relaxing; indeed, at the present day one hears many complaints against Cheltenham of this kind.

In early times the purity and salubrity of its air was lauded, and there are so many walks and drives in the neighbourhood, that the advantages of a highly bracing and invigorating air can be easily obtained.

The town of Cheltenham has always borne a high reputation for healthiness. Its death-rate is very favourable—about 19 per 1000. There seems to be some foundation for the belief in the longevity of the district. It is said, that in the reign of James I. eight old men, all belonging to one manor in the county, whose ages added together made as many centuries, danced a morris-dance, or Maid Marion. The same is, however, told of twelve old men in Herefordshire.

Though its rise was some years later than that of Cheltenham, Leamington can boast that its wells were noticed at a much earlier period. We have seen that they were referred to by Camden in 1586. In the seventeenth century they were mentioned again by Shaw, Dugdale, and Fuller. They were enumerated in their

systematic works, in the middle of the eighteenth century, by Short and Rutty, and others. Still they were so little used, that, although they were known to some local practitioners, there may be said almost to have been a re-discovery of them by a shoemaker and innkeeper, in 1784. After this date the wells began to be better known; baths were erected. Dr. Kerr, of Northampton, and Dr. Lamb, of Warwick, wrote of them. In 1804, a new well was found. A company to improve the city was got up in 1811, and from this date to 1831, the growth of the place was perfectly marvellous. Scott's novel of "Kenilworth" helped the fortunes of the spa materially, and after its date, the great popularity of Dr. Jephson contributed vastly to the popularity of the place. As Leamington is of still later growth than Cheltenham, everything about it is necessarily modern.

The springs of Leamington were once, I believe, eleven in number. Of these only four are in use for drinking purposes, and the chalybeate spring has been closed of late years. They differ chiefly from the Cheltenham waters in the absence of sulphate of magnesia, and in the presence of a considerable quantity of chloride of calcium. According to Dr. Brown, the following is the composition of two of them:—

	Saline Spring.	Sulphuretted Saline.	Aylesford Spring, Older Analysis.
Sulphate of soda...	... 35	... 28	... 33
Chloride sodium ...	... 30	... 25	... 12
Chloride calcium...	... 23	... 15	... 28
Chloride magnesia	... 11	... 9	... 5

In both springs there was about three inches of carbonic acid.

Old accounts said, that the water "was certainly a strong purge and vomit, and is drunk by labouring people from two quarts to three. It is noted for curing sore legs, breakings-out, and curing dogs of itch." According to more recent statements, the waters belong to the class of mild evacuants, their chief action being on the alimentary canal; they act also on the kidneys, and have in some instances been found inconveniently diuretic. It is as alteratives and deobstruents, that they are so valuable, modifying the secretions of the liver, kidneys, skin, as also acting on the mucous membrane of the alimentary canal.

The medical officers of the Leamington Hospital have declared the waters to be useful in the following maladies:—Most forms of dyspepsia and constipation; in derangements of the liver, especially in congestions of that organ, as also of the spleen and other abdominal viscera; in jaundice; in some forms of diseases of the central nervous system, especially in the sequelæ of acute attacks, such as paralysis, and in epilepsy occasionally; in cholera, hysteria, neuralgia; in many forms of deranged kidneys; in gout; in most forms of rheumatism, more specially the subacute and chronic; in many periosteal affections; in scrofula; in many cases incidental to females; in most subacute and in almost all chronic affections of the skin, especially eczema, herpes, lepra,

and psoriasis. And to all these maladies, Dr. Jeafferson adds, some cases of diabetes, complicated with liver congestion; some cases of chronic bronchial affections and asthma; in most forms of hæmorrhoids; in obesity. It must be added, that they do not say whether the waters are used internally as aperients, or externally in the form of baths—whether cold, hot, shower, or douche.

On this list of diseases to be cured, I would venture to remark, that so large a list has a smack of the Panacea in it; that, although purgative and alterative salts may be useful in a great variety of cases—and it is a balneological axiom, that the most different complaints may be cured by the same spring—still, the list appears to me to be too wide a one (I cannot imagine what the reference to cholera means), and we must look on these waters, very much as on the Cheltenham ones, and consider them mainly useful in abdominal obstructions. Sir Charles Scudamore considered the Cheltenham waters less stimulating than those of Leamington. The Leamington waters are not without some points of analogy with those of Marienbad, which may be called the cold Carlsbad. Leamington is well off for baths, which are to be had in every variety; and although it is impossible to believe in the cutaneous absorption of the salts of ordinary mineral waters under ordinary circumstances, yet bathing is an addition to treatment, that is not generally sufficiently attended to in English watering-

places; and I am sorry to find that the use of baths has diminished of late years in the Leamington Hospital.

The dose of Leamington waters varies a good deal, according to fashion. It is commonly said that 12oz. purge two or three times. The waters are not drunk so much as they used to be.

Of Leamington as a residence, Dr. Jeafferson says:—"The streets are wide, spacious, and airy; the house accommodation of the first class. It has beautiful public gardens, situated in the very centre of the town. Its numerous boulevards, and the interspersion of fine baths and shrubs throughout the town, give it, even more than Cheltenham, the character of a *rus in urbe.* Its sanitary condition is excellent, the drainage is good, and the water supply ample. The soil is generally dry and absorbent, especially in the upper parts of the town."

It need scarcely be said that plenty of gaiety and amusement is to be had at Leamington, and that the excursions to places in the neighbourhood are unusually interesting.

With respect to climate, I cannot do better than again quote Dr. Jeafferson:—"Its climate, by many called relaxing, is in fact a medium one. In a town visited by so many strangers, it is amusing to hear the variety of criticisms. Thus, in the same morning, one has heard its climate called relaxing, bracing, hot, cold, damp, dry. The rainfall is considerably under the average, and the

streets dry up with the greatest rapidity. There is a certain softness in the air."

Leamington is somewhat colder than Cheltenham, both in summer and winter.

The average mortality for a series of years is about 18 to 19 in the 1000.

Scarborough is well known, as perhaps the most crowded and popular sea-bathing place in England. People go to it for the sea and for sea-air; but there was a time, when they went to it for its waters, and thought little of the sea.

Dr. Wittie, in 1667, published the first book upon Scarborough's two wells, which he says had been in use for about forty years. His book led to a quantity of controversy of a rather vituperative character with Drs. Simpson and Tonstall, into which I cannot enter, although it is characteristic of the age.

In those days scurvy prevailed to an extent now quite unknown, and the garrison in the Castle under Sir Hugh Cholmley suffered dreadfully from it. The water was found very efficacious in curing it, and also inveterate quartans. It also cured epilepsy, fluxes, sterility, stomach affections, obstructions, and dropsy. It was considered a sovereign remedy against stone. But Tonstall inveighed against the waters, and accused them of having produced stone, and caused attacks of jaundice and of gout. In the next century Shaw, Lucas, Short, Belcombe wrote of these waters.

What was the constitution of the waters producing many cures, and also those disagreeable effects complained of by Tonstall? It was a very weak mixture of Epsom salts and lime, with a little salt and iron. Thus —

	North Well.	South Well.
Common salt	3·3	3·7
Epsom salts	17.8	28.1
Sulphate of lime	13.0	13.8
Carbonate of do.	6.0	6.0
Protoxide of iron	0.23	0.23

In short, the water is a weak Cheltenham, or a slightly aperient chalybeate, the South Well being the most so.

The wells, which, by the way, were lost for a time after an earthquake in 1737, are within a few yards of each other, and close to the sea. They are at the north end of the Promenade, and are in a sort of pit, with walls lined with solid masonry. The two are close together.

The operation of the waters corresponds very much with their chemical constitution—both are alteratives, and both contain iron; either of them will supply the system with a small quantity of iron, and you have an aperient action, if you use the North Well.

The South Well acts gently on the bowels and kidneys, sometimes on both, and is not depressing. It has been employed mostly in dyspepsia and struma, and has also had a reputation in skin diseases.

This water, and more especially the North Well, or a mixture of the two, has often been serviceable in chlorosis and affections of the female system.

Used steadily in doses of two or three half-pints daily, it has been found useful in habitual constipation. Sometimes, when the water is heavy on the stomach, it is drunk warm.

Gout, rheumatic gout, and scrofula, Mr. Cooke informs me, improve wonderfully at Scarborough; but these effects are mainly to be ascribed to the excellence of the air, and to hot and cold sea-bathing.

Practically but a very small per-centage of the visitors to Scarborough ever taste the waters, and many more visit the place for pleasure than for health.

I need not describe so well-known a place as Scarborough, with all its amusements and dissipations. Notwithstanding that sea-bathing had been introduced some years before, Smollett thought Scarborough falling off in his day. The following was the criticism on it at the commencement of this century :—"Although the double attraction of sea-bathing and of mineral waters renders it much superior to many spas, it is not so fashionably frequented. Scarborough contains among its visitors more votaries of health than of dissipation." As I have already said, the tables are now turned. Scarborough has a fine bracing climate, and in the summer and autumn months, even into the late autumn, the east wind need not be dreaded. Taking a series of years, its mortality seems to have been about 21 per 1000. It sometimes has been higher, but it ought to be small.

Victoria Spa, near Stratford-on-Avon, belongs to the

same class of purgative waters as Purton, Cherry Rock, Gloucester, and Tewksbury—the two last of which are too unimportant to be mentioned in detail. They resemble the Cheltenham water. Gloucester contains as much as fifty grains of common salt. Victoria contains as much as sixty grains of Glauber salts, five of Epsom, and nine of common salt. It thus contains nearly eighty grains of salts, and no wonder, that it is found distinctly aperient. A pump-house and baths were erected here some years ago, but I have no accounts of the recent progress of the place.

Melksham, thirteen miles east of Bath, belongs to the same class of wells. It has three springs, one of them chalybeate. The strongest appears to have 156 grains of solid constituents, 102 of which are common salt. Baths and a pump-house were erected some forty years ago, and the water was exported, but I have not heard anything very recent concerning the place, except that it appears to be neglected.

At Purton, near Swindon Junction, an old well has been re-opened, which formerly went under the name of Salt's Hole, and was mentioned by Allen in 1711. The chief contents of the water are sulphate of soda 14 gr., sulphate of magnesia 9.6 gr., sulphate of lime 10.4 gr., carbonate of potass 3.6 gr., common salt 4.2 gr. It is, therefore, a rather weak sulphated well, but has a large proportion of carbonic acid, as much as six inches—a large proportion for an English well.

The water is very slightly saline to the taste, not disagreeable, and is mildly aperient. We have, of course, the usual list of diseases cured at such places—skin diseases, ulcers, stomach affections, liver, scrofula, consumption, dropsy, gout, and rheumatism, especially tic.

It is evident, that such waters may be useful in dyspepsia, and where very gentle laxatives or alteratives are required.

The ordinary dose is half a pint, repeated about three times. The well has a great reputation in the neighbourhood of the village; a convenient pump-room has been built, and the neighbouring country is pleasant.

Cherry Rock, near Kingswood, Gloucestershire, has a very similar spring, somewhat stronger, the proportion of active ingredients in it being about forty to thirty at Purton, and containing about four inches of carbonic acid. The indications for its use are the same.

CHAPTER VIII.

SALT WELLS.

It is probably owing to the fact, that even our most inland places are not very remote from the sea, that but very little attention has been paid to our salt springs. Our *wiches*, though employed from the earliest date as sources of wealth to their proprietors, have been scarcely used at all for medicinal purposes, while similar springs on the Continent have supplied some of the most popular baths. The great value, indeed, of the true salt springs or *soolen*, is for baths; they are too strong to be drunk. With regard to the weaker ones, which are so popular, Beneke, and those who have studied the subject most carefully, have arrived at the conclusion, that something like forty to fifty grains to the pint, about the standard of Kissingen, is the most desirable strength for a salt well, that is to be drunk; and observation is believed to have shown, that when a water contains a larger proportion of salt than the above, it is better to dilute it before drinking it, than as is usually done, merely to drink a smaller quantity of the water. Viewed by this standard, the majority of our English salt

drinking-wells are somewhat too strong. The waters of Admaston, perhaps, contain the best proportions.

English wells of this kind may be conveniently divided into those of salt, and those of brine.

The general composition of the former will be plain from the accompanying table. I have compared our springs, in point of saltness at least, with sea water. The foreign wells, with which they can be most fairly compared, are the non-carbonated ones of Nauheim with 142 grains of salt, and the Elisen at Kreuznach with 72 grains, abundantly carbonated :—

	Sea Water.	Wood-hall.	Sutton.	Harro-gate.	Ten-bury.	Filey.	Thorp Arch.	Ad-maston.
Sea salt . . .	190	132	121	108	62	26	105	54
Muriate of lime.	—	130	30	10	35	6	7	14
,, of magnesia.	30	10	9	—	—	4	—	—

The internal use of sea water is in these days scarcely known. It was very popular a century ago, and some account of the opinions of that day may be given here, as it illustrates the practical effects of salt springs on the system.

Taken internally, it was thought in small doses to be stimulating. In larger quantity it proved purgative ; but it differed from other purges in this, that patients who daily drink it for a considerable time, instead of losing, often gain strength by it. It increases the appetite, and promotes digestion. Its chief use was found to be in purging off gross humours, the consequence of indulging the appetite too freely, and of leading an

inactive life; also in expelling worms. In milder doses, it was exceedingly useful in scrofulous complaints, and in glandular swellings. It was found more efficacious, when also used externally as a bath, and was often applied locally. But though the discussion of it naturally suggests itself here, I cannot diverge into the theory and practice of sea bathing, nor do more than run over the names of some of the places, where it is most successfully practised.

No country in the world is richer than England in sea-bathing places; and the rapid growth of so many new ones at the same time, is a characteristic feature of the age. Guide-books supply ample accounts of them.

I cannot discuss the question, in what cases sea air is beneficial and in what it is injurious, a subject on which there has been much variety of opinion ever since the days of Pliny; nor do I pronounce on the winter climates of sea-bathing places. But as climate is an important element in the selection of a suitable one, I would say, that for the summer months they may be geographically grouped as having three climates—a south-western, a south and south-eastern, and an eastern, Bournemouth and the Isle of Wight being somewhat intermediate between the first and second. In the first group we have Clevedon, Weston-super-Mare, Lynmouth, Ilfracombe, Bideford, Penzance; many spots near Torquay, Teignmouth, Dawlish, Exmouth, Budleigh Salterton, Lyme Regis, Weymouth, Swanage. There

are, too, the outlying Channel Islands—very pleasant, if you can reach them without a disagreeable passage. Bournemouth is best as a winter place of residence; and here Dr. Granville's prophecies have been accomplished, in spite of Dr. James Johnson's denunciation. The Isle of Wight, with its great variety, affords pleasant places at every season of the year. We now enter on the long and well-known series of Bognor, Little Hampton, improving as you go on to Worthing, Brighton, Eastbourne, St. Leonards, Hastings, Sandgate, Folkestone, Ramsgate, Broadstairs, and finally Margate, which is open to the full force of the air-currents of the German Ocean. It must always remain a favourite place for Londoners. Nowhere can they get fresher air. In former times it was even more important. The first Marine Hospital was established there. I believe there is only one other in England—that at Scarborough.*

Proceeding to the North, next come the milder Southend, Dover Court, Aldborough, Lowestoft, and other spots along the low shores of Suffolk, which have

* Old accounts of the hoys which sailed every tide from Billingsgate, tell us that, owing to the mixed character of the passengers, the passage was frequently so replete with whim, incident, and character, that it might be considered a dramatic entertainment on the stage of the ocean. Though there was much for the humorist to laugh at, there was more to offend the decent and well-bred. Margate had its Master of the Ceremonies, and its assemblies under his direction.

been creeping fast into favour of late years. And, crossing the Wash, next come Bridlington, Fileh, Scarborough, Whitby, Saltburn-by-the-Sea, Tynemouth. These are only a few of our many sea-side places.

The choice among them must be regulated by a variety of considerations: such as distance from home, whether you want a quiet or a lively place, good sands for young children, or amusements for older ones; whether you want a bracing climate, or one less so. Large towns, as Brighton, or places that, from their local situation, become very hot, as St. Leonards, are generally at that season to be avoided. Something, of course, depends on the months when you go to the sea-side. The east wind is less to be dreaded, after spring. The west is moister than the east coast.

Among the south-western ones, Ilfracombe, or one of the places near it—and Lynton with Lynmouth possess peculiar attractions—will be found the most bracing, or, perhaps I should say, the least relaxing. The East coast is on the whole the most invigorating, and the Yorkshire coast presents a large choice. Scarborough, every one knows, is a first-class bathing place, but is also a vortex of dissipation. Perhaps no place combines more advantages, including great natural beauty, than Whitby. Redcar and Saltburn-by-the-Sea are growing in popularity.

I have visited none of the bathing places in the north-west of England, except Fleetwood, which is

dreary. Places on that coast, as Blackpool, and the Isle of Man, are apt to be rainy, like Silloth on the Solway.

In the case of many invalids, it may be necessary to select the larger bathing places—at all events to make sure that good hot and cold sea-baths may be had indoors, in order that treatment may not be interfered with by bad weather. We have not yet got the large, showy establishments, of which there are many in France. But we have good ones at Brighton, Folkestone, and elsewhere.

A good many sea-side places have mineral waters, which, as a rule, are at present neglected, but deserve more attention than they have of late received. For instance, there is a good chalybeate at Boscombe, near Bournemouth. There are strong ones at Brighton, and at Hastings. Most of those in the Isle of Wight are too strong. The one near Folkestone is described as of unpleasant taste, and the Eastbourne well is earthy, and of no importance. The waters of Nottington, Scarborough, and Filey, I have noticed separately. Whitby and Tynemouth both have iron springs, and Bridlington has a chalybeate, and an intermitting well. Grange, a new and sheltered station near Cartmel, is near a chalybeate, one of much repute.

We shall now pass our salt springs in review. The waters of Thorpe Arch have been variously stated to contain 103 or 71 grains of common salt, with .22 of iron. Some years ago baths and a spa were established

at the neighbouring Boston, Tadcaster. Not a great deal, however, is heard of them now. The neighbourhood is beautiful, and the climate a favourite one, so that they ought not to be forgotten.

Fileh, near Scarborough, has the weakest of the salt wells, containing only 26 grains of common salt. It is stated to contain 7 grains of carbonate of soda, and if it really were present, it would be a very remarkable well for England, approaching in character to those of Ems. It is said to contain iron, so it may be regarded as a mild alterative tonic.

Admaston, close to Wellington in Shropshire, supplies two wells, that have not yet been sufficiently noticed. The first contains 54 grains of common salt, 14 grains of chloride of lime, and a little iron; the second 65 grains of salt and 10 of lime, with nearly ¾ inch of sulphuretted hydrogen. You, therefore, have a good salt and mild chalybeate, and sulphur springs. They have been employed most in dyspepsia, in rheumatism, and in skin affections. Besides in drinking, the waters are also used in baths. Admaston is said to be a delightful place in a pretty neighbourhood, and just under the Wrekin, with a comfortable hotel.

The water of Barrowdale, three miles from Keswick, consisting chiefly of salt, but of which I have no exact analysis, was usually briskly purgative in the quantity of one pint. It is now never heard of.

Sutton Spa, or Hanlys, the water of which was formerly

sold in London, is a mile and a half from Shrewsbury. In addition to 121 grains of salt, it contains 0.66 of carbonate of iron. It is therefore a powerful chalybeate, if the action of the iron is not counteracted by the excess of salt. This water, I have the authority of Mr. Humphreys, of Shrewsbury, for saying, has been found very useful in constipation, in hypochondriasis, and in some chronic skin affections, when it has been used externally as well as internally. It has also been found useful in liver affections, and it is quite powerful enough for this purpose. Unfortunately there is no establishment of any kind at the well; but some enterprising individual might make its virtues better known. A chalybeate as well as a saline spring used to be described here.

Woodhall Spa is easily reached in about an hour by rail from Lincoln, or from Boston. It lies in a flat uninteresting country, with no village in the neighbourhood. There is a very fair hotel, with pleasure-grounds adjoining the spring, which was originally got by boring, and a good deal of wood has been planted round it.

The only amusements of the place appear to be, croquet for the ladies, and some fishing, not far off, for the gentlemen. Scarcely any place would seem to offer fewer attractions, though I had the advantage of seeing it on a very fine sunny day. There is a considerable resort of patients, chiefly of ladies, to the place; but I heard complaints of the hotel, and lodgings are scarcely to be procured within a mile of the spa. There is no doctor

resident. There is a nicely enough fitted up small pump-room, and there are some twenty or thirty bath-rooms. They have no apparatus for douching, but, as a substitute for such, they had a hydropult. The water, though very salt, is not unpleasant to the taste, when fresh drawn. It is pleasanter drunk at the well, than in the pump-room.

The cases sent here for treatment are somewhat multifarious, apparently chiefly cases of glandular enlargements, or of scrofula, or of affections of the bone, and rheumatic affections with thickening of the joints. I also heard of some cases of skin affections being treated here.

There seems to be no question that a certain class of patients, long in hospital with chronic affections of a scrofulous nature, may benefit by these waters, much in the same way as they do by sea air and sea-bathing, and by such treatment as is to be had, in the Marine Hospital at Margate.

The general analogy subsisting between sea water and the Woodhall water, has already been shown, in the comparative table at the commencement of this chapter. But the Woodhall Spa boasts of .63 grains of bromide of sodium, and of .33 grains of iodide of sodium, as against the small quantities of bromides and iodides present in sea water. Now, it is to the presence of these bromides and iodides, that the special virtues of Woodhall water are ascribed; but is it reasonable to ascribe to them

such virtues? A child who is ordered to take four ounces of water in the day, takes in about one-fifth of a grain of the iodides and bromides together. An adult, who is ordered twelve ounces, in like manner takes in three-fifths of a grain of the same. If we admit that such quantities can operate on the system, we must be prepared to believe in infinitesimal doses, or to revert to belief in the occult powers of nature. But those minute doses are not even left the chance of having some operation, for to introduce one grain of those salts into the stomach from the Woodhall water, the patient must take at the same time half an ounce of other salts, which must entirely supersede the action of the iodide.

It is therefore simply impossible, to prescribe to a patient any useful amount of bromides and iodides in the Woodhall water, without overdosing him with other salts.

Small doses of Woodhall water have no doubt been useful as alteratives, like other salt waters, and I believe that they are some times used for such purposes in London hospitals, and in private practice. If Woodhall water be again compared with other salt waters for bathing purposes, it is evident, that, owing to its smaller quantity of salt, it must be less stimulating to the surface than ordinary sea water, and much less so than brines; and I presume that no one expects much absorption by the skin, of the eight grains to the gallon of bromides and iodides, which are present.

There is no certainty as to the absolute strength of the salt waters of Ashby de la Zouch, the most different analyses having been given. The quantity of salt has been stated at as high as 911, and as low as 151 grains. However, there is no reason to doubt, that it contains 462 grains of salt; altogether about 571 grains of solid ingredients. It is therefore about twice as strong as the Woodhall Spa, or as sea water, and the waters are quite sufficiently impregnated, to afford a stimulating bath.

The water is brought from the Moira spring to the baths, which were erected some thirty years ago. Ashby is rather a nice little place, has pleasant grounds, and a hotel near them, and is on the railway. Some hundreds use the baths during the season. The waters are best adapted for baths, but they are sometimes drunk in small quantities. It is rheumatic patients, who resort most to Ashby. Like all salt waters, it is useful in scrofula, and its usefulness in that condition of system is usually attributed to the presence of about one grain of the bromides.

But the most remarkable salt well in England, and approaching in strength almost to the brines, was that at Redruth, in Cornwall. It issued at a depth of 230 fathoms, in the bottom of a mine. It was of the temperature of 122° Fahrenheit, and, according to Professor W. A. Miller's analysis, contained in the gallon 363 grains of salt, 215 of sulphate of lime,

some other salts, and the extraordinary proportion of 26 grains of lithia—a substance which has of late been employed in gout, and which has been found in small quantities in mineral waters, but always combined with a considerable amount of other salts. This well contained four times as much lithia as the strongest well of it hitherto known. But the water could not have been administered conveniently. In rather more than 2½ pints of water, you could give a patient 8½ grains of lithia, with 215 grains of other salts. In four pints of the Murquelle at Baden, the strongest lithia well after it, a patient gets 9½ grains of lithia, along with eighty-eight grains of other salts. In spite of the quantity of water, the latter would have been the more convenient of the two to take. But this remarkable well, the temperature of which had been observed as long ago as 1819, is now lost—not that it ever was employed. The mine is now abandoned, and all its waters are mixed together, as I have learnt through the kindness of Mr. Henwood, of Penzance.

Although I have no faith in the direct power of promoting absorption, which is ascribed to waters that contain minute quantities of iodides or bromides, yet, seeing the immense popularity of Kreuznach, Ischl, and various other salt springs, in the treatment of some of the complaints of females, it seems to me a pity that some of our stronger brines have not been more used.

It is indeed admitted by dispassionate judges, that the treatment at such places never really diminished a fibrous tumour, and, like all other treatment, fails to produce the slightest absorption in an ovarian cyst; but it is also admitted, that it frequently improves the general condition of the uterine system, and relieves the symptoms produced by such affections. Our brine springs have been hitherto so little used for such, indeed for any medical purposes, that a great deal need not be said of them. We have as strong brine springs as any on the Continent. Some of them are believed to contain in the pint as follows:—Ashby de la Zouche, 911 grains of salt; Middlewich, 2049; and Droitwich, 2760.

But I believe the only place in England, where the concentrated salt baths, so popular in Germany, can be had, is the old-fashioned town of Droitwich, near Worcester. Unfortunately, there is nothing in the place itself or its scenery attractive, as at the similar baths of Kreuznach, Reichenhall, and many others. The Droitwich water is one of the strongest brines. A gentleman writes, that "the baths are not first-rate, but the bathing itself is most luxurious. The water is so impregnated with salt, that I half realised a visit to the Dead Sea. I could not sink, and only kept in the bath by putting two bricks of about fourteen or fifteen pounds each on my feet and chest. The bath had a pleasant, sparkling feeling, and I really believe one bath did me good."

CHAPTER IX.

CHALYBEATES.

ALL wells having the least taste of iron perceptible in them, have been called chalybeates. They contain oxide of iron, chiefly in the state of carbonate, sometimes in that of sulphate, and rarely, if at all, in that of chloride.

The commonest chalybeates, which are abundant in a great many parts of England, are the pure ones, or those which contain very few earths or salts besides the iron. Some examples of these are Tunbridge Wells, Hampstead Wells, Gillsland, and the weaker Harrogate springs. Tunbridge contains .39 of a grain of iron; Gillsland much the same; the Tewit at Harrogate .16 of a grain.

Then, again, some chalybeates have common salt associated with them—an excellent combination, where there is not too much salt, so as to supersede the action of the iron. Thus Holy Well, near Cartmel on Morecombe Bay, appears to be a powerful chalybeate, with 1.5 grains of iron and only 17 grains of salt. A new well at Harrogate, is believed to have .9 grains of

iron, along with 24 grains of salt; while the Kissingen spring at that place, with 113 grains of salt, is spoilt as a chalybeate, although it contains .37 of iron. Sutton and Thorpe Arch chalybeates appear to suffer in the same way.

Another set of chalybeates has aperient salts present, chiefly Glauber salt, and it is important that the quantity of them present should be small. Some waters of this kind are the Cambray Spring, Cheltenham; the Scarborough chalybeate; Astrop Wells, near Banbury; Newnham Regis, near Rugby; Malton, near Scarborough; Hartlepool, whose well is lost, and many others now forgotten. Scarborough has 18 grains of Glauber salts, and 6 of other salts, to .22 of iron.

The last kind of chalybeates is the strong iron or vitriolic wells, containing a large quantity of sulphate of iron or copperas, and often alum; but they have been found to be too strong for internal use. As a general rule, they are only fit for external application. Some of these are:—Sandrock, in the Isle of Wight; Dorton, in Buckinghamshire; Horley Green, near Halifax; Shadwell, below the Tower; but they have nearly all of them justly fallen into disuse. Dorton had about 12 grains of sulphate of iron; Sandrock, 41. Even the Muspratt Well at Harrogate, with 3.2 grains of iron, requires to be used with caution.

Although England abounds in chalybeate springs, and an immense number of them have been introduced

to notice at different periods, no spa has maintained its position as a simple chalybeate, like Spa or Schwalbach, or Pyrmont. Indeed, Tunbridge Wells and Harrogate are the only chalybeates, that have a history of their own, extending over two centuries and a half.

As in the case of purging waters, so the iron waters near London, were very soon brought into use. The holy well of Islington, re-discovered in 1685, was brought into notice by Mr. Saddler, who established a garden, and pump, and assembly-rooms. It was the subject of a small treatise and a poem. It remained very popular for a long time; as many as 600 people would drink the waters of a morning, and as late as 1733 two of the princesses were among the drinkers. Dr. Morton, a well-known physician in the end of the seventeenth century, tells us how he himself was cured by the Islington water; and he and others of the faculty at that period recommended its long and continued use, in small doses, in early consumption, and especially that it should in those cases be drunk mixed with milk. It is now shut up in a half-deserted house. About the same date a chalybeate became known in Hoxton, which had a bituminous scum on it, strange to say, yielding a pleasant aromatic flavour. Coldbath Wells, with its feeble chalybeate, and old-fashioned bath, still in use, was discovered in 1697. The wells at Sunninghill, still in existence at the Wells Hotel, were also known at that time. About the middle and latter

half of the eighteenth century, other chalybeates became popular. One of Bagnigge's two wells was a chalybeate. A strong sulphated or vitriolic chalybeate was discovered below the Tower, at Shadwell, in 1753. It was attempted to force it into use; but it was too strong for internal employment. On the opposite side of the river, the discovery of the Bermondsey Spa, probably a weak chalybeate, helped to support the pleasure-grounds of the enterprising Mr. Keyse, who exhibited a model of the rock of Gibraltar fifty or sixty feet high.

In the neighbourhood of London the Hampstead spring, associated with the Assembly Rooms at Belsize, was well attended as late as 1770. It still survives as a pleasant chalybeate, and the shady Well walk remains. The supply of it, however, is not copious, and it was dry for a time last summer. Among others, a chalybeate well at Bromley, sacred to St. Blaize, and once a great place of pilgrimage, was re-discovered in 1756, and recommended to the public. The strong chalybeate of Cobham, on the Guildford road, became known about the same time, but was never in any very great request, and is now in a most neglected state. The chalybeates of Witham, Markshall, and Felstead, in Essex, became popular about the same time. But the use of these waters about London has been forgotten as completely, as that of the purging ones. It is surprising that their oblivion should be so perfect, as chalybeates are so generally useful a medicine, and free from the dis-

agreeable effects of purgatives. Were I not unwilling to dwell too much on the past, I might here give some account of Newnham Regis, in Warwickshire, the first English chalybeate that came into use, and which was extremely popular; of Wellingborough, which was visited by the Court some years before Tunbridge, yet was never very popular; or of Astrop Wells, which were well known in the end of the seventeenth century, crowded by patients sent there by the London doctors, and which must long have retained their repute, for they are mentioned in guide-books of the commencement of the present century. But I must pass on to the only English spa, which is solely a chalybeate one.

The waters of Tunbridge Wells were first noticed by Lord North, in the reign of James the First, and attained popularity during the reign of his ill-fated son. In the year 1632 Dr. Lodowick Rowzee, of Ashford, Kent, published the first treatise on them, and tells us that the springs are in a valley compassed about by stony hills, so barren that there groweth nothing but heath and brake; and his words are repeated seventy years afterwards by a Dr. Lewis Rouse. "The gracious Queen." says the former, "came two years ago, and after her the place is called Queen's Well." From this time the place became well known; and there are constant allusions to it in the literature of the day. Indeed, it produced a play of its own, and one or two poems of no great merit, before the end of the century. Evelyn,

about 1650, paid it more than one visit, and liked the place, although on one occasion, after leaving it, he was robbed by footpads and left tied to a tree. The Court visited it in 1663; and Dr. Madan's pleonastic account of the place, written in 1687, in a very absurd phraseology, describes it as a place where every variety of amusement and of society was to be had. Beyond the gradual increase of the place, and its being a rival to Bath in fashionableness, I do not know that the next century produced anything remarkable in the history of the wells. Perhaps the best idea of Tunbridge Wells will be got by contrasting Grammont's account of the gaieties of 1663, with a guide-book account of Tunbridge Wells in 1804. Readers of Macaulay will at once recognise Grammont.

"The Court set out soon after, to pass about two months in the place, of all Europe, the most rural and simple, at the same time the most entertaining and agreeable. The company are accommodated with lodgings in little clean and convenient habitations, that lie straggling and separated from each other, a mile and a half all round the wells, where the company meet in the morning. This place consists of a long walk shaded by spreading trees, under which they walk, while they are drinking the waters. On one side of this walk is a long row of shops, plentifully stocked with all manner of toys, lace, gloves, stockings, and where there is raffling, as at Paris, in the Foire

de St. Germain. On the other side is the market, and as it is the custom here for every person to buy their own provisions, care is taken that nothing offensive appears on the stalls. Here young, fair, fresh-coloured country girls, with clean linen, small straw hats, and neat shoes and stockings, sell game, vegetables, flowers, and fruit. Here one may live as well as one pleases; here is likewise deep play, and no want of amorous intrigues. As soon as the evening comes, everyone quits his little palace to assemble on the bowling-green, where in the open air those who choose, dance upon a turf more soft and smooth than the finest carpet in the world." De Grammont adds, that "there was dancing every night in the Queen's apartments, because the physicians recommended it to her, and that those who did not otherwise care for dancing, danced that the exercise might help to digest the waters."

The Guide Book account of 1804 shows sufficiently the routine of bath life at that period:—

"On arrival, every person who intends to drink the waters, takes a sip, and pays what is called a welcome-penny to the dippers, the women who serve out the water. He then subscribes at the libraries, at the coffee-house, and at the assembly rooms. The band of music and the clergymen have their separate books. After putting down his name at each of these places, he is free to the amusements of the place. The company

generally assemble pretty early on the Parade, and after drinking the water, and spending an hour or two in walking, assemble in parties to breakfast. After this it is customary to attend morning service in the chapel, or to walk, ride, or read, according to one's fancy. Prayers over, the music recommences, and the walks become crowded. Dinner over, the band again ascend the orchestra, and the evening promenade commences, which is only interrupted by tea, the theatre, cards, assemblies, or the public rooms. The master of the ceremonies has two balls in the season, which are generally very brilliant and full. Private balls, too, are frequently given by persons of fashion. Here, also, are frequent concerts, attended by the most eminent performers from London. Sometimes these concerts form part of the morning's amusements, under the name of concert breakfasts. There are frequent parties to High Rocks and other romantic scenes, where there are frequently public breakfasts, dinners, and tea drinkings, attended with music and dancing. Above all, the more serious and reflecting part of the company will find the circulating libraries and the coffee-houses replete with rational amusement."

The last seventy years have worked a great change in the amusements of Tunbridge Wells. The quaint old Pantile walk and its trees are there still, and there is a band of music in the season, and something of a promenade in the afternoon. But the glories of Tun-

bridge Wells, as a place of amusement, have gone by. It retains the more solid ones of a very pleasant place of residence, and its springs remain unaltered.

The chalybeate springs of Tunbridge Wells are extremely pure and moderately strong: they contain .391, or more than one-third of a grain of iron. The water is clear, and has a strong but not disagreeable taste of iron. The water is dispensed at the end of the Pantiles, where it is received into a basin. There used formerly to be baths, but they were given up, and as they contain so little carbonic acid, this is of little importance.

Though it is not characteristic of Tunbridge, more than of any other spa in Europe at the period, the following advice may be new to some. Rouse advised that, "after every glass, or every two or three glasses, it will be good to chew a few caraway-comfits or coriander-seed, or such-like, to help the digestion and the passage of the water. Some constitutions require electuaries or lozenges appropriate to the indisposition for which they drink the waters." He says "many gentlemen smoke tobacco, which is not improper, especially if they hold it a good while in their mouths before they puff it out." In Scotland tobacco was held "to daunt and vanquish the actual coldness of the water." He adds, that "those who expect to benefit, must be of a cheerful disposition, and banish all melancholy cogitations." He advises to "begin at thirty, forty, or fifty ounces, and rise by degrees,

increasing the quantity every day to a hundred, one hundred and fifty, or two hundred ounces more or less, as they shall be able, and so again to decrease by degrees, ending where they began." Dr. Carr, in 1690, in recommending the waters for stone, gave the same advice about flying from care and avoiding solitude. He advised purging for two days before beginning the cure. The water to be used for three weeks. He would not forbid wine entirely, but preferred our own unhopped beers. Dr. Rouse allowed to those who had been used to drink wine, a glass or two of canary or claret at meals, which he thought better than white wine for this purpose. Other doctors recommend wine of Anjou.

In old times these waters were considered a sovereign cure in stone and gravel. Among the many diseases in which they were used, were spleen, dysentery, fluxes, worms, melancholy; and there was nothing better for barrenness. They were also used both externally and internally in some skin affections.

Pure chalybeates, like these, may be employed in a great many conditions of debility. As Dr. Cheyne said of iron waters, "none but those who have seen it, can believe the wonderful efficacy they have in a few weeks. Nothing but steel can make a pale, ash-coloured countenance, hollow and deep eyes, no appetite, little strength and less sleep, eat, and drink, and sleep, look gay and sleek like the best health. What but steel can in a few weeks restore a due proportion between the

nourishing and the watery parts of the blood?" Thus the Tunbridge waters are, at the present day, useful as ever, in atonic dyspepsia, in chlorosis and anæmia, and in many conditions of the uterine system. They are occasionally of use in chronic diarrhœa, and are very serviceable in convalescence from acute diseases. But at present they are undeservedly neglected. In modern times the Tunbridge waters are drunk in much smaller quantities than those just spoken of, and from a half a pint up to two pints a day is now considered a sufficient quantity. They are used chiefly in the summer season, or from May to October.

The air of Tunbridge Wells is felt by every patient, to be a very material support to the employment of the waters.

As late as the commencement of this century, a writer observed, that the general aspect of the country about Tunbridge Wells was uninviting, and that but for its salubrity, springs, and artificial allurements, few would be inclined to select it as a residence. The artificial allurements are gone, the wells are neglected; yet Tunbridge flourishes. Though the wells lie low, and the elasticity of the air may be less around them, the air on the common and all the higher grounds now covered with houses and terraces is bracing and healthy. It is colder than London, both in winter and summer, by two or three degrees. The variations of temperature are less, and the climate, therefore, more equable. The

quantity of rain is small, and what falls, is readily absorbed by the soil. Thus there is little humidity in the atmosphere. The rate of mortality is considered to be about twenty in the thousand.

Though Tunbridge Wells is now the only English spa, that offers chalybeate waters exclusively, and has, therefore, alone demanded a separate notice, a great many other chalybeates will be found mentioned under the head of the places where they occur, without being perhaps the most important springs of the place. For instance, Harrogate, Llandrindod, Moffat, Lisdunvarna, all supply both sulphur and chalybeate wells.

A question naturally arises here. Are none of our old chalybeates which enjoyed popularity for extended periods deserving of revival, such as Newnham Regis, or Astrop, or the well near Cartmel? A fresh examination of them might determine this point.

One of the latest English ones that have fallen into oblivion, was at Somersham, near St. Ives. As late as 1768, it had a well-house and a spa, and a committee of management. It was employed in all the complaints for which chalybeates have been usually exhibited; and the practice of the preceding century in pulmonary consumption was kept up. Its waters were drunk mixed with cows' or asses' milk.

Later than Somersham, Shotley Bridge, Durham, was brought into notice some fifty years ago as a saline alterative chalybeate, and was much praised by Dr.

Granville and others. Dr. H. M. Renton writes to me, that it is not at all sought after, except by hypochondriacs in the immediate neighbourhood. It was, indeed, never considered to have much medicinal virtue; and the erection of extensive iron works in the immediate vicinity has buried Shotley Bridge in oblivion as a watering-place.

Before quitting the English chalybeates, I may mention, that I have recently heard of a very promising chalybeate at Withyham, in the grounds of Lord Delawaar, on the line between Tunbridge Wells and Three Bridges. It is abundant, appears to be strong, and is in a very pretty country.

CHAPTER X.

SULPHUR WELLS.

UNLESS analyses of sulphur waters are made on the spot, or the water operated on by the chemist has been bottled with unusual care, there is much difficulty in determining the quantity of sulphuretted hydrogen present. As Harrogate is almost the only place, that has of late years had its sulphur waters completely analysed, it is very difficult to compare the quantity of its sulphuretted hydrogen with that of other places, the waters of which have been examined less carefully.

Sulphur waters may be nearly pure of salts, or contain a good deal of them. Some of our purest waters are those of Nottington and Radipole at Weymouth, and of Gilsland in Cumberland.

Another set, of which Harrogate is the principal one, contain more or less common salt—as Crickle, Broughton in Yorkshire, and Butterby, close to Durham.

Glauber salt is present in another class, such as Askern near Doncaster, Croft and Dinsdale near Darlington, Shapmore in Westmoreland, and probably Sutton-bog near Banbury, once in considerable repute.

The presence or absence of those salts, must modify

the action of the sulphur materially, when present in large quantities, as in the stronger waters at Harrogate, and perhaps at Askern.

Weymouth has, at the distance of a mile and a half and somewhat more than two miles, the sulphur springs of Radipole and Nottington. They both have small establishments. A very sensible account of the Nottington spring was written by Dr. Graves in 1792. They are very pure sulphur waters, not very strong. They are used both for bathing and drinking, and should not be overlooked by those who visit Weymouth. Dyspepsia and skin affections are the cases in which they are chiefly indicated.

Weymouth is one of the old, well-established bathing places, and has always been popular since George the Third and his family used to visit it.

Gilsland, near Carlisle, offers a pure sulphur well, having only a very few grains of common salt, and it also has a chalybeate. If its waters are not among the most powerful, yet it offers a very convenient place for change of air and convalescence from acute illnesses. The country around is broken and picturesque, and there is within a short distance a very complete station on the old Roman wall. You see the sentry's post, and the mark of the chariot-wheels at the entrance of the gateway. Gilsland is on the Carlisle and Newcastle Railway, has a comfortable hotel and boarding establishment close to the wells, and is very full in the season of

visitors, chiefly from the West of England. The mortality of Gilsland is said to be very low.

The weak sulphur waters of Holbeck, near Leeds, require no particular notice. Nor need much be said of the now neglected wells of Butterby on the Wear, close to Durham. The sulphur well was said to have one inch in the pint of sulphuretted hydrogen, and seven grains of common salt. This water and the Sweet Well were the subject of writings by Todd and Dr. Wilson in 1675, and by Clanny in 1807. They have been used as waters of the same kind are elsewhere, but at present they seem to be little known.

Of the same class, containing a minute quantity of common salt, are three springs in the west of Yorkshire, not far apart—Crickle, the stinking well at Broughton, and Skipton. Of these Crickle long maintained a local reputation, and was visited by crowds of country people. It is now quite neglected, as well as Skipton, where a spa was built. Clitheroe, too, has a weak well.

We come next to the sulphur wells, characterised by the presence of small quantities of Glauber salts. One of the oldest of these, which has long had a well-house and a hotel, and which has been occasionally visited from time to time, is Shap, in Westmoreland; it is rather gloomy. Its wells have 47.8 of solid ingredients, 20 being chloride of lime, and produce the usual effects of sulphur water. The height is much the same as that of the neighbouring station, three miles distant, of Shap on

the railway, or about 1000 feet. Shap station has considerable beauty of scenery, is a very desirable place for invalids and convalescents, and was a favourite of the late Sir J. Simpson, but is not much known.

The sulphuretted wells of Askern were known to Dr. Deane in 1626, and brought before the public by Dr. Short, in 1734. They were visited in 1771 by Pennant, and found to be in a state of great neglect. In 1794 a neat stone building was erected; in 1815 a new suite of baths; and in 1843 Dr. Lankester published a good monograph on the wells, which are nine miles north of Doncaster.

Askern has five wells. The best known, the old Manor-house well, according to one analysis, contains sulph. magnesia 20 grains, sulph. sod. 7 grains, chloride of calcium 10 grains, common salt 4 grains, sulphuretted hydrogen about 1 cubic inch. In three other springs sulphate of lime predominates, 13 grains of it to about 4 of the sulphate of magnesia.

There are various baths belonging to different proprietors. Askern has some lakes, on account of which it is a good deal visited, particularly from the neighbouring Doncaster; the accommodation is rough. The waters are both drunk and used in baths.

The Askern waters have been employed most in rheumatism, and in cutaneous affections, and obviously may be advantageous in indigestion. But their effects have not been studied much of late years. Two or three

glasses are drunk before breakfast. The water is generally drunk cold, but some prefer it warm. The waters are distinctly diuretic, and sometimes laxative; but in general the latter effect is not produced.

Croft and the adjoining Middleton or Dinsdale are good sulphur springs, which have been long known—those at Croft since 1668, those of Dinsdale since 1789. They were recommended by Dr. Short in 1734, and in 1786 were the subject of a very sensible treatise by Dr. Willan, well known in skin diseases. He says the spa was at that time not so well attended as formerly, when much company resorted to it from different parts of the kingdom. Dr. Peacock and Mr. Walker have since written on them. The wells at Croft contain about 9.6 grains of sulphate of magnesia in 19.4 of solid ingredients, but sulphuretted hydrogen only ¼ inch. The new spa again was said to contain as much as 2.78 inches of sulphuretted hydrogen. The chief well at Dinsdale has twenty-six grains of solids, and 2.5 inches of sulphuretted hydrogen. Willan describes the vegetable glairine he observed in these wells. The water is said to sit light and easy on delicate stomachs. Its medium dose is stated at from three to four tumblers, and it has been found useful in dyspepsia. Willan found Croft very efficacious in cutaneous affections—such as herpes and lepra. He found it much employed by the country people in chronic rheumatism.

Walker considered the waters of much use in indigestion, in diabetes, and in the earliest stages of consumption, as well as in rheumatism, and in some of the affections of women. He also found these waters most valuable in skin affections, as in lepra and eczema, and a certain remedy in every stage of the itch.

Croft water was long supplied to the London shops, in times before 1786.

These wells are situated in a very pretty country on the Tees—Croft is four miles distant from Darlington and four from Dinsdale, which last is five miles from Darlington — and have a very considerable number of visitors of a less fashionable class, than those who resort to Harrogate. They have much to recommend them.

Not very far from Croft, there are various cavities or cauldrons in the rocks, full of sulphur water, which have got the name of hell-kettles, evidently from the same idea, as those already mentioned have.

We now come to the most important of the English sulphur wells that contain common salt, and far the most extensively employed. The immensely numerous group of wells in and around Harrogate—for it comprises Knaresborough, Bilton, Starbeck, and Harlow Carr—could not well escape early observation. But it was in the first instance the holy wells, as those of St. Robert, still more of St. Magnus or St. Mungo, bathing

in whose cold, pure waters produced miraculous cures for many ages—and the dropping well of Knaresborough, that attracted strangers. These wells were earlier objects of interest, than the chalybeate discovered by Mr. Slingsby, in 1571.

The first description of the sulphur wells was given by Dr. Deane, in 1626, and by Stanhope about the same time, in a pamphlet entitled, "News Out of Yorkshire," and Dr. Stanhope wrote of them again in 1632. Dr. French wrote on them in 1651. Drs. Neale, father and son, appear to have practised at Harrogate for a period of sixty-seven years, but their experience was not given to the world, until it appeared in Dr. Short's work in 1734. That physician gave a full account of the waters. But though they never were entirely forgotten, it was not until the latter half of the eighteenth century, that they rose into the repute, which they have ever since maintained. It is unnecessary to allude further to the literature of the subject, than to say that, in 1791, Dr. Garnett contributed a work of much value, to which Dr. Hunter, of Leeds, was much indebted when he published, in 1830, a monograph on the subject—one of the best English works of the kind. Dr. Kennion, Dr. Bennett, and Dr. Myrtle have since contributed to the knowledge of the operation of the waters.

It has been said of Harrogate, that within a circle of a mile and a half, through an extension of the geological

phenomenon, called the Craven fault, not far short of a hundred various springs are to be found, one-fourth of which at least, have been made available for medical purposes. The bog-field is a veritable manufactory of mineral waters, and recent researches show, that its wealth of that kind is far from exhausted.

They owe their virtues to the presence of sulphuretted hydrogen, or sulphide of sodium, of common salt, and of iron. They may be divided into saline sulphurous, for most of the sulphur wells contain salt, and into chalybeates. There are also some earthy wells, but for practical purposes we may pass them by—although the Crescent well was once said to contain a great deal of carbonate of soda! The sulphur wells, again, may be conveniently divided into strong, middling, and mild, and the accompanying simple table will give a general notion of their composition. Curiously enough, the amount of common salt present, is in a general way proportionate to the quantity of sulphur.

	Old Sulphur.	Montpellier (strong).	Hospital (strong).	Royal Sulphur.	Montpellier (mild.)	Hospital (mild).	Starbeck.
Chloride sodium (grs.)	108	100	46	67	29	25	15
Sulphide sodium (grs.)	1.9	1.8	.89	1.1	.4	.037	.21
Sulphuretted hydrogen (inches)	3	2.9	1.3	1.4	.65	.04	.26
	Strong.		Middling.		Mild.		

Harrogate thus possesses both very strong and very weak sulphur wells. It possesses, perhaps, the strongest sulphur well in Europe, at least, of those whose constitution is well ascertained. It is as strong as the strongest sulphur well at Schinznach, but unfortunately it cannot be used, without imbibing in every pint some 120 grains of salts, a quantity obviously sufficient to interfere with the simple effect of sulphur water, whether as drunk, or used for bathing. It was, therefore, not entirely without reason, that in another work I classed the strong Harrogate waters, as salt springs.*

The chalybeates may, in like manner, be divided into

* My Harrogate friends have themselves partly to blame for this. They have followed the inconvenient practice of attaching the names of other places to their wells, and they have selected such names as Magnesia, Cheltenham, Montpellier, and Kissingen, none of which have any connection with sulphur ; and in the last adopted name, or that of Kissingen, they have challenged comparison with a very well known salt spring. This they have done through a false analogy, for the Harrogate Kissingen is twice as strong in salt as the real Kissingen, and, indeed, it resembles—at all events, in its supply of salt—the Elizabeth Well of Homburg much more strongly ; but such names borrowed from other places only lead to confusion. It is unfortunate for the study of the effect of simple sulphur on the system, that the Harrogate wells, which are weak in salt, are also excessively weak in sulphur. I know of no greater desideratum in therapeutics, than a determination of the real effect of sulphur on the system. Men have always set a high value on it, and its fumes used from the earliest times, appear to be as efficient as any modern disinfectant.

strong saline and pure chalybeates. See the accompanying table :—

	Kissingen.	Muspratt.	Alexandra.		Tewit.	St. John's.	A of New Wells.
	Stronger.				Milder.		
Salts ...	113	58	24		Nominal.		
Iron ...	.373	3.2	.94		.16	.07	.19

Here, again, we have great variety of strength. The so-called Kissingen contains too much salts for a good chalybeate. The Muspratt is decidedly too strong. It is said to contain some chloride of iron, which salt probably does not exist in a natural state, but which Dr. Garnett long ago thought he had discovered in one of the Harrogate wells. The newly-discovered Alexandra spring appears, on theoretical grounds, to be the best. It is quite strong enough of iron. During last summer's drought it varied both in quantity and in constitution, particularly in the former. But its supply is more regular, and if it continues to be so, it ought to prove the favourite of the Harrogate chalybeates.

Of the milder chalybeates it can be said, that they are very pure, and A of the new wells becomes a refreshing

drink with carbonic acid, as added to it by the very enterprising Mr. Cook.

The taste of the strong Harrogate water is very saline and disagreeable, and it takes some time to be reconciled to its use. The popular opinion, says an old Guide-book, is that it tastes like rotten eggs and gunpowder. Mr. Matthew Bramble did not know whether it had more of the bilgewater or of the brimstone. Even a Harrogate doctor compares it to bilgewater and the scourings of a gun, and says it was long thought too offensive to be taken internally. It may be said shortly of it, that taken in large quantities, it is purgative; in smaller doses, an excellent alterative. All agree in saying, that it is not a debilitating aperient, and that its use may be continued a long time as an aperient, without producing any bad effects. Externally, it was first used in fomentations and wet applications, chiefly in diseases of the skin, and of late years the various waters have been freely used in baths. Indeed, in the end of the last century, Dr. Garnett "could not forbear congratulating the company at Harrogate on the abolition of the absurd and indelicate customs connected with bathing formerly in use, which afforded just grounds of ridicule to the facetious Dr. Smollett and the eccentric author of 'John Buncle.' The common sweating-bed, tainted with the effluvia of hundreds, was not then to be found even in the lowest bathing-houses at Harrogate."

I can only allude shortly to the medical effects of the

waters. I am afraid Dr. Garnett puts it rather coarsely, when he affirms, that they speedily and easily carry off the effects of intemperance, in those who have spent the winter in festivity, and come to Harrogate with a constitution loaded with impurities, and heated by repeated debauches. This is an inelegant way of saying, that Harrogate is good for dyspepsia, and, like Homburg or Kissingen, counteracts by its salt water the effects of a London season. Its efficacy in this respect is undoubted.

The strength of the water used can be graduated to the case, and the strong water is a valuable remedy in abdominal congestions, in costiveness, in liver, and when the vessels near the rectum require to be unloaded. I can quite believe that it must be very useful in various ways in the presence of worms.

It is in the same way that it has proved useful in threatenings of apoplexy, and to overworked brains, and in some nervous affections, as in chorea. The waters are also used internally and externally in gouty, and in rheumatic affections—the baths of the stronger water materially support its internal use in such cases.

Harrogate maintains its reputation in skin diseases, although here, as elsewhere, other medicines are often required besides the waters. The mode of action of sulphurous waters in such cases has not been accounted for satisfactorily, but the more important point is their practical efficacy. Dr. Myrtle writes to me, that the

mild sulphur waters are most valuable in certain forms of chronic eczema, in all cases of proriasis, pityriasis, lichen, prurigo, acne, and most forms of syphilitic eruptions, especially after the full exhibition of mercury. Lead, as well as mercurial poisoning, are subjects of treatment here, and the sulphur-waters are considered a test of the presence of the syphilitic poison. In former days cases of scrofula were constantly treated here, but we hear little of them now at Harrogate. The waters have never been utilised for inhaling rooms for cases of phthisis or chronic laryngitis, but, indeed, patients suffering from such maladies rarely visit Harrogate.

As for the chalybeates, it is unnecessary to speak, in detail, of the various forms of impoverished blood in which the waters of Harrogate may be useful, either by themselves, or combined with the use of other waters; but it was for its mild chalybeates, that Harrogate became popular, before its sulphur waters had come into use.

In anæmia, in chlorosis, and in various irregularities of the female system, it is obvious that there is great choice of remedies, among the sulphur, salt, and chalybeate waters. They may be used in combination or in succession, with much advantage. The various baths judiciously applied, and the air of Harrogate, co-operate in the cure.

I shall not enter into any details respecting the mode

of using the waters. I am not in any case anxious, to lay down rules as to the quantity of waters to be drunk at the various spas. This is a matter which should always be settled on the spot; but I am least of all anxious to do so at Harrogate, where the waters vary so much in their power, and where I have known the patients do themselves harm, by drinking too much of the waters unadvisedly. It is often found better to drink the waters heated.

Harrogate waters continue to be largely exported.

The public institutions may be thus generally described. The old Pump well, which has been recently greatly embellished by a memorial-window to Mr. Slingsby, the discoverer of the Tewit well. The chief old waters, and some of the newly-discovered ones, have been brought here, and the new mild chalybeate has been aërated. Outside is the public sulphur well.

There is the old Montpellier garden, with its sulphur waters of various strength, with its convenient baths, and its shady garden.

There is the Cheltenham room, forming a large, handsome concert-room, where the strong Muspratt chalybeate, and other waters, are dispensed, and close to it an elegant pavilion of glass has been nearly completed. A garden surrounds it.

There are the Victoria baths, the property of a company, fitted up very comfortably.

But what is intended to eclipse everything else, is a

grand bathing establishment now under construction by the town. £8000 have already been spent on it, and the building will probably cost as much more before it is completed, but will add immensely to the resources and the attractions of Harrogate. It is rising on the north side of the Victoria baths.

Of establishments in the neighbourhood of Harrogate, Starbeck deserves first notice. It is situated on the railway between Harrogate and Knaresborough, and has a mild sulphur and a chalybeate spring. For some years this bath has been very popular, and a new bath house has been recently completed.

The Harlow Carr springs are situated a mile west of Harrogate; there are four mild sulphur springs, and a scanty chalybeate. The late Dr. Kennion brought them into repute, but the baths were not well constructed, and fell out of favour. In the hands, however, of a new manager, they may again become popular. Their water is said to be softer to the feel than that of Starbeck. The general nature of these mild waters may be guessed at from the analysis of the Starbeck and Tewit wells given above. The once fashionable bathing establishment, with a hotel and grounds, near the romantic Glen Birk Crag, has been disused for two years. The well in Bilton Park, mentioned by Dr. Deane, is not used by the public. Its water rises freely, and the spring and basis are covered by a small dome. But the adjacent land is in a state of nature.

The town of Harrogate is scattered over a piece of lofty table-land, down the side, along the bottom, and up the corresponding slope of a small valley, without much order or regularity of design, but presenting from all points of view airy, substantial dwellings, which of late have vastly increased in numbers; but there is so much open ground in parks, that the place can never become built in. The lower part of the town is about 300, and the upper somewhat over 400 feet above the sea.

Smollett said of Harrogate, "there is not a more ugly, or a more healthy, a duller looking, or a gayer locality in England than this Harrogate," and he gives the following account of the ordinary mode of life:—

"Harrogate water is supplied from a copious spring in the hollow of a wild common, round which a good many houses have been built for the convenience of the drinkers, though not many of them are inhabited. Most of the company lodge at some distance, in five separate inns, situated in different parts of the common, from whence they go every morning to the well in their own carriages. The lodgers in each form a distinct company that eat together, and there is a commodious public-room, where they breakfast in dishabille at separate tables from eight o'clock till eleven, as they choose to come in. Here, also, they drink tea in the afternoon, and play at cards or dance in the evening; the ladies treat with tea in their turns, and even young girls are not

exempt from this imposition. There is a public ball, by subscription, every night, and, indeed, Harrogate treads upon the heels of Bath in the articles of gaiety and dissipation. However, here they are more sociable. One of the inns is already full up to the very garrets, having no less than fifty lodgers, and as many servants; the majority are of the northern counties, and some come from Scotland."

In these days we have to add to these guests a very large Irish contingent.

In the beginning of the present century it was said that, "while some places were visited because they were fashionable, and others on account of the beauty of their scenery, Harrogate is resorted to chiefly by the valetudinary, who, however, by making social parties, enjoy more pleasure among the bleak and barren wilds of Yorkshire, than many taste in the fashionable haunts of Bath and Brighton. The ladies and gentlemen mutually treat each other at this place; after dinner the latter pay for the wine, while the ladies return the compliment in tea, a species of amicable and equal arrangement; which, while it tends to keep up a social intercourse, is accompanied with many pleasant circumstances to both sexes, and not unfrequently produces a closer mutuality of interests. The ladies by this custom have an opportunity of witnessing the behaviour of the gentlemen; and the latter of determining, how well qualified the former may be for presiding over a family."

In modern days Harrogate has the usual routine of amusements, among which balls and concerts occupy a prominent place.

The number of visitors to Harrogate was reckoned in the beginning of the century at 2000; a few years ago it was called 12,000, and during the last season the number of visitors was reckoned at 42,000, of whom possibly one-third may have used the waters. But it is very difficult to make an accurate calculation. Patients have begun to stay occasionally at Harrogate during the winter, for the sake of the waters, but it is unusual to do so.

As to climate, Harrogate is open and airy, and rather cold in winter; but the air is felt by patients as bracing, and they attribute no small share of the benefit they receive to the air of the place. There is considerable choice of climate, according as a residence is selected in the lower or upper part of the town.

The mortality is four less than that of London per 1000.

I hope that I have made no serious omission in my account of the waters of Harrogate. But they are so numerous, and some of them so recently discovered, that I have only described their prominent features. Harrogate, like Bath and Buxton, has a bath hospital. The Leamington one is chiefly a general hospital.

It would have been more accurate, to have placed Melksham among salt springs, with its 147 gr. of salt.

III.—WALES.

CHAPTER XI.

THERE is not a great deal to be said of the early history of mineral waters in the Principality, as the famous shrine of St. Winifred, visited by many a crowned head from William the Conqueror downwards, can scarcely be reckoned as a mineral water. About 1580 there is an allusion to a petrifying well in Wales, in the grounds of Sir T. Middleton. In 1613 Drayton alluded to some of the popular beliefs in these terms:—

"And on the Cambrian side those strange and wonderous springs
Our beasts that seldom drink."

The intermitting well under Rhudland Castle was also an object of much interest to him.

Dr. Clermont, of whom we have already heard*, and who spent some time in Merionethshire, assures us, that there were waters in North Wales, and

* Dr. Clermont said the waters of England were better for healing diseases, than as drinking water. For drinking, he preferred the English beers.

others in Merionethshire, which cured the eyes, and healed itch. But it may be doubted whether he had in his mind, anything more than the various well-known Holy wells. Although first noticed at the close of the seventeenth century, and again in 1732, and the subject of a poem in 1746, it was another foreigner, a certain Dr. Wessel Linden, who in 1755 introduced the Radnorshire wells to the world, by writing an elaborate book on them. Since then, Dr. R. Williams has written on Llandrindod in 1817, and Pritchard's "Cambrian Balnea" was published in 1825, but I have not been able to meet with these works. I have found Mr. Pryse's little handbook to the Breconshire and Radnorshire wells very useful.

In former days, when the whey cure was as popular in England as it recently was abroad, Wales was famous for its goat and ewe milk whey, and Abergavenny was the head-quarters of the cure.

Flintshire has for centuries been the county most famous for its wells, and St. Winifred's, at Holywell, is, *par excellence*, the well of Great Britain. It was for many ages a great place of pilgrimage, and faith in its virtues is not extinct. Votive offerings of the crutches which patients have been able to cast away, are to be seen suspended beside it. The water issues from the rock in such abundance that it has certainly, for the last 250 years, turned a large mill a few yards from its source. The quantity has been calculated at 100 tons

per minute. St. Winifred's moss still continues to grow on the edges of the well.

> "The sacred virgin's well, her moss most sweet and rare,
> Against infectious damps for pomander to wear."

The well is covered by some beautiful groined work of the perpendicular style, supporting a chapel; the whole is much in want and very deserving of restoration. It overflows into a large basin or reservoir, which is filled at certain hours of the day. I found a few boys bathing in its cool and clear water between eight and nine o'clock in the morning. A few yards farther down the stream a large swimming-bath, with dressing-rooms and other conveniences, was almost finished; it will be found most useful by the people of the place, and especially by the workmen employed in the various metal works in the neighbourhood; this apart from all special healing virtues of the water. I fancy that to obtain them, it will still be necessary to repair to the original well.

As it will illustrate the subject of such cures generally, I shall repeat some of the conversations I had with the people of the place. The old man of the well recounted various cases of cure, but the following is the most remarkable :—A woman was bent double and had lost her voice, and had been discharged from the Northampton Hospital after three years, as incurable. After using the waters for three days, she became quite erect and regained her voice, and is now as straight as any other

woman. On further inquiry, I learnt that the woman had, when brought to the well, been on each occasion two or three minutes in the water, that she was a recent convert to the Roman Catholic Church, and also that my informant was himself a Catholic. This, I believe, may be taken as a fair sample of the cures. There had been no treatment at all by the use of the water. I happened to tell this story to an artisan at the railway station, who was a Dissenter and a teetotaller. He immediately told me that Wales was not the country, where such stories would be believed; still he had his own faith in the well. He knew that the water was pure, simple water, and he had no faith in St. Winifred, but he had seen Holywell water do more for people than any common water. A man who was listening to our conversation, suddenly exclaimed: "Perhaps, sir, you won't believe that I know of water that won't boil!" On asking him where it was to be found, he replied, "In Westmeath." He said he had never tried the experiment himself, but he had often seen the water put in a kettle, and set on the fire, and that it never could be made to boil. I have since had the curiosity to refer to Ireland, and got this information:—The well is holy, and is at Fore. There used to be two or three trout in it. An unbeliever took one out, and put it to boil in ordinary water. He kept watching, but the water never heated, and the trout went on swimming as in the well. He tried and

tried to get the water to boil, but in vain. At last he got so frightened that he took the trout back to its well, and no one since has ventured to meddle with the trout.* But, to return from my digression, the inference I drew from what I heard at St. Winifred's, was, that persons of all shades of religious belief have still some remains of faith in its waters. The cures were, in their opinion, not the result merely of any systematic bathing in plain water; the water had some special virtue; and this applies to most of the other places I heard of.

There are many other holy wells in Flintshire and Denbighshire, which I did not visit. They are generally recognisable by their prefix of Ffynnon, or well. Some of these are:—Ffynnonfair, some miles from St. Asaph, with an elegant building over it; also the well close to St. Asaph; St. Teclas' well, near Llandegla, famed for the cure of epilepsy; St. Elian, not far from Colwyn (now, by the way, more used for cursing than for curing); St. George, near Abergele; St. Beuno, in Carnarvonshire. The only other holy well I visited in Wales, was that of St. Cadfan, attached to the old church of that saint at Towin. There is a tolerably large basin of dirtyish water, with a rope across it, by which you hold on when bathing. But the well is not attractive, and is now little used.

* Sacred fish have been known in other wells.

Here is an example of Christian rites, mixed with practices, which adhered to them from heathen times. At St. Teclas' Well, the patient repaired to it after sunset, washed in it, made an offering by dropping fourpence into it, walked round it three times, repeating the Lord's Prayer; then offered a cock or hen, carrying it round the well and church; after which he went into the church, crept under the altar, and passed the night with the Bible as a pillow, and the communion-cloth as a coverlet, departing at break of day, after a further offering of money, and leaving the cock or hen. This is evidently a trace of the old sacrifice of the cock to Æsculapius.

Pentland in his tour even mentions sacrifices of horses to the god Bel, at the well of St. George, just mentioned.

Analogous practices have prevailed in all parts of Great Britain, as well as in other parts of Europe, and the legend of the origin of the well of St. Winifred occurs in Scandinavia in a slightly altered form, as, indeed, elsewhere also.

The earthy wells in Wales are not much heard of. I shall only mention one. I had read such an account of the well of Llangybi, that I thought it worth while to pay it a visit. As quoted in a work on mineral waters of the year 1769, Dr. Rutty observed that "it had been known to demonstration, that the water will remove all disorders of the eyes, cataracts not excepted; that it is good for scrofulous kernels, swellings, scaldheads, and ulcerated

legs; in all eruptions, as leprosy, scurvy, itch, and wild warts; in all nervous cases, and in all rheumatisms, the palsy, rickets, convulsive fits, and lameness, of most of which the learned physician has given remarkable instances, with the different manner of treatment in each case." It was further stated that "the proprietor, William Price, Esq., generously caused proper conveniences for bathing, and other improvements, to be made at his own expense, whence this excellent mineral water has recovered its ancient reputation, and a rational use of it has been lately introduced."

On making inquiries in Wales, I found, in the first instance, that no one had ever heard of the place. Even at the nearest railway station to it, its name was unknown. However, I made out the spot—a small village about four miles north-east of Pwllheli, in Carnarvonshire. The well lies at the foot of a hill, bare but for a little patch of wood. There is an abundant supply of clear water in a large well; this is received into a basin inclosed by a small building of considerable solidity. There was a shabby house adjoining, in which the woman in charge of the well resided. The water is hard, and has, perhaps, a slightly austere taste, and contains a little lime. It is, however, rarely resorted to now, and it has no character of sanctity attached to it. The neighbouring country is not particularly interesting; the climate is very moist, and it is difficult to conceive how the spring ever attracted attention.

Before proceeding to describe the principal Welsh spas, I shall enumerate a few of the chalybeate springs, which appear to be common in most parts of the country. Dr. Linden told us there were two in Anglesea, and one in the garden of the Bishop of Bangor. I observed one spring three miles from Barmouth, on the Dolgelly road; another one and a half mile from Towin, close to the Abergwynolin Railway. There is an excellent chalybeate at Gunfreston, two miles from Tenby, of which something might be made by any enterprising individual. The chalybeate at Aberystwith, I was told, had been destroyed by the railway. At two places attempts have been made to form a spa. I paid a visit to Llandeiniolen a few miles from Llanberis, and about one and a half mile off the railway. A small bath-house, containing two baths, had been built. The chalybeate appeared to be of fair strength; but the place lies in the centre of an open bog, and there is no accommodation for strangers. Although there are fine distant views of the mountains, and a large British camp on a hill close by, I fear it will be many a day before, as Dr. Wynn Williams hopes, it will rival any of the Continental spas!

At Gethlyonen, above Pontardowe Station, a house has been erected at the mineral well, and country people visit it occasionally, but as much for the sake of its public-house as of its waters.

All these are simple chalybeates. Of the stronger

or vitriolic ones, there was a powerful one near Swansea, now forgotten.

Another powerful water which I visited at Rhydryonen, near Towin, issues from an abandoned mine. It is entirely neglected, and, indeed, its internal employment should not be practised without precaution.

Its taste is very acid, but not disagreeable.

The Welsh wells, like the Harrogate ones, have for their constituents salt, sulphur, and iron. Unfortunately, the quantity of iron and of sulphuretted hydrogen has been determined very roughly; but the quantity of salt in some of them is better known. Builth, 66.4; Llandrindod, saline well, 35; chalybeate well, 29.6; sulphur well, 27; new well, 22 grains.

The village of Llanwrtyd is about half a mile from the railway station. It has several small hotels, and many lodging-houses, on each side of the bridge over the river Irvon; and a hundred or two yards from the village is the principal and comfortable hotel of Doelcoed-house, close to the two wells. The principal well, which is counted the most important sulphur well in Wales, contains in the pint about 8 grains of common salt, and .62 inches of sulphuretted hydrogen. There is a chalybeate close by, of fair strength; but there is no accurate analysis of it. There is a tolerable pump-room; the bath attached to it did not to me look very inviting. The wells are situated at the opening of a small valley. There is a little wood on the banks of the pretty stream,

a few walks have been laid out, and seats made; but the last look very dilapidated. The country generally may be described as open, airy upland. It is usual to be in raptures about the beauty of the little valley and of the neighbouring hills. But although the hills command some fine views, they cannot be compared with North Wales in this respect. Now that the railway is open, the visitors of Llanwrtyd have the opportunity of easily making excursions in any direction, and thus varying their life.

The waters are employed almost entirely for drinking. They have been found useful in cases in which sulphur waters are indicated, and are chiefly employed in skin affections, in liver complaints, and in disorders of the digestion. They have also been employed in bronchial irritation, and in threatened tuberculosis. This is an application of the waters, such as would be made abroad. The quantities of iodine and of bromine present cannot be looked on as of any material importance. Patients usually begin with drinking two or three glasses of the sulphur-water at a quarter of an hour's interval before breakfast, and two or three wineglassfuls of the chalybeate are taken in the afternoon. I am told, that at the height of the season, there are sometimes more than 300 visitors drinking the water at the same time. Llanwrtyd might be greatly improved by the judicious expenditure of a little money.

There is another sulphur well not far off, in the bed

of the Irvon at Llangammarch. Its situation is inconvenient, and it seems never to have been fully investigated. It is reported to be a mild aperient, and to contain some sulphate of magnesia.

Llandrindod has long been the principal spa in Wales, and now that it is opened by the railway, its popularity is increasing. The train sets you down in the middle of an open airy plain. On a fine day, when the furze is in flower, and you have the distant mountains in view, the common has a very refreshing feeling about it; and I find that the visitors to the wells think nearly as highly of the air of the place, as of its waters. Llandrindod, after being considered dreary, remote, and vacant of elegant accommodation, after the middle of last century, attracted attention for a time by its gambling, which gave it an unenviable reputation. It is now visited chiefly by the natives of the country. There has been much facetiousness about the arrangements of the old hotel, which are in force to this day. There are two scales of charges and two tables. The guests are divided into the Houses of Lords and Commons; and it is not correct for members of the Upper to associate with members of the Lower House!

The old saline and sulphur wells are situated some eight or nine minutes' walk from the railway station, among the trees, where also is the old hotel. Here is the principal pump-room, and here the visitors assemble in the morning to drink the waters. There is a pleasant

wooded hill behind it, on which there are agreeable walks, which might be easily extended. The chalybeate, or Rock well, is out in the common, and not far from it, a new saline well has been got by boring; near it is the new Rock Hotel. The wells are classed as saline, sulphurous, and chalybeate. From the statement given above, it is seen, that the new well has a smaller quantity of salt than any of the old ones.

The general character of the Llandrindod waters is best explained by saying, that they are mild Harrogate waters, and we are told, that at Harrogate the mild wells are the most popular. If many cases of gout and rheumatism, which had resisted a prolonged course of hydropathy as well as a fair trial of the waters of Buxton, were entirely cured by the mild waters of Harrogate, why should they not be cured by those of Llandrindod?

Of the different wells at Llandrindod it has been said, that the saline is most useful in the scrofulous diathesis, and in constipated habits, for dyspepsia and chronic gastric irritation, chronic liver affections, hæmorrhoids, gout, chronic rheumatism, and many functional affections of women. The sulphur water is recommended in diseases of the skin, in chronic bronchitis, rheumatism, and lead palsy. The saline water should be taken as a purgative early in the morning, in doses of half a pint every ten minutes; brisk exercise should be taken in the intervals. The quantity required for its purgative action may be from three to ten half-pints; but the

larger quantity is more, than it can usually be advisable to take. The sulphur water is to be taken during the first day in doses of two or three glasses, and it too may be increased, till as much as ten or twelve glasses are taken. The sulphur water is also used as a bath.

The chalybeate, or rock-water, rather a scanty spring, is the one used for anæmia and chlorosis, and general debility. It is recommended, that the dose should be only a wineglassful the first day, and the patient is warned against flushings of the face. But such evils must be purely imaginary, unless the water is much stronger than is usually supposed.

There are great signs of life and activity at Llandrindod; new houses are springing up, and improvements, which it is expected will be soon carried out, will add much to the comfort of visitors, and others besides the natives of the Principality may be expected to resort to it. A good many of the Dissenting clergy are to be found here.

At Llandegley, about six miles from Llandrindod, and three miles off the railway, there are a sulphur and a chalybeate well, which do not seem to have been analysed. There is a small well-house and bath at the first. The water is strongly sulphurous, and soon turns milky. The chalybeate is pure, and pretty strong, and seems free from salt. There is decent accommodation in the village, which lies rather picturesquely under a

hill of irrupted trap. It is visited by a few country people. Dr. Richardson, of Rhayader, in writing to me, says, that these waters and those of Llanwrtyd are essentially the same, and he thinks a course of them useful in incipient tuberculosis, and in some skin complaints.

The town of Builth lies on the banks of the beautiful Wye, two miles below its junction with the Irvon. The neighbourhood is picturesque and interesting; and it has a large ruined castle or dun. Its wells are about a mile and a-half from the town, and half a mile from the railway. They are situated in the midst of some copse wood; and there is much rocky and wooded ground in the neighbourhood, which invites to walks. There is a small lodging-house or hotel close to them, and a new pump-room has been built over the chief wells. They are three in number—a strong salt one, a chalybeate, containing a good deal of salt, and a sulphur spring, which appeared to me to be weak. Besides these wells, there are several springs in the neighbourhood well worthy of further investigation. They are about half a mile off, two on the bank of the Wye, and a strong sulphur spring rising from a rock in the river. I heard of two others.

The most important well is the saline one, with 66.4 grains of common salt; and as it contains only 11.2 grains of chloride of lime, it may be considered to be one of the purest in Great Britain, of a strength not

inconveniently great. It closely resembles the Elisen well at Kreuznach, which contains 73 grains of salt, and 13.8 of chloride of lime, and being milder, is certainly equal to it in value. Neither of these, of course, are nearly so pleasant as the carbonated springs of Kissingen, Homburg, or Pyrmont. Unfortunately, there are not at Builth the strong salt waters, that are used so vigorously in Germany in bathing, to support the drinking of the waters.

The Builth waters are particularly useful in dyspepsia and in liver affections, where a tolerably strong water is desired, but their effects have never been studied with much care. The waters are so varied in constitution, that they ought to be applicable in a great variety of complaints. Even the strength of the waters is not accurately ascertained. One analysis makes them a good deal stronger, than the analysis of Daubeny, which I have followed. But his analysis makes them quite strong enough.

Builth has various historical and literary associations, which add a charm to its natural beauties, and the wells are capable of great development. As it is, a good many people drink the waters.

Two wells were noticed long ago near Llanrwst, one at Mayne, in high repute, used as a cold bath. The other at Trefriw, I learn, on good authority, has been found very efficacious, when drunk. I have no analysis of it, but it used to be considered a salt spring.

Taafes' well, near Cardiff, the only thermal well in Wales which is charged with nitrogen, does not seem to have attracted any attention, since it was noticed by Daubeny.

I cannot part with the Principality, without congratulating it on its richness in sea-bathing places. There is great variety to choose from—1st, according to the size of the place; 2nd, according to the exposure. You may have a southern, a western, or a northern. The drawback of all of the Welsh sea places is, that they are apt to be rainy.

Of the larger scale you have Rhyl, Llandudno, Aberystwith, Tenby, all, but especially the three last, most desirable places, and each offering separate attractions. Of the smaller you have Penmanmawr, and many delightful places near it, such as Bangor and Beaumaris, then Barmouth, Towin, Aberdovey, Borth, Aberayron, Fishguard, Llanstephan, and the Mumbles, near Swansea, which was in former days a great bathing-place. At many of the smaller places the bathing arrangements for ladies are defective. Probably there are chalybeate springs near many of these places; but of those that are known, the Tenby ones are the most important, though now neglected.

On the whole, there is the best bathing ground, and the freshest sea air, on the western coast.

IV.—SCOTLAND.

CHAPTER XII.

NOTWITHSTANDING the absence of hot springs, known from the time of the Romans, of which England could boast, Scotland began to pay attention to its mineral waters, nearly as soon as the sister kingdom. We have already seen in Chapter IV. what was done in Scotland up to the end of the seventeenth century.

We know that the Pitcaithly waters were in use, and much frequented, in the commencement of the eighteenth century, so much so, that the Presbytery found it necessary, to fulminate various orders against those who went to drink the waters on Sunday, just as the Londoners used to resort to Dulwich wells. The minister was directed to "dehort" them, and the ferryman ordered to give no passage on Sunday. There is rather a dearth of literature about this time. Somewhat later, or in 1734, the Edinburgh Essays contained accounts of various mineral waters, especially of some chalybeates. In 1757 Dr. Home published a large book on the iron spring of

Dunse, which is now forgotten. In 1760 Dr. Monro published an account of some mineral waters in Ross-shire, and in 1772 noticed Strathpeffer. About 1784 Strathpeffer became better known. In 1790 Dr. Garnett wrote a good treatise on Moffat, and the neighbouring Hartfell Spa, which had been discovered in 1748. The waters of Dunblane and Airthrie do not appear to have been analysed till about 1814, when they were examined by Dr. Murray, who did so much for the analysis of mineral waters. Dr. T. Thomson, of Glasgow, followed in his steps, examined many new waters, and introduced those of Spital and of Rothesay, of neither of which, however, much seems to have been heard. Later, Dr. Christison also contributed to our knowledge of the composition of the Scotch waters.

Innerleithen, near Peebles, and Pannanich, on Dee side, were first known to the public in the first quarter of this century. But of the newer spas, Strathpeffer and Bridge of Allan have attained most popularity. I do not know, that any separate account of the mineral waters of Scotland has ever appeared. At one time Dr. Murray Thomson was understood to be engaged on such a work. If we glance at the nature of Scotch mineral waters, we are struck with the entire absence of thermal ones, and it follows almost as a necessary consequence, that bathing cannot occupy a prominent position in their use. There are, indeed, baths of mineral waters to be had

at some places; but the mineral waters are used essentially for drinking.

Their constituents are not very varied. The chief are sulphuretted hydrogen, common salt, sulphate, carbonate, and especially chloride of lime, a little sulphate of soda, and chloride of magnesia, as well as carbonate and sulphate of iron. Scotland has no strong well of common salt, or of the purging salts—Airthrie reaching only 48 grains of the one, and Spital only 18 grains of the other. Carbonic acid is scarcely present in any of the Scotch waters, in sufficient quantity to make them acidulous and agreeable.

Nothing promotes the beneficial effects of mineral waters more than good fresh air; the action of good air is reinforced by exercise, and exercise is vastly promoted by interesting scenery. The Scotch wells are favoured by fresh air and picturesque country. Their chief drawback is, the tendency to rain near the mountains.

Scotland was in former days celebrated for its whey cures. Spots near the borders of England and in Perthshire seem to have been favourites for such purposes.

Scotland did not differ from the rest of Europe in having its holy wells of pure water. St. Columba found a well among the Picts, long tenanted by an evil spirit, whom he exorcised, and afterwards bathed in it; others followed him, and were cured of their ailments. Some of the best known of these wells were, the Ladywell of

Stratherne, Our Ladywell of Ruthven, the Holy Pool of St. Fillan.

But the Scotch paid offerings to wells also, much oftener, in reality, worshipping the genius of the fountain, than its Christian saint. It is difficult to say, what the Scotch notion of the spirit of the well was. The water-kelpies, like the northern nisses and nixes, frequented lakes and running waters rather than wells. They were all mischievous, and nothing benevolent was to be expected of them. Dr. Anderson, in 1618, talks of "the superstitious, or mud earth wells of Menteith, with a number of others in this countrie, all tapestried about with old rags, as certain signes and sacraments where-with they arle [that is, give a retainer to] the divell with ane arls-penny of their health—so subtle is that false knave—making them believe that it is only the virtue of the water, and nothing else."

The following are some examples of well worship. There were wells near Dumfries, to which the people brought offerings of bread and cheese and money. As late as the year 1736 the ministers debarred from the Communion, those who resorted to such wells. A well near Peebles was called Cheesewell, and one near Turriff, Silverwell, from the offerings made to them. Perhaps the commonest offerings of all, were bent pins; and good examples of this are mentioned in various islands, even in the remote St. Kilda, in Martin's account of the Hebrides. In a well in the island of Eigg, which was

cleaned last year, a great collection of pins was found, of all but the very latest pattern.

At Craiguch, in the parish of Avoch, in Ross-shire, up to a very late, if not up to the present date, all the young people used to resort to a certain well, before sunrise on Sunday morning of May, Old Style, corresponding with Beltane, to drink its healing waters, before the sun was up. The furze bushes in the neighbourhood were covered with rags and patches of cloth, brought as offerings. Before drinking of the well, the water was twice poured on the ground, and the people crossed themselves by stealth, as if they were good Catholics—a combination of heathen and of Catholic usages, and this in perhaps the most Calvinistic district of Scotland!

Practices nearly similar were followed in various parts of Scotland, till quite recently.

But the holy wells were especially famous for the cure of insanity, and the best known of them was that of St. Fillan, where it was affirmed that 200 insanes were cured annually.

The first day of May was the favourite one for obtaining cures, and these were some of the practices:—Three stones were taken, and the man walked three times round three heaps of stones, deasil—that is, going with the sun—throwing one stone into each. After dipping the patient two or three times in a deep pool of water, they would leave him tied for the night in the old chapel close by, and such as got loose through

the night, they believed would get better, but those that remained bound, were counted incurable.

A similar superstition lingers about the island of Moree, or of Saint Maelrubha in Loch Maree, in Ross-shire—nay, 200 years ago they sacrificed bulls to him. At the present day the lunatic is taken in a boat; as he nears the island, he is suddenly jerked out into the loch, a rope having been made fast to him. He is drawn by it into the boat, to be a second, third, or fourth time unexpectedly thrown into the water, during the boat's course round the island. He is then landed, made to drink of the waters, and an offering is attached to the tree, which is studded with nails, by which offerings were fastened. See Dr. A. Mitchell's very interesting paper, in Proceedings of Soc. of Antiquaries of Scotland.

But besides the employment of these waters, based on this mysterious faith in their virtues, which we have just illustrated, there is reason to believe that, like the Irish, the Scotch were acquainted with the use of vapour baths. There is also proof, that they had some notion of hydropathic practice, for Martin, in his "Western Highlands," tells us that John Campbell, forester, of Harris, when he had a cold, walked into the sea with his clothes on, then came home, and rolled himself up. Burt also says, that Highlanders sometimes wetted a plaid in water, then turned themselves round and round, till enveloped with the whole mantle, and lay down in shelter of a rock. I have myself

known Highlanders tie wet stockings round their necks for sore throats, before the days of hydropathy.*

It is curious, that perhaps the chief hydropathic institution in Scotland—a very well-managed one—is at Crieff, in a district abounding with springs of very pure water, some of which have already been mentioned, as the holy wells and places of pilgrimage of Strathearn. Crieff has a great deal of natural beauty to recommend it, and the climate of Upper Strathearn is one of the pleasantest in Scotland. The neighbouring mineral waters of Culgask were at one time brought in casks into Crieff, but they must be considered unimportant, although they contain a good deal of carbonic acid. Crieff has during the season 600 or 700 resident visitors.

Another well-known establishment is at Forres. It has the mild and comparatively dry climate of Murrayshire to recommend it. Strangers are always surprised at finding so favourable a climate so far north. It is a fortnight earlier than districts 120 miles south of it, for which it probably has to thank its sandstone.

* People in an early state of civilisation are often very acute in their perception of the taste of different waters. A certain sick man, in the island of Coll, was anxious to drink the water of a spring in the neighbouring island of Rum, which he had used as a boy. A boat was despatched for a supply of it; when the water was brought, the sick man declared that it was not from his spring. The boat was sent back, and brought a fresh supply of what was acknowledged to be the true water. The patient drank it, and recovered.

One of the newest establishments, in which all the appliances for various kinds of baths appeared to me to be excellent, is at Wemyss Bay, on the top of a rocky bank overhanging the Clyde, and commanding extensive views to the west.

The earthy mineral waters of Scotland are not of much importance. Several have been mentioned at different times in books. The best known for a time was that of Kinghorn, which Dr. Anderson commended in 1618, in one of our first Scotch bath books, but it is quite forgotten; so, also, is a mineral well at Inverkeithing, which contained about 1¼ grains of lime to the pint. A well of this kind at Gleveley, in Ross-shire, is set down in old books. Like the well at Slains, mentioned by Hector Boece, it was a petrifying one.

There are a great many sulphuretted wells in Scotland, though most of them are known only locally. For instance, there is the sulphur well of St. Philip's, near Yarrow; another one at Bowerhope. There are several sulphur wells in a bleak moor beside Thorlies' Hope, or Dede Men's Water, sometimes used by the country people, close to the Border. There is another, the Block Well, near Langholme, and a strong sulphur one near Springkell. There are many more of a similar nature—such as one at Corstorphine, near Edinburgh—but the two chief wells of the kind are Moffat and Strathpeffer. They are both good cold sulphuretted wells, the small quantity of common salt in the Moffat water, and the

sulphate of soda in the Strathpeffer, not being strong enough, as in the case of some other waters, to supersede the effects of the sulphur on the system.

Something has already been said of Moffat and its early history. It has now been known for more than two centuries, and it continues to be a very popular place. It always has been a quiet one, and has never had the dissipation of larger baths. It is in the upper part of Annandale, and lies 300 or 400 feet above the sea. The climate is somewhat moist, but owing to the gravelly substratum, the rain soon runs off. There are excellent houses and villas, and the neighbourhood is hilly and interesting. It is stated that in 1870 the mortality was as low as 15.2 per 1000, and that there were about 5000 visitors. At present visitors go more for change of air, than to drink the waters. The sulphur spring issues from the rock, close to a stream about a mile and a half from the town of Moffat. The road to it is a gradual ascent, and gives a pleasant walk in the morning to those, who can go on foot. There is a pump-room at the spot, and the water is also brought down in pipes, and supplies a small set of baths, adjoining the public reading-room in the town. The water is a good deal stronger up at the source. Its chief constituents are sulphuretted hydrogen, 2.65 inches; common salt, 22.07 grains; and about 2 grains of sulphate of lime and of sulphate of soda each. The water is alterative and diuretic, and but rarely purges.

The water has been employed in a great variety of ways. It was used externally for scrofulous sores and ulcers, and also in cutaneous affections. It was also employed internally for many affections of women, in stomach complaints and abdominal obstructions; but in old days, as the water is scarcely aperient, purgatives used to be added to it. It is a light water, which obviously may be of use in dyspepsia, and as an alterative in skin affections. It is curious to read that its action was considered dangerous in phthisis. I cannot conceive that it could have been injurious in any way. The dose of the water used to be three or four quarts in the day. It is now much smaller.

Strathpeffer was known before the last quarter of the past century; but it was not until the early part of this century, that Dr. Morrison's zealous efforts advanced its position. It has now grown into the most crowded spa in Scotland, at least of those that are resorted to really for the drinking of their waters.

It has the advantage of lying in a very picturesque country, at the foot of Ben Wyvis, in Ross-shire, with excursions to a great variety of very romantic scenes, within reach. The district seems alway to have been famous for holy and mineral waters. Besides Craiguch already mentioned, and two wells at Nigg, there was a saint's well on the N.E. side of Knock Farrell, which was famous for the cure of insanity.

Strathpeffer has four wells; but two are the principal.

The pump-room, or new well, is believed to contain sulphuretted hydrogen nearly 3 inches, about 7.5 grains of sulphate of magnesia and sulphate of soda, each, and about 16 grains of lime, chiefly sulphate. The upper well contains only half the amount of lime and one-quarter more of magnesia. They are undoubtedly strong sulphur wells.

Their general action is strongly diuretic, and perhaps rather constipating.* They are used most, and with excellent effect, in chronic rheumatism, in dyspepsia, and in cutaneous affections. But a great variety of cases, requiring alteratives and the action of sulphur, improve here. The books, repeating Moffat, very unnecessarily, I think, warn off all cases of phthisis.

The usual dose of the waters is three tumblers before breakfast, and as many more in the afternoon.

There is no great variety of society, and, I may say, no gaiety, in the commonly accepted sense of that word, at

* Dr. Manson makes this statement:—"We have frequently observed, during a course of the water, the skin, especially of the hands, to become harder, and its cuticle to be shed in scurf. Over the rest of the body the same process goes on, though rarely in an appreciable degree. On the face the action of the water is more that of a cosmetic." So we have here a rival to Schlangenbad. "It has been observed by some, who have taken the water extensively for some time, that on their underclothing being shaken over a fire, the impurities derived from the skin, have burned with a blue colour, like particles of the flowers of sulphur—a somewhat extraordinary fact, which proves at once the strong impregnation of the water and its relation to the skin."

Strathpeffer; but the climate is mild, and when it is dry, a great deal of time is spent in the open air. It is a place for the study of Scotch clerical character, for the clergy have flocked here now for a long series of years. Indeed, I have observed the clerical element generally to be strong at most wells, foreign and domestic. The poorer people also come here in great numbers, and drink the waters in very large quantities.

Strathpeffer has been greatly improved of late years. In the immediate neighbourhood of the spa a garden has been laid out. Fair hotels and lodging-houses have sprung up; and since the opening of the Skye railway, the number of visitors has greatly increased, and the accommodation for them is gradually improving.

There is another sulphur spring at Muirtown, about two miles off; and there are others in the county.

The waters of St. Bernard's well, in Edinburgh, have a temple built over them, and were once drunk, but they are so feebly sulphuretted, as scarcely to be worth mentioning.

There is a sulphuretted well at Bogany Point, near Rothesay. Dr. Thomson described it, as being strong of sulphuretted hydrogen and of common salt. I have no very distinct information respecting its recent history. It appears to be seldom ordered by the local medical men, but a good deal employed by the people of the place; and, like all sulphur wells, chiefly in cutaneous affections. It has the advantage of the mild, equable climate of Rothesay, and its sea-bathing.

We have no brine wells in Scotland, but we have a few salt ones, the general character of which appears from the following table :—

	Airthrie.	Dumblane.	Innerleithen.	Pitcaithly.	Cardren.	Culgask.
Common salt . .	47·5	40	27	14	14	20
Muriate of lime .	38	22	13.5	21	4	37

Muriate of lime is thus associated in every instance with common salt. So little is positively known of the action of muriate of lime on the system, beyond its mere purgative effect, that it is difficult to predicate positively the operation of these waters. I think a small quantity of the salt is better than a large one, as the lime seems to lie heavy on the stomach.

Airthrie, or Bridge of Allan, near Stirling. The sheltered situation of this place makes it a favourite resort for the people of Edinburgh, and for others who are glad to escape for a time from the cold winds of the eastern coast. Many, also, go to drink its wells, which are four or five in number. There is an admirable pump-house. There are Turkish baths near, good hotels, and good lodgings, and everything to make the place agreeable, including fine views over the country, and many drives and walks. The waters are essentially purgative, and are used for affections of the digestive organs mainly, but they may be useful in a great many maladies, when action

on the intestinal canal is desired. The waters, as shown in the above table, containing 47·5 grains of common salt, and 38 grains of muriate of lime, are certainly not agreeable to the taste, and are apt to cause discomfort, if not drunk warm. Three tumblers before breakfast is the usual quantity, and is mildly aperient. It may be a question, whether the digestion of the waters be promoted by the somewhat plaintive melodies of the fiddler, who is in attendance.

Proceeding along the wooded banks of the Allan, you reach Dumblane, prettily situated, with waters much of the same quality, and quite as good as those of Airthrie, but which have been little used. They are about a mile and a half to the north.

Bridge of Earn, or Pitcaithly, has weak springs of the same nature. Though known and used from an early date; they cannot be considered important. The place itself affords pleasant summer quarters, and is a good deal frequented. It has Glen Farg and many objects of interest near it.

I have not heard of the similar springs of Cardren, near Paisley, being used, and those of Culgask, some miles from Crieff, are not at present employed.

Innerleithen, near Peebles, well known as the scene of one of Sir Walter Scott's least successful novels, "St. Ronan's," has a fairly strong salt and lime spring. The supply of its water is apt to be scanty. Innerleithen is in a pleasant country

on the banks of the Tweed, and is an agreeable residence, if a very great deal is not to be expected from its waters. These Scotch salt wells all resemble each other in their constitution, and more or less in their operation.

Scotland has no salt waters strong enough to be of use as baths, and the Scotch, if they want mineral baths, have to look entirely to their sea baths. The coast of Scotland is studded with bathing places. They have plenty of fresh air, but as a general rule scarcely come up to our requirements in the way of bathing machines and baths; for the robust this is not of great importance, though of much to invalids.

First along the east coast comes North Berwick, facing the north and north-east, with the Bass Rock near enough, to be an object of interest; it has been growing rapidly into favour, but was very deficient in bathing machines two years ago.

Next is Portobello, a quiet, comfortable bathing place, close to Edinburgh, and much better supplied.

On the other side of the Firth are Aberdour, a sheltered and agreeable spot, with shady walks, and Burntisland, a convenient place; and, passing the "east nuik of Fife," the much larger one of St. Andrew's is open to the air of the whole German Ocean, and has bathing machines. Passing Broughty Ferry, and various bathing places on the coast of Forfarshire, we come

to the little bay of Stonehaven, a good deal frequented by the people of Aberdeen, who have also their own bay—not very desirable bathing ground. Running out into the ocean is Peterhead, which deserves notice for the spirit of its inhabitants, who, as long ago as 1800, excavated from the rocks a large bathing place for ladies, constructed another for gentlemen, and supplied hot and cold baths. They are now less used, than they might be.

Along the Moray Firth are various spots, such as Banff, and Buckie (a primitive village, a great local favourite, where the manners of the peculiar race of fishermen may be studied), Lossiemouth, and Burghhead; but the great sea-bathing place, and one of the best in Great Britain, is Nairn, which has of late years become crowded, and where the arrangements of every description are excellent.

In the west of Scotland there are many bathing places down the Clyde, crowded in the season, as Largs, Ardrossan, Rothesay; and others on the coast of Ayrshire and Galloway. Four bathing places have mineral waters — Peterhead and Ardrossan chalybeates, and Rothesay sulphur springs; none of them much in use. At Buckie there is a chalybeate of moderate strength. The usage there is to drink a pint of the sea-water; and then follow it by the mineral water, until it has due effect. The people of the country have much faith in this practice.

Scotland abounds in chalybeate springs, both sulphated and pure. It contains some of the strongest wells of the first kind, that are known in any part of the world.

The strongest of all, Vicar's Bridge, near Dollar, contains the immense amount of 380 grs. of sulphate of iron. The strong Moffat chalybeate contains 74 grs. These waters are of no use medicinally, and even the Hartfell Spa, five miles from Moffat, is much too strong, containing, as it does, 4.5 grs. of sulphate of iron. The spring probably rises at a greater elevation than any mineral spring in Great Britain. Its waters can be had in the chemist's shop in Moffat. It is a very powerful chalybeate, and it may be found useful in general debility, and where astringents are indicated; but it obviously must be used with great care. Such strong iron waters are sometimes usefully applied to ulcers.

The neighbourhood of Moffat has also various mild chalybeates. Most of the numerous Spa wells in Scotland are of this nature. One at Brough, near Ruthwell, in Dumfries-shire, was once known locally; indeed, they are so numerous, and so imperfectly known, that it is scarcely worth while to give a list of them. It so happens, curiously enough, with the exception of Dunse, Joppa, near Portobello, and Bonington, near Edinburgh, that all the Scotch chief chalybeates, that have been treated of in books, occur in the counties

of Forfar, Kincardine, and Aberdeen, and especially in the last.

There are chalybeates at Arbroath, Kincardine, and one in the hills at Glendy, three miles west of the old road over the Mount, which one would suppose to be a very promising one, if you could trust the old account of the quantity of gas present in it.

Though not a very important chalybeate, the Gilcomston well at Aberdeen is the first drinking spa, of which we have any account in Scotland. It was known in 1580, and a certain Dr. Barclay, on his return from France, published an account of it, or "resuscitation of its nymph," in 1615. Jameson, the Scottish Vandyke, as he is called, took an interest in the well, and caused a tomb or "dome" to be erected over it. The well is kept in good repair, and retains its old inscription :—

> "As heaven gives me,
> So give I thee";

but is not much used, and its water is believed not to be so strong, as it was formerly.

Dr. Barclay compared it to the water of Forges, in France, and recommended it as a tonic; but, while praising the virtues of the well, he admits that it cannot cure stone—a virtue ascribed to many chalybeates in those days—though there was an "Irelandish impostor at Inverness, who doth imitate the pseudo-

Christ," who undertook to cure that affection, and who "deserveth to be stripped with many stripes."*

The Fir Hill Well in Old Aberdeen, another chalybeate, was the subject of a pamphlet in 1800. It is a pleasant chalybeate, a visit to which before breakfast, used to be a common and salutary practice. The draught of its water was followed by eating a piece of gingerbread—the successor, like the Carlsbad wafer, of the *liba* of the ancients. I have heard the minister dehort the people from this well on Sundays. There is no occasion to do so now, as the taste of the proprietor of the neighbouring fields has made the place no longer accessible, except by a dreary walk between stone walls. The firs, too, are gone, and the hill is levelled.

Peterhead was for nearly two centuries the Tunbridge Wells of Scotland. It was first recommended to the public in 1636, by Dr. Andrew Moor, then only a

* Dr. Barclay appears to have been a splenetic gentleman. He says:—"In Britain he is esteemed the best physician who kills most, provided that he be not accused." He praises the virtues and learning and courteous behaviour of the people of Aberdeen, which he calls a small Paris or Lutetiolum. He observes that "he found the Highlands to nourish strong, rude, cruel, long-living, laborious, and lecherous men; and that, by reason of their food—milk, cheese, butter, fleshes, oatmeal, and much exercise; I will remit the matter of *aqua vitæ* to another place." He makes this curious remark: "There never was a man vexed in Strathspey with the ague before 1613."

student in Edinburgh. It rose rapidly into popularity; it is mentioned as an important chalybeate in all the works on mineral waters of the eighteenth century; and apparently Dr. Laing's treatise in 1793 was the last published on it.

Peterhead lies on an exposed headland jutting out into the German Ocean, opposite to Norway, and has always been famous for its fresh air and sea breezes. "We in Scotland," as Dr. Moor remarks, "are at no time troubled with heat, and our summer is chiefly distinguished by the long sojourning of the sun on our horizon." And the shortness of the night in summer, strikes all English visitors of the North of Scotland.

There were six chalybeate springs: one called the wine well, a name strongly suggestive of Schwalbach or Pyrmont. It sparkled in the glass, and exhilarated the spirits when drunk. The well appears to have been a powerful chalybeate. A rough analysis makes it contain nearly three grains of carbonate and muriate of iron, and seven inches of carbonic acid, with scarcely any earthy ingredients. It was, therefore, a very pure and powerful chalybeate, and deserves to be examined again. Theoretically, it is somewhat too strong, but an unpleasantly strong water would scarcely have maintained its popularity over such a long period, for it was resorted to by crowds of people as late as the year 1795.

In spite of the spirited efforts of the magistrates of Peterhead, its chalybeates are now neglected. If they

be good chalybeates, it is a great pity that it should be so, as iron waters are useful under so many circumstances. They were employed in disorders of the stomach and bowels, in nervous complaints, and especially in the affections of women.

I do not gather from Dr. Moor, who has followed Dr. Rowzee and other writers of the time, much that is illustrative of life at Scotch baths. He recommends you "to exercise yourself with goafing, bowling, or some such other exercise, for the Petrean fields are as the Elysian, for such purposes. After noon, beguile the time with reading, talking, walking, dancing, singing, dicing, carding," &c. Sea-bathing was not thought of in those days. Visitors to Peterhead have the advantage of good sea-bathing; and fine cliffs, including the well-known Bullers of Buchan, are only a few miles off. It is as interesting to watch the fleet of herring-boats here, as the pilchard fishing on the equally granite-bound coast of Cornwall.

Pannanich Wells, on Deeside, two miles below Ballater, first discovered in 1760, began to come into use about the end of last century, and the proprietor did all in his power, by erecting a pump-room and providing hot and cold baths. Under his auspices a well-house and lodgings sprang up near the wells, and the place rapidly attained great local popularity. Indeed, twenty years ago, the wells were crowded with patients seeking relief for the most multifarious affections, not without scandal

as to the influence of the waters being supported by the use of whiskey.

The wells are four in number, believed to be identical in composition, containing carbonate of iron and lime, with small portions of other ingredients. They appear to be fairly pure chalybeates, and are pleasant to the taste. Each well was believed to have peculiar virtues, but I have not met with any medical account of them.

It is needless to go over again the complaints for which iron waters are useful.

Although the beauty of the neighbourhood has been marred of late, by stripping some of the hills of their forests, Pannanich, with its mountain air, ought to be a popular place. It possesses many of the advantages, which have recommended Balmoral to the Court. It is still a good deal visited by people of the country, and has many things to make it suitable as a summer residence. There are many objects of interest within reach, and alpine excursions can be made from it. I am glad to hear that it is proposed to make some improvements. Surely here, among pine forests, if anywhere in Great Britain, baths might be prepared in imitation of the German pine balsam baths, which are so popular in the treatment of rheumatism.

V.—IRELAND.

CHAPTER XIII.

IRELAND was probably never behind England, in its supply of holy wells, which cured diseases. Indeed, St. Patrick visited a fountain, to which he found offerings made as to a god. But our earliest accounts of anything like true mineral waters, come from the half-fabulous reports of Giraldus Cambrensis. These are some of his statements :—"There is a well in Mounster, with the water of which, if anyone become washed, he becometh forthwith hore. I have seen a man that had one-half of his beard hore, being died with that water hore; the other half unwashed was brown, remaining still its natural colour. Contrariwise, there is a fountain in the further edge of Ulster, and if one be bathed therewith, he shall not become hore, in which well, such as lothe gray hairs, are wont to dive. There is a spring in Connaught, the water of which is very wholesome to men and to women, but poison to beasts." There was further a well in Munster so shy by nature, that it did not like any one to look at it; and if any one viewed it,

or touched its waters, it immediately overflowed. The peculiar petrifying qualities of Lough Neagh have been already mentioned, and will be so again.

But many fabulous things were believed of Ireland; for instance, in the middle of the seventeenth century, that it contained one or more volcanoes. Indeed, a writer in 1780 says, that some years before, there was a kind of volcano in the West of Ireland, which burnt for some time! And after the middle of the eighteenth century another writer tells us:—"Some pretend that the springs in Ireland are so hot that they would boil a piece of beef in a quarter of an hour's time, which is altogether improbable."

The literature of Irish waters is very scanty. Bellon, in 1681, wrote a book called "The Irish Spa," on some weak springs at Chapelizod, near Dublin. I suppose that his work may have given some impetus to the subject, as the chalybeates of Ballyspellan, near Kilkenny, were the subject of writings by Taaffe and Burgess, in 1724 and 1725. In the middle of last century Dr. Rutty published an account, drawn up with infinite pains, of every sulphur and chalybeate spring throughout the country, important or unimportant; some of the wells were much resorted to in those days by the gentry, as Ballyspellan, the Irish Spa; Mallow, the Irish Bath, and Swanlinbar. Kirwan and Lewis contributed a good deal to the chemistry of the subject. In 1824, Ryan called attention to Irish mineral waters,

but added nothing new or of importance; and, in 1845, Dr. Knox published an account of all the watering-places in Ireland, to which Dr. Kane contributed many analyses. Dr. Knox, on the whole, gives a melancholy picture of the neglect of Irish waters; nor do I know, that much that is new has occurred since his time, unless the attempt to revive Lisdunvarna, during the last few years.

But if Ireland does not possess any very powerful springs, it always retained in out-of-the-way places, the old usage of hot-air, or, rather, steam baths; and this partly afforded the hint, on which Mr. Barter acted, when he established the Turkish baths at St. Anne's, near Cork, which soon became crowded with patients, as well as baths in Dublin of the same kind. He also communicated a considerable impulse to Germany, and Turkish baths in consequence pass in that country, by the peculiar name of Irish-Romish.

It is also certain, that the Irish understood the practice, if not the theory, of hydropathy, for Willis, in 1674, says that it was usual at that time in Ireland, to roll up fever patients in wet sheets, the very practice at this moment popular in Germany in typhoid fever.

The Irish have also bathed themselves and their horses in the bituminous mud of Lough Leigh, or Lough-inlea, a small loch in the hills between Kingscourt and Baillieborough, in County Cavan, where also are chaly-beate springs. They seem also to have smeared the

affected parts with mud, and we thus have a distinct specimen of *lutation*, and the first step towards the mud and peat baths, now so popular on the Continent, and for which Ireland has such ample means, if any encouragement were offered.

Another process, well known in other parts of the world, Dr. Stokes, of Dublin, has been good enough to inform me, was at one time extensively practised at Tramore, near Waterford, that of *arenation*, that is of making the patient lie on the sea shore with his body covered with the sand.

If we come now to pure water, we shall find that the Irish have, like the rest of Europe, various superstitious notions about water. They firmly believe that the water of several holy wells cannot be made to boil, and a similar belief prevailed in Lewis, in the Hebrides. Their holy wells are legion, and pilgrimages from long distances used to be made to them. Some of the most holy, I believe to be St. John's, Kilkenny, and St. Kieran's, County Meath. There was a well of St. Dominick, at Glanworth, visited on his festival. On the boughs of a large old tree, over his well, were an infinite number of rags of all colours. St. Patrick's or Struel's wells, near Donaghadee, were very famous in the same way. Pilgrimages, or patterns, are still made to some wells, though on a smaller scale, than formerly.

I had the curiosity to visit two holy wells; both of them were quite tasteless, so that their virtue

lay in their sanctity. At the first, near Liscanor, there were the usual stations of Catholic places of pilgrimage. I only found one boy, who had been drinking and performing his devotions for a fortnight; he was suffering from chronic ophthalmia tarsi, and could not say he was much better, and no wonder, as he was suffering from so obstinate an affection.

The other well was at Ardmore, in the south of Ireland. It was, like Walsingham, a sort of wishing well. You drink the water and wish for the cure, and must walk three times round the ruins of an adjacent chapel, always taking care to walk with, not against, the sun. I was interested in a very obstinate case of deep-seated inflammation of the eyes, which had resisted various modes of treatment. So I wished for the cure of this case, and when I had occasion to see the patient a week after, sure enough there was marked improvement, which went on to recovery. If the result was not *propter hoc*, at all events it was *post hoc*, and is not a bad illustration of the sources of popular belief in such cases. Many English springs called eye-wells, have no higher claim to be counted efficacious, than these Holy Wells.

Leaving wells of peculiar sanctity, we come to those of pure water.

Among simple waters comes, the only thermal source in Ireland—that of Mallow. It lies on the line of railway from Dublin to Cork, where the branch

goes off to Killarney. It appears to me, to be far the most desirable inland place of residence for invalids in the country. It has very nearly as mild a winter climate as that of Cork and Penzance, and from the middle of February to the end of April, owing to being sheltered from the east winds, to which Cork is exposed, it is a place well suited for cases of pulmonary affections. The country around is picturesque, and there are excellent houses. The pump-room and everything about the spring is kept in good order.

Formerly the place was in great repute, and called the Irish Bath. Near the spa there were pleasant walks, agreeably planted, and on each side were canals and cascades, for the amusement and exercise of the company, who had music on these walks. There was also a long room where assemblies were held for dancing and card-playing. Adjoining the well was a kind of grotto.

Its spring is abundant, at a temperature varying from 66° to 72°. It is singularly pure water, the mineral contents are very small; there is a great abundance of nitrogen gas, perhaps as much as is present in the Buxton waters. While the nature of the action of nitrogen on the system is quite unknown, it is interesting to find, that warm nitrogen waters have been considered in other parts of Europe particularly useful in early phthisis, and, like other indifferent waters, beneficial in some forms of dyspepsia. Such waters are

commonly used abroad, as at Lippe and Paderborn, for the purposes of inhalation. Mallow has also some chalybeate springs in its neighbourhood.

On the whole, bathing forms a very small portion of the treatment at any of the Irish spas. I regret, on this account, that I did not hear till just before leaving Ireland, and when I was unable to visit it, of what is called Bathing Bay, in the huge internal lake of Lough Neagh. It is in the south-western angle of the lake. Four or five sulphur springs run into the loch, and possibly may very faintly impregnate the waters of a small angle of it. On this account, and from a mistaken idea of the water being warm, the natives have much faith in its curative effects, especially in scrofula, for from early times "shocking cases of scrofula, which had not yielded to the king's touch," were cured here. They used to bathe in the open lake, just as the natives of Bengal bathe in some of their tanks supplied with hot springs. A very remarkable fact in the history of Lough Neagh water is, that towards the close of the last century, such faith in its power over scrofula had the Rev. Dr. Lill, that he bequeathed a sum of money for the formation and maintenance of a hospital at Washing Bay. But the wishes of the testator were neglected, the value of the property he left became deteriorated, and eventually the funds were diverted to the nearest county hospital, that of Armagh, with, however, some reservation in favour of patients from near Washing Bay. It was long thought, as we have already

seen, that the waters of Lough Neagh possessed petrifying and other wonderful properties; but the petrified wood which is still found in it, is, undoubtedly, fossil.

To come next to waters with some mineral impregnation, Ireland abounds in sulphuretted hydrogen, in chalybeate, and in sulphuro-chalybeate wells. They are not generally strong, though they are pure of their kind. Indeed, the absence of salts, even of earthy ones in any amount, is remarkable. Ireland appears to possess no waters containing enough of common salt, or of Epsom or of Glauber salts, to make them in the least degree aperient.

If the following remarks shall appear to be very general and deficient in detail, I must plead the difficulty of obtaining accurate information, where there are no resident medical officers. One is obliged to be satisfied with general impressions. All that can often be ascertained is, that certain patients have gone to certain wells, and have benefited by using them, or have failed to do so. How much is attributable to change of air, and how much to the use of the waters, is always difficult to determine, and the more so when the marvel-cure element is introduced. It is quite a mistake to suppose that it has been banished by the march of civilisation. At every well, one is called on to believe in the most miraculous cures of patients, who have been affected with diseases of many years' standing, who have been treated by doctors at home and abroad, have been at

spas domestic and foreign, and have never obtained relief, till they came to the particular place, which they have found to suit them. To credit such cures, requires the ample faith of those who at the present day (like their ancestors who flocked to Mrs. Mopps, the female bone-setter at Epsom), believe that the skill of the famous Watford bone-setter made up for the shortcomings of our first London surgeons. It is the old story of *vulgus vult decipi.* The honest practitioner cannot say *et decipiatur*, but assuredly in such matters, *vulgus decipietur* to the end of time. A good example of this was afforded by a well near Leixlip, in the county of Kildare. Extraordinary virtues were at one time attributed to it, as a chalybeate, and crowds flocked to it from Dublin, induced by the attestation of the wonderful cures, that daily met their eyes of the visitors. At last, as the well contained no iron or other ingredients, except a faint odour of sulphuretted hydrogen, the bubble burst, and the downfall of Leixlip was accelerated by the publication of a caricature, representing a broken-down noddy restored to freshness and strength, by the application of its waters.

The sulphur waters of Ireland are, at all events, so free from foreign admixtures, as to make them fit, if strong enough, for the study of the real effects of simple sulphur on the system.

Swanlinbar is a small village in a picturesque enough country, eight or ten miles from Enniskillen. It has

several wells in its neighbourhood, all impregnated with sulphuretted hydrogen. The chief well is about a mile out of the village, on the other side of the river. It has a shed over it, and is tolerably clean, but there is no sort of well establishment, and I had to borrow a glass from a neighbouring cottage. Although Swanlinbar used to have the reputation of being the strongest sulphur well in Ireland (it is evidently pretty free from foreign ingredients, but there is no analysis of it), Knox represents it as only moderately impregnated with sulphuretted hydrogen, and in this he is probably right. There are at least three other wells in the immediate neighbourhood, some said to smell more powerfully than the chief well. These wells, no doubt, produce the same effects as they did in former days, when Swanlinbar was a fashionable place, and when Swift tortured his wit on the name of the place, which is also written Swadlinbar. In the beginning of this century, the place was so crowded, that people had at times to sleep in their own carriages, in default of other accommodation. I cannot indeed see, although there are some houses of a better class, but with a decayed look, how any large number of people could have found shelter here. There is a respectable village inn, but no accommodation for any number of people. At present it is not wanted, for I could hear of none drinking the waters in the season of 1869, except two ladies from Dublin. There are various objects of interest in the neighbourhood among the

limestone mountains, which here, as in other countries, are curiously worn by water, and also the woods of Florence Court, to visit. Though Swanlinbar has the credit of a damp climate (I visited it on a wet day) the place might easily be made attractive to visitors, if there were any demand for the waters. They might still be found useful in dyspepsia and skin affections.

There are a great many sulphur wells, some of considerable local repute, in Fermanagh, many of them near Loch Earne. A strongly sulphuretted water was brought to me from near Krevenish. Drumgoon, in Fermanagh, was formerly well known. In the neighbouring county of Leitrim, Drumsna, near Carrick-on-Shannon, was once a place of great resort, and enlivened in its day by public breakfasts, promenades, and balls, but its glories have departed. The Killymard sulphur well, near Donegal, once used pretty extensively, is very little resorted to. It deserved a better fate, as it had baths fitted up at a considerable expense. The waters, besides the sulphur, contain a little iron.

The sulphuretted wells of Lucan, near Dublin, which were once crowded, and have pump-rooms and public-rooms, and are situated in a very pretty country, appear to be quite forgotten, but without any good reason. The waters contain about 7 grains of soluble salts, and 5 of earthy ones. They are mild sulphur wells.

Lisdunvarna is at this moment the only popular spa in Ireland. It has been known for more than a century,

but it is only within the last few years, that it has been so much frequented. It is in the West of Ireland, about twenty miles from Ennis, or any other point on the railway from Athenry to Limerick, and is usually reached by public outside-car from Ennis. It is situated in a bare, open country, with low hills in the neighbourhood, not rising, except in the distance, to the height of mountains. They are of limestone, and yield a green pasturage, but in some places, not more than two miles from the station, they are so bare and stony, that there is scarcely space for a few blades of grass to grow. An old writer said with some truth that, in this district, you will not find water enough to drown a man, or wood enough to hang him, or earth enough to bury him. The air is counted wonderfully pure, and even dry, considering that it is the west of Ireland, and only three miles from the Atlantic.

A small stream runs through the place, and has burrowed deeply among the limestone rocks, producing small ravines, which by the aid of planting, might in time afford shaded walks, and some variety to the visitors at the spa. As it is, everything is rough and unfinished, and one would never dream from its appearance, that Lisdunvarna was a place of considerable resort. Engineers have mapped out terraces, and churches, and assembly-rooms. Companies, limited, I believe, have been formed; but I do not hear of any great progress being made, and the opposed

interests of the two principal proprietors, stand in the way of general measures being adopted. When the time for laying out the place comes, the desiderata pointed out two hundred years ago at Chapelizod, by Bellon, may be remembered — "the natural conveniencies which a multitude of shrubs and bushes, besides some winding dales betwixt close hills, which other places of the like resort do afford. To which might be added, according to the laudable custom of foreign nations (which has been taken up of late in some parts of England), the divertisements of music, bowling, Paris lotteries, shooting, or any other pastime to disengage the mind from too serious or melancholic thoughts."

The well most used at Lisdunvarna, is the sulphur one near the bridge, close to the banks of a small stream. A neat pump-room has been built over it by the proprietor, and the water is served out from a patent pump. I visited it after heavy rain; bog-water had got into the well, and I only saw muddy water, devoid of smell of sulphur. I believe that this was by no means the first time, that such accidents had occurred. Those who were drinking sulphur water had to repair down a muddy bank under the Protestant church, to two little excavations in the rock, like two hand-basins placed side by side, and within a foot or two, but fortunately above the level of the swollen stream already alluded to. One of these little basins produces a strong sulphur water, while its neighbour gives forth a pure chalybeate.

It is a very pretty sight, and I was only sorry to see the place so neglected: no shed, no one to serve out the water, not room for a dozen people to stand between the well and the stream. The sulphur water of Lisdunvarna is said to contain one-half cubic inch of sulphuretted hydrogen. Besides the chalybeate just mentioned, there are the two old chalybeates. There are small coverings over them, but all around them was muddy. The chalybeates are remarkably pure, and contain, according to Professor Apjohn, .39, .28, .23, of carbonate of iron. They are very fair pure chalybeates, the first of them equal in strength to Tunbridge Wells. One of these wells is termed, I know not why, the magnesian. These are the chief wells. One other sulphur well has, I believe, been given up, and an iron water called the copperas well, is only used externally.

We have thus got pure sulphur and pure chalybeate wells at Lisdunvarna, and it is evident that they afford elements which, if judiciously used, may, in conjunction with the pure air of the west, be very useful as alteratives and tonics to the system, particularly to such cases as can bear a little roughing, and some hysterical and other patients may be the better, for having to put up with a few discomforts.

Chronic gout and rheumatism, dyspepsia, skin affections, and various forms of chlorosis, and of anæmia, are the sort of cases, that are found to do best at Lisdunvarna. Many patients come there year after

year. One gentleman who had seen a good deal of the world, and who suffered from chronic gout, told me he was there for the ninth time; and that he could not omit his annual visit, without his health suffering. Dr. Fawsett, who has brought all the latest information about Lisdunvarna together in a pleasantly-written pamphlet, says that the quantity of the sulphur water taken by each patient is about two tumblerfuls thrice daily. The usual period of sojourn at the well is about three weeks, and the usage is, to drink the sulphur springs for a fortnight, and then the chalybeate for a week; but people seemed to me to think much more of the sulphur than of the iron waters. As there is no resident physician, patients either follow the directions they have started from home with, or have to follow the example of other patients.

There are various objects of interest at some distance, to be reached by car. The lofty black precipices of Moher, about 600 feet high, are a magnificent sight, even when the Atlantic is smooth. The barren terraces of limestone at the Black Head, or at the zigzag descent to Ballyveay, are unique, differing from anything of the kind in other parts of the kingdom. A considerable variety of ferns and of rare plants, may be found in the neighbouring hills, the collecting of which makes an agreeable variety in the life of visitors.

The accommodation is very indifferent. I was told that there were good lodging-houses. There was (1869)

only one hotel, and it had little to recommend it, except the general *bonhomie* of its inmates. The visitors were all Irish, priests were numerous, and inclined to be pleasant and sociable. The food was good enough, but coarsely served. My bedroom was a sort of ante-room to one inside. My bed was an old sofa. I had two broken chairs, and was not allowed a tumbler with my washing things. There is, therefore, need for improvement. Many, however, find Lisdunvarna an agreeable place to visit, and as many as 1200 people have been congregated together during the season.

Among Irish chalybeates the one best known was Ballyspellan, or Johnstown, near Kilkenny. Two essays were written on it in 1724 and 1725, and it became a crowded watering-place; it is now forgotten. Other chalybeates in the same district, such as Castle Comar and Brownstown, and several others, were written up at a later period, about 1824, by Dr. Ryan, but they, too, are forgotten—Brownstown in spite of its pump-room and ball-room. There are many chalybeates in various parts of Ireland; those near Dungannon and Belturbet seem among the best, and I saw a good one near Cootehill.

The chalybeates at Castle Connel, near Limerick, in beautiful scenery on the banks of the Shannon, are now scarcely known, though believed to be good, as they contain 0.39 of iron. They surely ought not to be consigned to oblivion.

Ballynahinch Wells lie about two miles from the town of that name, which is reached by rail in an hour from Belfast. I found here two wells: the chief one a pure sulphuretted chalybeate, but having very little iron—it has only 0.158 of iron in the 10,000 grains—and another usually called the chalybeate, but said to contain no iron!

The quality of the water of the principal wells unfortunately varies, owing to occasional soakage from neighbouring boggy ground. The first, though having a considerable taste of sulphur, was not unpleasant to drink. The second was tasteless. These two wells have pump-rooms built over them, and a patent pump, through which the water is supplied. There is also a small neglected bath-house, where baths of the sulphur water are to be had.

The place is kept in very fair order. There are walks and rows of trees, and some slips of planting, also a maze. The country is hilly and agreeable, and there are pleasant walks in the neighbouring gentlemen's grounds. There is a fair hotel, and there is also a reading-room; visitors usually lodge in the farmhouses, of which there are some thirty in the neighbourhood. Knox talks of Ballynahinch being the most crowded spa in Ireland. In 1869 I found it very empty, although I believe a good many people belonging to the north of Ireland still visit it.

The well must be considered a feeble sulphur-chaly-

beate, unless fresh analysis should show its constituents to be more active. The indications for its use, are the general ones for chalybeates. Half a pint of the sulphur or chief well twice daily is the proper dose to commence with, the quantity to be gradually increased. I heard of a gentleman who was taking sixteen tumblerfuls of it before breakfast. One remarkable cure is thus quaintly related: "A Dissenting minister was overrun with leprous eruptions, and had his joints so rigid, that he could not hold his bridle, nor feed himself. He returned home supple and clean, after having drunk the water and bathed in it but a month."

Ireland has no wells of common salt, or of purging salts, of a strength worth mentioning.

Ireland at one time had a very remarkable well at Crone-bawn in Wicklow—a copper well, or spring impregnated with copper, which the miners drank frequently. It purged and vomited severely, and became their specific in several diseases, particularly in cutaneous affections. But so dangerous a remedy was not likely to remain long in favour.

To sum up, it thus appears, that Ireland has fair sulphur and iron wells, but none—unless more complete chemical analysis shall detect them—of any very great importance. It requires indeed the enthusiasm of an Irishman, to be able to compare, as a Dublin Professor does, the mineral waters and the air of the west of Ireland, with the more powerful wells of other countries.

No better proof of the deficiency of the Irish waters in mineral constituents can be found, than in the recommendations of the first and last writers on Irish spas. Dr. Dellon, in 1684, proposes a way of improving by art feebly impregnated waters; and Dr. Faussett suggests the addition of aperient powders, to make the waters of Lisdunvarna laxative, and of carbonic acid, to make them palatable.

Nevertheless, I think it is well worth the while of the Irish, to pay more attention to their own spas, than they have done of late years. They may find them very useful, and they need not dread being disturbed in them by an inroad of Saxon visitors. They will have no struggle in keeping Irish spas for the Irish.

But if Ireland is poor in mineral waters, it can vie with any portion of Great Britain, in its sea-bathing places all round its coasts. Almost all of them are in the neighbourhood of fine cliff scenery. For instance, if you want the fresh air from the north, you have Portrush and Port Stewart. Going along the coast to the east, you come to the secluded Cushindall, and the cheerful Glenarm. Next comes one of the newest and most popular watering places, Newcastle, with the Slieve Donard mountains, as lofty as those of Arran, descending abruptly into the sea, but with not quite as good a bathing beach as might be desired. Then come Ross Trevor and Warrenpoint, with most lovely scenery. Passing Dublin, and many desirable sea-side places near

it, you reach Bray, more in the style of a new English watering place, with its sea views, on a fine day reminding you of the coast of Italy. Then there are the two great southern watering places near Waterford—Dunmore, the resort chiefly of the wealthier; Tramore, of the poorer classes. The latter is crowded every season. Here, in former times, a huge flat-bottomed boat received a cargo of patients at the charge of a halfpenny each. It was generally crowded; it put out and remained at anchor in the swell of the sea for ten or twelve hours, in order that the full benefits of sea-sickness might be procured! Here, also, is a saline chalybeate, well worthy of attention. Then come the many bathing places near Cork; and to the west, Tralee spa is a good chalybeate, which has been long in repute, and may be used along with sea bathing. In the west are Kilkee, with a chalybeate near it, and Miltown Malbay and Bundoran, all of them open to the full sweep of the Atlantic—the first also with magnificent rock scenery.

The Irish bathing places are very fairly supplied with hot and cold baths, also with boxes for dressing in—regular machines are less common. The chief defect in such spots is badness of the hotels, but in some places, as Port Rush, Newcastle, Kilkee, Miltown Malbay, and Tramore, they are good.

However, improvements are wanted in most places. I had occasion, during the same week, to sit down at an Irish *table d'hôte*, where German waiters and artificial

flowers scarcely made up for starved fowls and stringy mutton, and at a commercial hotel at Buxton, where the solid, good victuals, served up with no show, were in quantity almost oppressive. And the contrast between the guests was equally strong. In person the Irish guests were much less bulky, than the English ones. Surely the burly Englishmen and their buxom dames, who made such a serious business of their eating, had not come to Buxton to seek relief for impaired digestion?

And this brings me back to the subject with which I commenced this little book—the necessity for living carefully. We English think that the Germans eat over heartily at their early dinners, but we ourselves generally eat as freely at watering places, as we do on board ship; in other words, we eat too much, even after allowing for the increased amount of exercise, which we take at such places. In these days, when stimulating or supporting treatment is so prominent a feature in medical practice, the old hunger cure, as it was termed by the Germans, useful though it is in a variety of cases, is entirely lost sight of.

As I began this book by offering the advice of some old English authors, inculcating moderation, I do not know that I can conclude it better, than by giving the precepts of an old Scotch writer. His hygienic rules are none the worse, for being conveyed in old-fashioned phrases:—

"Live temperately a long time after the drinking of

the waters, in a clear, pure, wholesome air to breathe: eating meats of good digestion, to suffice nature, not greedy appetite: sleeping to refresh, not dull your spirits: using exercise for recreation, not to weary. Avoid repletion of the belly, flee perturbations of the mind; and in so doing, by the grace of God, you shall continue healthful to your life's end."

NOTE.

At p. 101, it should have been noticed, that Tenbury in Worcestershire has a bath establishment. Its waters are locally of some repute in rheumatism, in affections of the liver, and of the skin. The waters are chiefly drunk. The neighbourhood is picturesque, and there is trout and grayling fishing in the river Teme.

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