

**The saline waters of Leamington : chemically, therapeutically, and clinically considered, with observations on the climate of Leamington / by Francis William Smith.**

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THE SALINE WATERS  
OF  
LEAMINGTON

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SECOND EDITION

FRANCIS WILLIAM SMITH, M. D.

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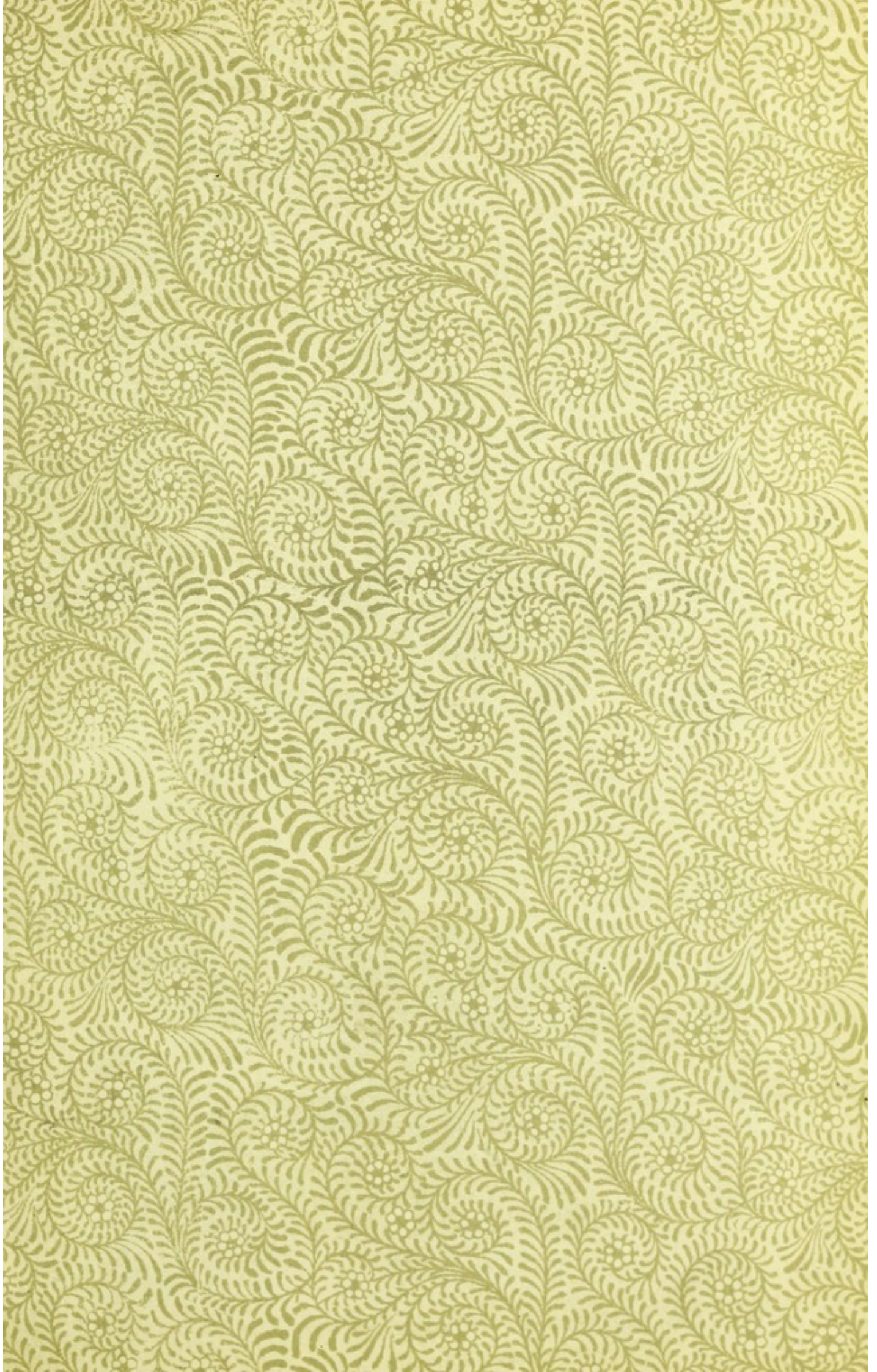
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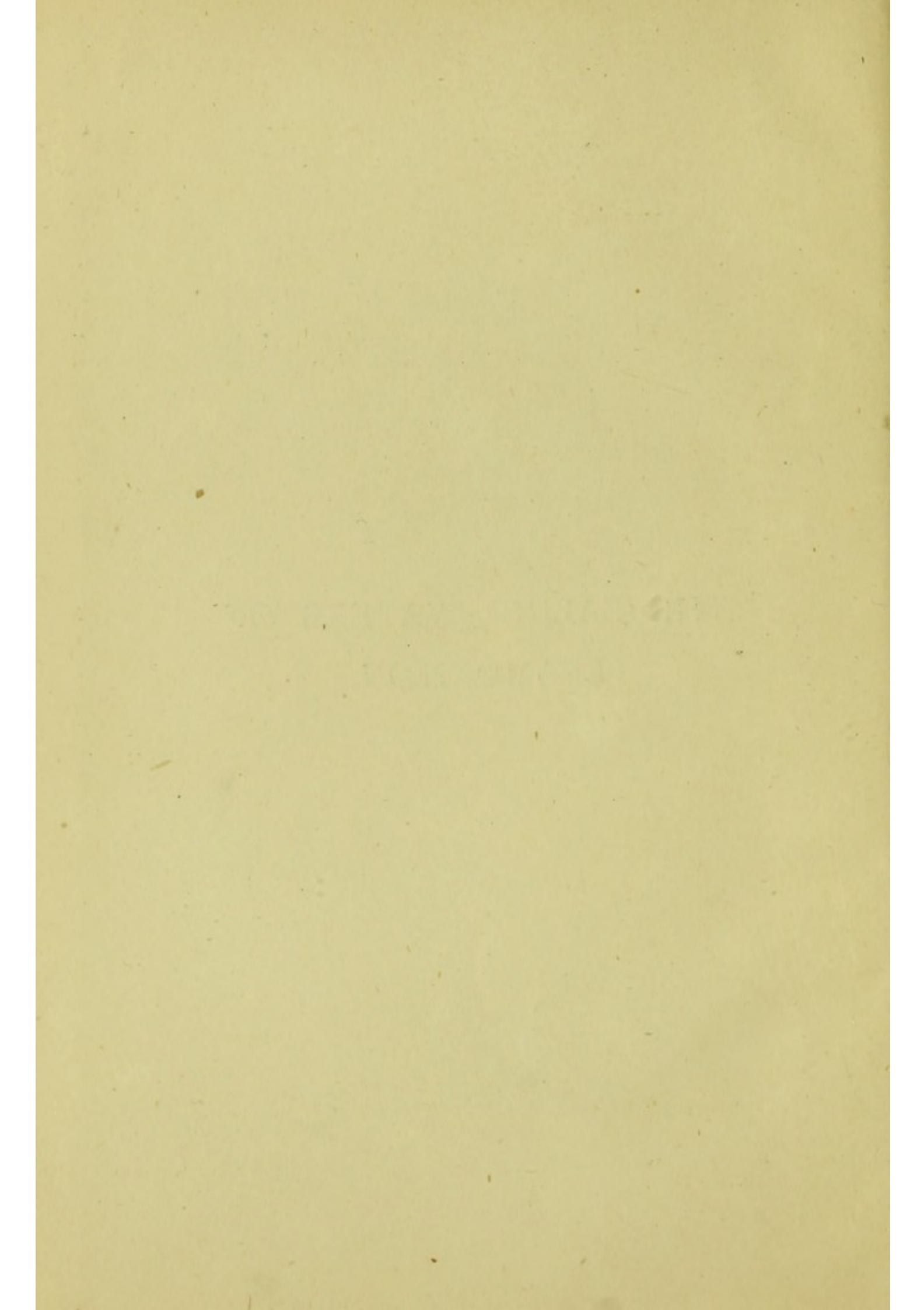
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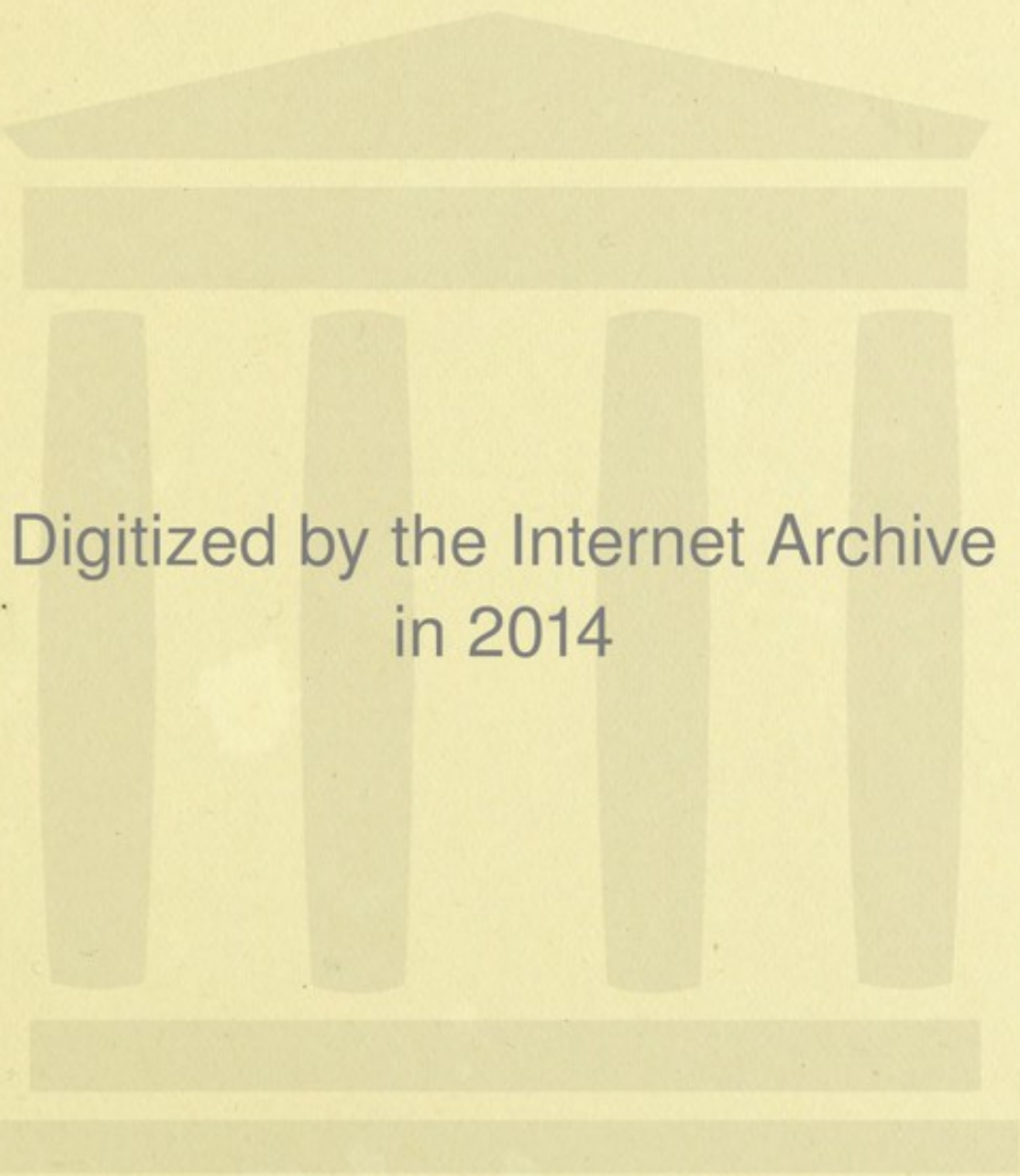




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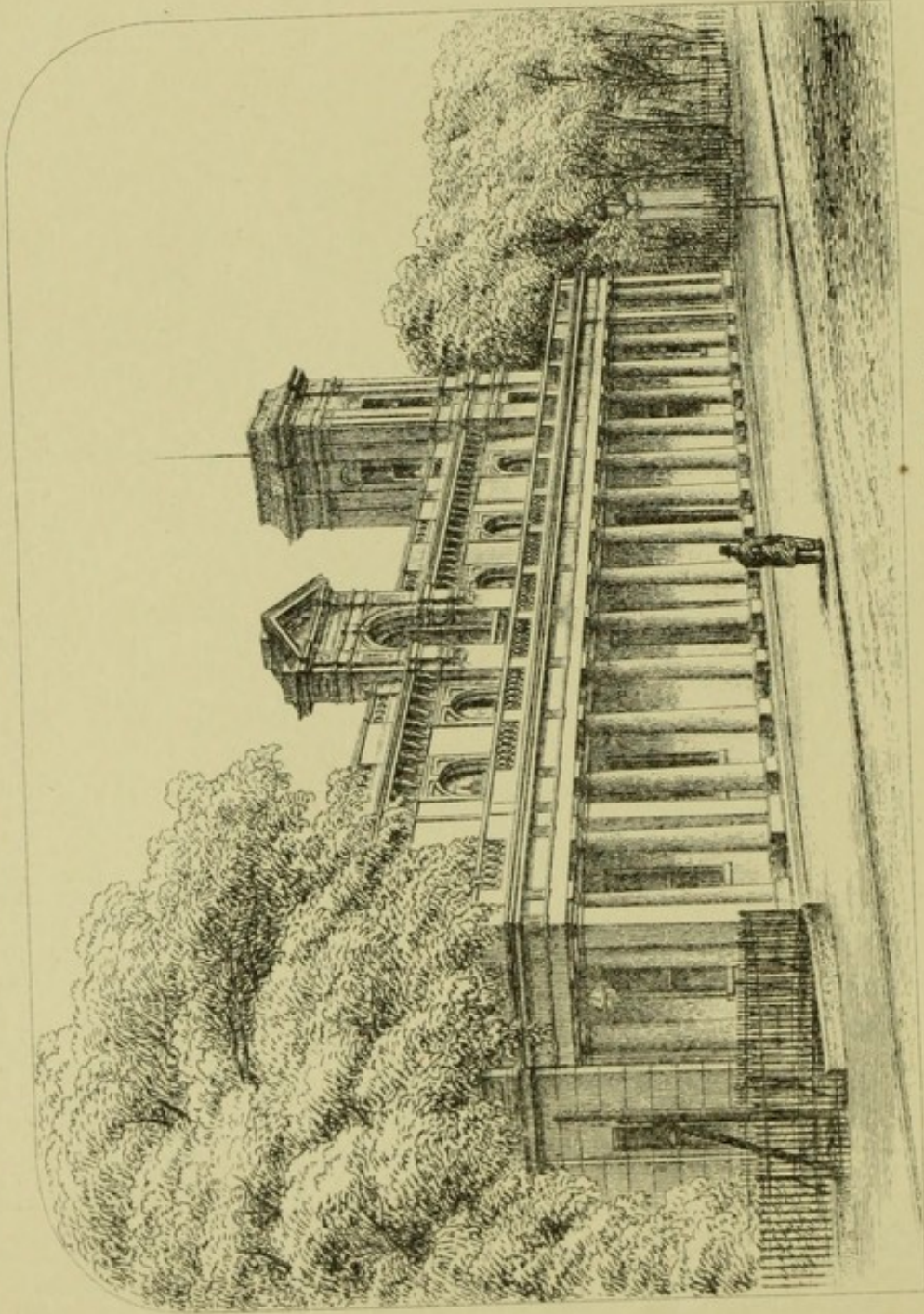




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ROYAL PUMP ROOMS, LEAMINGTON SPA.

London. Published by H K Lewis, 136, Gower Street.

THE SALINE WATERS

OF

LEAMINGTON

CHEMICALLY, THERAPEUTICALLY  
AND CLINICALLY CONSIDERED

WITH

OBSERVATIONS ON THE CLIMATE OF LEAMINGTON

BY

FRANCIS WILLIAM SMITH, M.D.

AND BACHELOR OF SURGERY

*SECOND EDITION*

LONDON

H. K. LEWIS, 136, GOWER STREET, W.C

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IS, WITH DUE HUMILITY,  
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## PREFACE TO THE SECOND EDITION.

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NOTHER Edition is called for. It has been my endeavour to correct mistakes and make additions which will, I hope, render the work more perfect and more useful.

Little or nothing having been done in the way of analysis of the various wells since the time when Loudon published his work in the year 1831, I determined to satisfy myself with regard to the actual condition of the water. For this purpose I called in the aid of some of the first analysts of the day, and the results will be seen in the tables which follow.

To Professor Brazier, the eminent Professor of Chemistry in the Aberdeen University, I owe especial thanks for the great trouble and pains he took with his analysis. I have also to thank Dr. Meymott Tidy, the distinguished Professor of Chemistry at the London Hospital and Analyst for the City of London, for the part he took, and likewise Dr. Wilson Hake and Mr. Napier Hake, F.C.S., F.I.C., of Westminster Hospital.

Acting on the principle that "in the multitude of counsellors there is safety," and also with a view to making this work a standard upon the subject for the time being, I considered that I should strengthen my case by having three independent analyses. And so I have. My object was not to revolutionize the old analysis, but to get at the truth. I have arranged a table of comparison of the mineral waters of Leamington with those of Germany and France, from the works of Braun and Vintras, and for the trouble and pains bestowed upon this and other parts of the work, I thank Mr. James Spilsbury, F.C.S., of Bath Street. By the kindness of my old friend Dr. Mitchell Bruce, I have been able, from his standard work on *Materia Medica*, to enlarge upon the action of the various salts in the Leamington Salines.

To Mr. Symons, F.R.S., the Author of the *British Rainfall*, I owe a debt of gratitude for lending me his books so as to enable me to make up a table of statistics for the last ten years; and to Mr. Baly, the Medical Officer of Health for Leamington, I am obliged for information with reference to the death-rate.

I, BERTIE TERRACE, LEAMINGTON,

*July 1st, 1885.*

## P R E F A C E .

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**T**HERE seems to be, at the present time, a universal desire that the mineral waters of Great Britain should be made more generally known ; and with the view of bringing the healing properties of the Leamington Saline Springs before the medical profession, I have undertaken the task of writing this little volume. And if in the slightest degree I may become the means of benefiting any poor sufferer, my object, in a great measure, will have been gained.

It is now many years since any book of recognized authority was published on the subject, for I find in the year 1831 Dr. Loudon wrote "A Practical Dissertation on the Waters of the Leamington Spa" ; and later on, in the year 1843, Dr. Amos Middleton brought out his work on "The Chemical Analysis of the Leamington Water."

In daring to supplement such works of learning and ability as these, I trust the ever-generous profession will pardon the imperfections of the present treatise.



---

It is not my object, in the remarks which are to follow, to make invidious comparisons between the different British mineral waters which may, in many ways, resemble those of Leamington, but simply to put before my readers plain and honest facts—truths which have been brought under my notice in the cure and alleviation of disease by treatment by the saline waters, as observed in patients from day to day.

In placing Leamington before the profession in its medical bearings, I will endeavour, in as few words as possible, to describe it—

- 1st. Geographically.
- 2nd. Meteorologically; and further
- 3rd. Its drainage, water supply, and mortality.
- 4th. Its seats of education.
- 5th. Its social aspects.
- 6th. Its geological features and mineral waters.
- 7th. The value of the Leamington saline waters in their chemical, therapeutical, and clinical aspects.

And in dealing with Leamington and its mineral waters from all these points of view, I would wish my readers to understand that I claim no particular originality over Loudon and Middleton, but trust that, with the increased light of modern physiology and pathology, I may be able to explain matters in a different way, and thus bring the whole subject into harmony with modern ideas.

But, alas! how much there is in Medicine that we cannot explain. Unfortunately for all concerned, it is

---

an uncertain science. Mathematics and Chemistry teach us problems fixed and certain, and which cannot be gainsaid. Not so Medicine. The mysteries of creation, the wonders of existence, the progress of decay, the subtleties of disease, and the exact action of drugs in illness, will continue to puzzle the mightiest brains so long as posterity shall see the first light of heaven and again return to mother earth or, it may be, smoulder to ashes in some future crematorium. So long as diseases exist, so long certainly also will remedies be tried, and I trust hereafter to be able, at least, to show this—that we have, in Leamington, healing waters of no mean order.

Simplicity in prescribing medicines is the order of the present day, and in the Leamington mineral waters we have nature's prescription—simple in itself and physiologically correct—a prescription that would baffle the most skilful chemist to compose; for, although the analysis of all mineral waters is well known, the mode of properly assimilating the component parts can only be done in nature's laboratory.

And, in concluding these remarks, I would quote some very weighty words which occur in a letter of the late Sir Robert Christison, written to me on December 6th, 1880, and dated from Edinburgh:—"There is no doubt," says he, "that, in search of relief from most varieties of mineral waters, our countrymen have, for a long time past, made it a senseless fashion to repair to Continental springs, when they have, comparatively at their doors,

springs of the same quality, beautiful surroundings, national amusements, and, above all, British comforts.

“As to aperient springs—for which we Britishers have, perhaps, more occasion than for any others—so long as Leamington and others in England, and Airthry, at Bridge of Allan, in Scotland, are not drunk dry, there is no reason—no medical reason, I mean—why a man should deprive himself of his home comforts and submit to the annoyances of long journeys and Continental deficiencies.”

These are the words of one of the most learned physicians who ever wrote about medicines and their uses. If that was his opinion, surely such authority ought to carry weight.

There are hundreds, nay thousands, of medical men, I feel sure, who are not acquainted with Leamington and its mineral springs; and it is to their notice especially that I would commend its beauties and their virtues, as well worthy consideration, in the interest of patients.

In modern days, steamboats and railways have brought Continental springs of undoubted repute within a few hours' reach. But there are times when people cannot fly to distant parts, and when the fatigue of travel undoes, in a great measure, what change and mineral water remedies may have worked for good. Mention need not be made of the numerous risks which invalids run by residence in most of the Continental towns that are fashionable as health resorts. Generally

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speaking, the drinking water and drainage are vile, and the consequence is that patients, who go abroad for the benefit of one malady, often contract some other more dreadful than the first—in the shape of deadly fever or blood-poisoning. This is a well-known fact to all medical men, as well as to the general public. Many patients have been sent year after year to French and German watering places who actually dread the journey there again. They long for a place in this country where they may have mineral water treatment suited to their ailments without all the wearying hurry and skurry of travel. They sigh for a haven of rest “at home,” a place to get cured of bodily disorders and mental worries, real or imaginary. Let the medical profession therefore lead them to the temples of health in Great Britain, for we have mineral springs in different parts, adapted to all ailments, tastes, pursuits, pockets, and seasons, and which may, as in the case of Leamington, be enjoyed all the year round. True it is they will not find fancy fairs, superb bands, casinos, the same variety of amusements, foreign cookery (said to be wholesome?), and all the general round of excitement met with abroad. Having “done” this kind of thing once or twice, the invalid gets weary of it, especially after middle life, and when it becomes a yearly necessity. The cripple, maimed by gout or rheumatism, longs to walk again; the racked sciatic hopes for speedy relief from screwing, darting pain; the miserable dyspeptic craves for peace of body and mind; the blanched maiden longs for rosy

cheeks ; and to the wizened countenance mental quiet is indicated. In real illness, what care they for foreign climes ! Give them health again, say they, and give it them "at home."

But far be it from me to assert that the mineral waters of this country are a cure for all the ills which flesh is heir to, or to say that it is absolutely necessary for people in health to indulge in them. I have only here to tell a simple honest tale as to what those of Leamington are, to give indications as to their uses and the complaints they are helpful in curing.

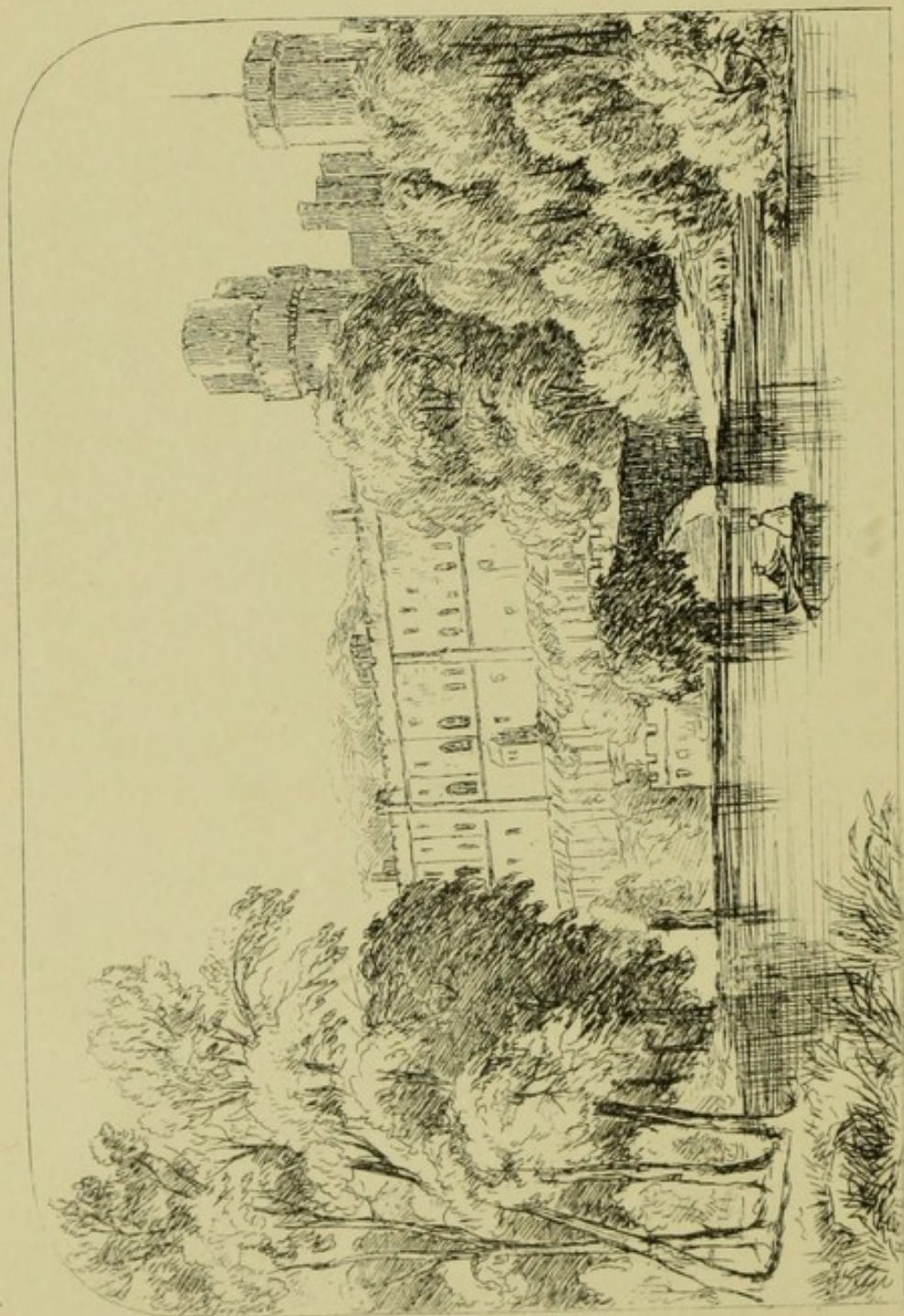
I may add that I have had exceptional opportunities of trying their effects upon hundreds of patients ; but I have purposely avoided giving many individual cases, and have limited myself to a few prominent ones only.

My thanks are due to Mr. Bailey, of Bath Street, for the use of his copperplates, and to the different gentlemen in the various towns, hereinafter named, for the kind assistance they have given me in making up the temperature charts. So far as Leamington is concerned under this heading, I must especially thank Mr. Barnitt for his courtesy and for his kindness.

I, BERTIE TERRACE, LEAMINGTON,

*May 1st, 1884.*





WARWICK CASTLE — FROM THE BRIDGE.

London: Published by H.K. Lewis, 136, Gower Street.

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## EULOGIA.

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### LEAMINGTON COMPARED WITH CONTINENTAL SPAS.

“We can see no reason why Leamington should not again become a much-frequented and useful watering place, the more so as in many instances it may be resorted to in early autumn, or even winter, on account of its great mildness of climate compared with Continental Spas.”—*Braun on the Curative Effects of Baths and Waters*, edited by Hermann Weber, 1874.

### SIR WILLIAM GULL ON THE LEAMINGTON WATERS.

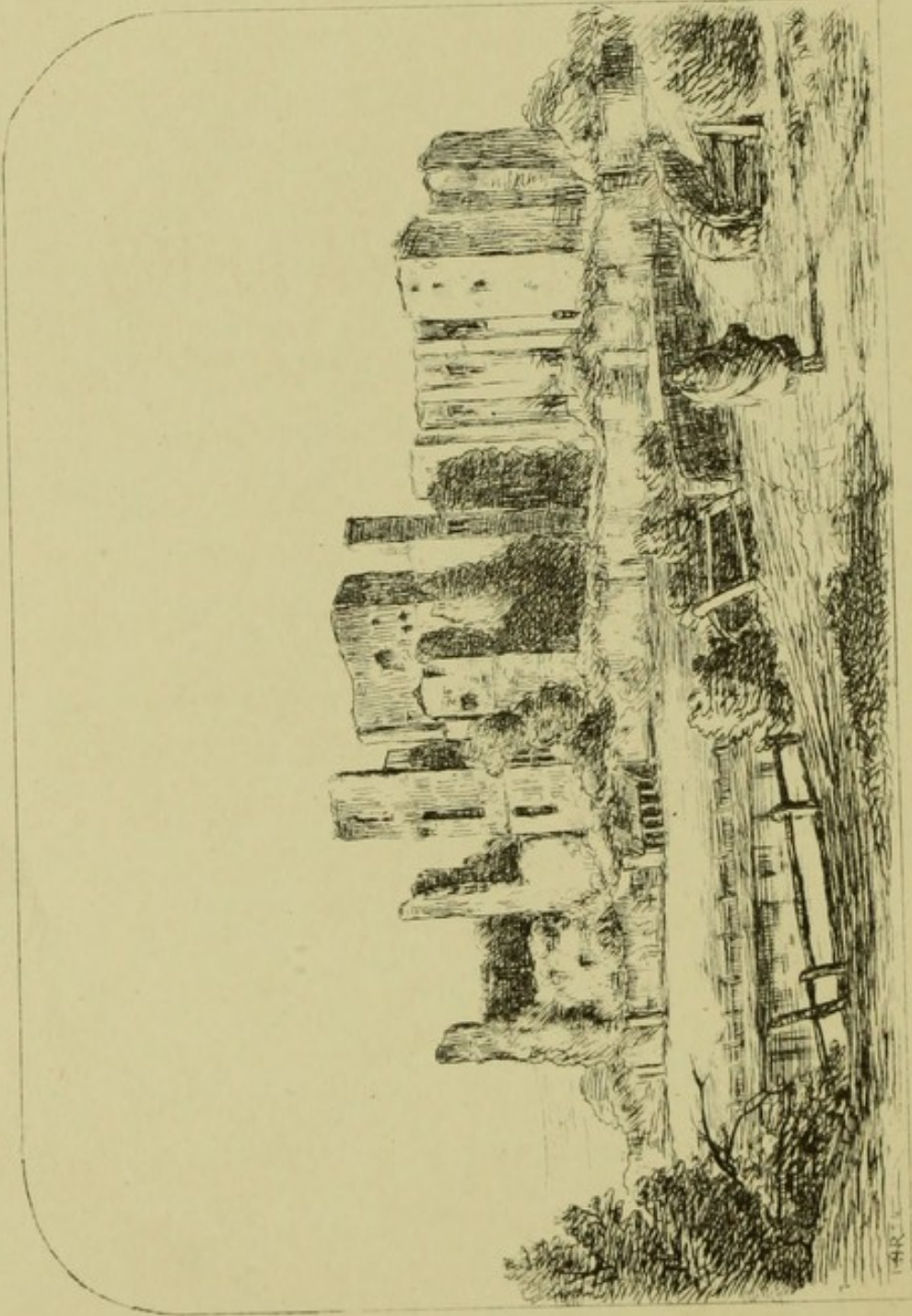
“I need no arguments in their favour, believing, as I do, that they are of very great value in the treatment of disease of the digestive organs.”

### “OUR ENGLISH HOME.”

“If a man were seeking the bustle of society, he might find it more readily in Leamington than in most

English towns. It is a permanent watering-place,—a sort of institution to which I do not know any close parallel in American life ; for such places as Saratoga bloom only for the summer season and offer a thousand dissimilitudes even then ; while Leamington seems to be always in flower, and serves as a home to the homeless all the year round.”—NATHANIEL HAWTHORNE.





KENILWORTH CASTLE .

London: Published by H.K.Lewis, 136, Gower Street.

THE  
LEAMINGTON WATERS

CHEMICALLY, THERAPEUTICALLY, AND CLINICALLY  
CONSIDERED.

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INTRODUCTORY.

**L**EAMINGTON, like most places, has a history. True it is that it cannot boast of the antiquity of some health resorts, nor, like Royat and Dax and half a dozen other Continental spas, claim that Julius Cæsar was cured of his rheumatism by frequenting its baths and drinking its waters; but, still, it would appear that the healing virtues of our mineral waters have been known and appreciated, in the immediate neighbourhood, and even throughout the midland counties, for hundreds of years.

In 1586 Leamington Saline Springs are mentioned by Camden, and ten years later Speed speaks of them as having medicinal properties.

In Dugdale's "Antiquities of Warwickshire"—first published in 1656, the author remarks:—"Nigh to the east

end of the church there is a spring of salt water whereof the inhabitants make much use in seasoning their meat."

Fuller, some years later, writes : " At Leamington, two miles from Warwick, there issues out within a stride, of the womb of the earth, two twin springs, as different in taste and operation as Jacob and Esau in disposition, the one salt and the other fresh. This the meanest countryman does plainly see by their effects ; whilst it would puzzle a consultation of physicians to assign the cause thereof."

In Dr. Thomas' edition of Dugdale, published in 1730, mention is more fully made of the real medicinal properties of the Leamington saline water which had been previously mentioned by Speed. About this time strangers and visitors from the immediate neighbourhood came and drank of the healing waters, chiefly as an antidote to scrofulous affections.

During the next forty years various medical men called considerable attention to the subject, and we learn that large bottles of water were religiously taken away, especially on Sunday mornings, to be imbibed for different ailments. I am told, by a very old resident, that in his recollection the coach to Birmingham carried jars of the water from day to day, for medicinal purposes.

Many and varied are the accounts which are given of the modes of applying the waters—only to be exceeded by the wonderful cures wrought thereby ; and we read a little later on that one Benjamin Satchwell, the village worthy, shoemaker, and keeper of the Post-office,

---

chronicled an account of the most remarkable cures, and for a small gratuity sang their praises in verse and rhyme. The exuberant verbosity of this village rhymer had the effect of increasing the number of drinkers, and causing one William Abbotts, of the "Dog," to erect a bath, and provide improved accommodation. From this time the reputation of the saline waters of Leamington was established, for we hear that a certain Dr. Kerr, of Northampton, took the matter in hand, and under his recommendation patients came from distant parts, and received benefit.

It would not interest my professional brethren to particularize the different physicians who wrote about and prescribed the Leamington water; suffice it to say that the works already alluded to were written by Loudon and Middleton—standards in themselves, and which well served their day. But whilst mention is made of these learned and accomplished physicians, I must not forget one to whom, above all others, Leamington and the reputation of its mineral waters owe all they have or hope to enjoy. It is needless to say that this astute, accomplished, and far-seeing man was none other than the late Dr. Jephson. Jephson opened up the treasure-houses of the Leamington saline springs, prescribed the waters, and applied them to cases. And in doing this, he raised Leamington from a small straggling town or village to a place of undoubted repute as a health resort, and a place where the high and accomplished in the land "did congregate," Clemens Street and Charlotte Street affording residences



for the ducal families of Somerset, Bedford, and Grafton. Many and singular were the devices by which he was wont to apply his remedies, and there are some who are fain to say that the erratic adjuncts of treatment were of more service than the mineral remedies themselves. Be this as it may, the fact remains unchallenged that Jephson brought out the real properties of the saline waters, and to this day their virtues remain the same—unaltered and unalterable—unchanged and unchangeable. He passed an honoured and a useful life, and has left behind him a good name,—always a precious legacy for a family to inherit.

About this time Leamington was favoured by the smiles of Royalty, for “the first gentleman in Europe”—George the Fourth, as Prince Regent—visited it in 1819.

In 1822, Princess Augusta was at 9, Upper Parade, for some time, and in the same year the Duke and Duchess of Gloucester stayed in Regent Street, at a residence afterwards known as Gloucester House. In that year likewise the Prince and Princess of Denmark visited the Royal Spa, and lived at the Royal Hotel.

Queen Victoria, then Princess Victoria, honoured Leamington with a visit in 1830, and eight years later the town was styled “Royal,” to commemorate the event.

I believe I am also right in stating, that the late Emperor Napoleon the Third resided at 4, Clarendon Square, and was charmed with the town and its beautiful surroundings. He also, I am told, regularly

hunted with the Warwickshire foxhounds, and on one occasion when he was accidentally unhorsed he remarked, with a prescience of his future greatness, "Il faut que celui qui veut monter bien haut commence d'en bas."

### I. GEOGRAPHICALLY CONSIDERED.

Royal Leamington Spa, including Milverton and Lillington, with a joint population approaching 30,000 inhabitants, is situated nearly in the middle of "leafy" Warwickshire. A sturdy oak—otherwise known as the "trysting-tree"—marks a spot which is known as the centre of England.

The borough stands at one hundred and ninety feet above the sea-level, and its situation is of great natural beauty. It is often pronounced the prettiest and cleanest town in England, and by this appellation it is well known in the United States. Conveniently located on the main routes of two great lines of railway, it is very accessible from London and the North, as well as from surrounding places of importance. The 4.45 P.M. train from Paddington "slips" a carriage at Leamington at 6.57 P.M., having traversed  $105\frac{1}{2}$  miles with only one stoppage. The time distance to Manchester is 3h. 15m., to Liverpool 3h. 30m., to Edinburgh and Glasgow 9h. 15m., and to Dublin 11h. respectively.

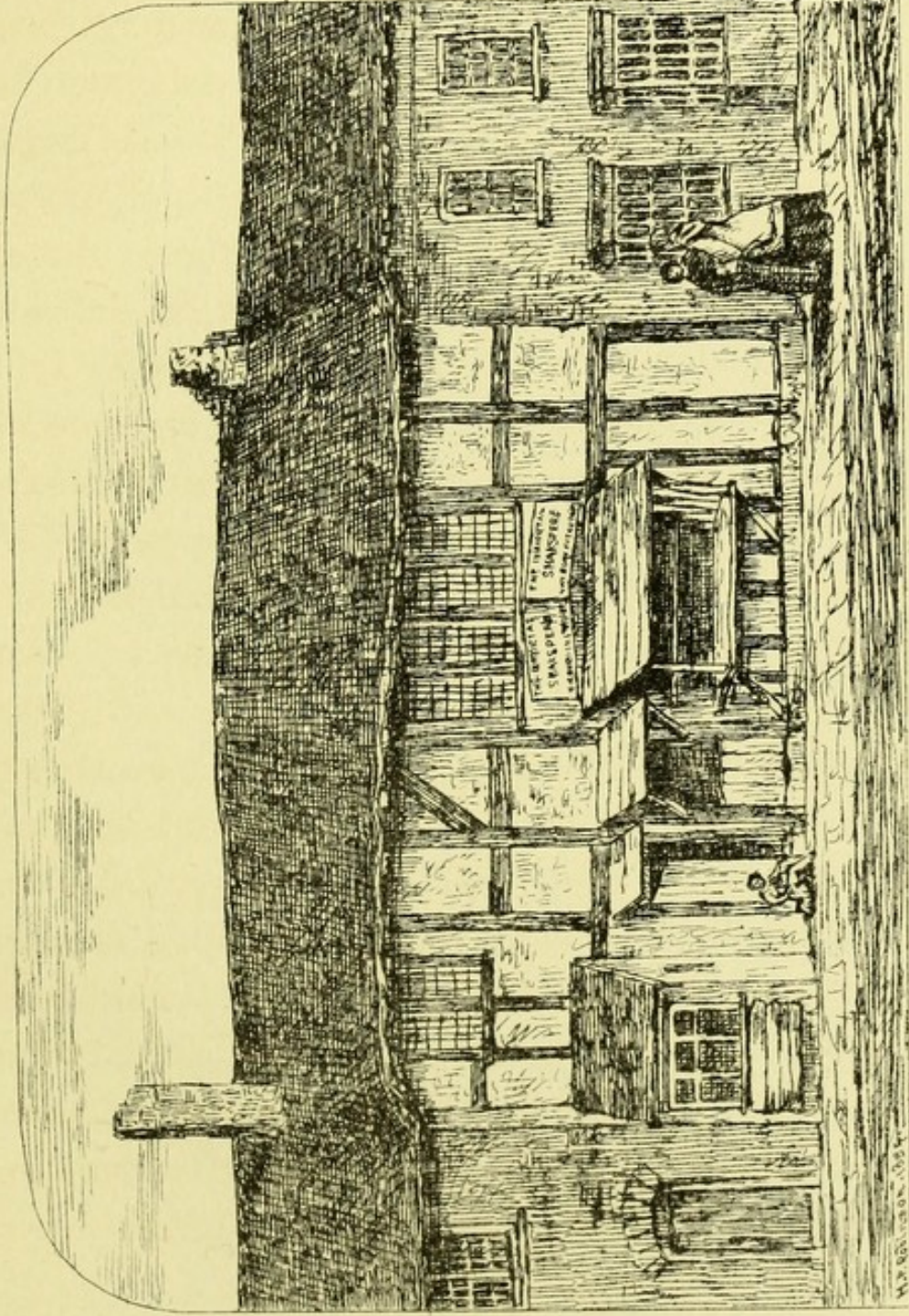
The greater part of the town is built upon a regular plan, with wide and open streets, which cross each other at right angles. These, in many instances, are

bordered with avenues of chestnut and lime trees, which impart to the place the aspect of a German spa.

In its centre are beautiful gardens which take their name from the immortal Jephson,—Leamington's benefactor. The grounds of these gardens are elaborately laid out and planted with flowering shrubs of the most elegant and varied description, and during the months of May and June the air is scented with fragrant perfumes, the eye charmed by hues of richest colour, and the ear delighted with the harmonious strains of an excellent band.

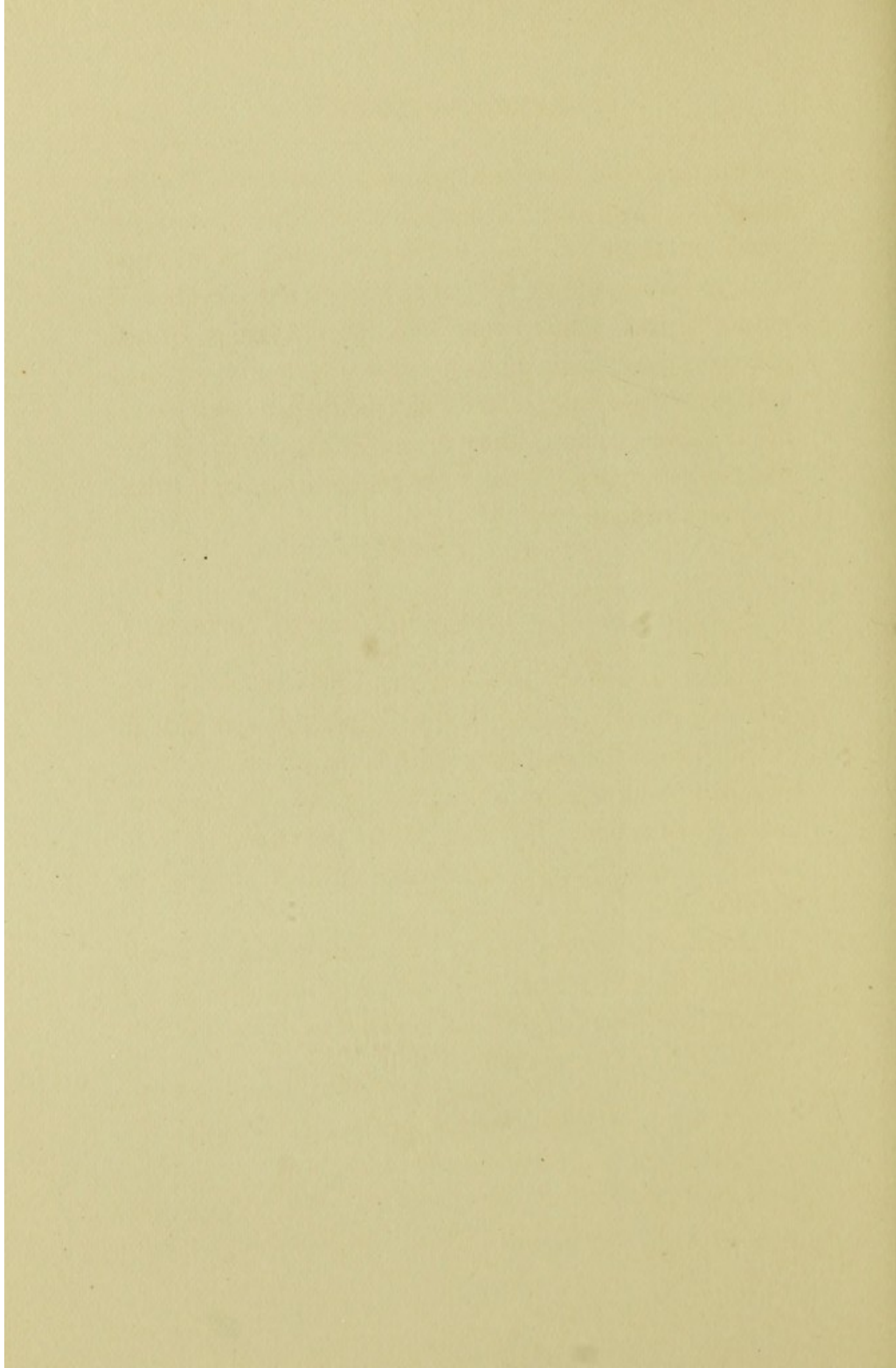
The country around is fertile, undulating, and wooded and abounds with objects of the greatest historical interest, for within easy access are Shakespeare's birth-place, home, and final resting-place at Stratford-on-Avon; Warwick Castle—one of England's noblest piles; Kenilworth Castle—a stately ruin, associated with royal gatherings, silent gondolas, splendid tournaments, gorgeous banquets, and "burly roundheads"; Guy's Cliff House, romantically posed 'mid craggy wilds and leafy shade, with the soft flowing Avon gliding dreamily by at its foot; Edgehill—the scene of that famous battle where many a bold Cavalier engaged his rugged Puritan countryman in mortal combat; and other places of minor historical interest, such as Stoneleigh, Wroxhall, and Combe Abbeys, and Coventry, with its many antiquarian treasures and three church spires.

Need I say that these interesting surroundings materially enhance the importance of Leamington as a health resort? We have here "pastures new" where



HOUSE IN WHICH SHAKESPEARE WAS BORN.

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we can lead the care and pain-worn sufferer. We can thus take the patient quietly out of himself, feed his mind in those ancient storehouses, and afford him healthy recreation to his inner soul. The beauties of nature lie resplendent before him, the folklore of British history will entrance him on every side, and the drama and fiction are represented by Shakespeare and Scott, in a degree almost unsurpassed in any part of her Majesty's domains. What more could he desire—unless the peace beyond?

#### METEOROLOGICALLY CONSIDERED, AS TO DRYNESS.

Taking a period of ten years, and comparing the following inland watering-places, it will be seen that in the number of inches Leamington is the lowest, and that there are fewer days on which rain fell than in five other towns enumerated. So that, so far as rainfall is concerned, Leamington stands well, and its dryness is established.

I would refer my readers to a calculation from Symons' "British Rainfall," from 1874 to 1883 inclusive, giving the average annual rainfall and number of days on which  $\frac{1}{100}$  in. or more of rain fell:—

## METEOROLOGICAL TABLE.

Places.	Inches.	Rainy Days.	Observers.
Leamington .....	30'2	176	Jones, Whish, Field, Barnitt.
Great Malvern .....	32'1	168	Sandoe, Palmer, Mann.
Cheltenham .....	32'3	172	Mackgill, Landsboro, Kay, Humphries, Ky- naston, Tyrer.
Harrogate .....	33'5	161	Coupland.
Tunbridge Wells .....	34'0	158	Miller, Townhend, Win- ton, Brentnall, Bu- chanan, Siemens, Roy. Meteor. Soc.
Bath .....	35'3	180	Barter, Russell, Stokes.
Clifton .....	39'1	177	Burder.
Ilkley .....	39'9	200	Dymond, Hainsworth, Call, Scales, Richard- son.
Matlock Bath .....	41'2	176	Chadwick.
Buxton .....	53'4	196	Sykes.
Average .....	37'1	176	

## TEMPERATURE.

The temperature of Leamington may be described as equable. It is not subject to great extremes. The air is dry, as is proved by the small rainfall, and the following table speaks for itself.

I have had some difficulty in making the under-mentioned calculations, but, considered generally, the table represents pretty accurately the mean temperature for ten recent years :—

	Fahr.
Buxton . . . . .	45·20°
Leamington . . . . .	48·0°
Cheltenham . . . . .	48·3°
Clifton . . . . .	48·7°
Torquay . . . . .	49·8°
Bath . . . . .	50·3°
Bournemouth . . . . .	50·3°
Llandudno . . . . .	50·5°

Loudon says :—“ Leamington, from being situated at a distance from the coast, and in the midst of a level country, is neither exposed to sudden gusts of wind nor to frequent rains, which a mountainous neighbourhood so constantly attracts. The temperature is more equal than that of the greater part of the inland watering places in the country. The highly cultivated state of the soil around the town, entirely free from morasses, with the numerously scattered woods and rivulets, contributes to its being one of the most salubrious spots in the inland counties.”

The climate of England is well known to vary and to be uncertain, no matter in what part people live. That of Leamington will seem, from the foregoing tables and quotation, to be one which well admits of its being a place of permanent residence. The fact that it has become so speaks for itself. And certainly, so far as taking a course of the saline waters goes, this may be begun and carried on at any time of the year, which



cannot be done in the more northern spas of England or in nine-tenths of the Continental ones. I admit, however, that I consider the benefit is greater in the Spring, Summer, and early Autumn, because during this period of the year most people enjoy the baths of various kinds. Besides which it is the time when patients suffering from gout, rheumatism, liver and kidney complaints, resort to mineral spas, for the purpose of getting cured in warm weather, and then go on to higher altitudes to regain strength and vigour by bracing air.

#### THE CLIMATE MEDICALLY CONSIDERED.

Outsiders commonly look upon the low death-rate of a place as the reasonable guarantee for its salubrity. The idea to a certain extent is correct, and considering the number of people who visit Leamington in search of health, and who die from already mortally contracted diseases, the death-rate may be looked upon as small. Leamington of 1885 is not what it was in 1855. Thirty or forty years ago it depended chiefly upon its visitors, but lately such has been its popularity for salubrity that in addition to those who come to drink the mineral waters, it has now become a residential town for the wealthy as well as for the weak. In Leamington we can get fresh country air, in the most part, as opposed to the confined atmosphere of crowded cities.

It does not necessarily follow that a pure air must be sea air. This may be had in the valley as much as on the mountain top. All observers have marked

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what good a "change of air" often does a patient. But very much depends on the amount of pure air or the effect of contaminating mixtures in the atmosphere.

Oxygen and nitrogen (its proper constituent components) may not be noticeably different, be the situation town, country, or sea, but where dust, sewer-gas, and malarial influences come in, then we must look to the purity or impurity of the air. Leamington has not to contend with either of these disadvantages; the contrary will be shown later on.

Ozone, an allotropic modification of oxygen, exists in the atmosphere to a minute extent, and in greater quantity in the country than in confined towns. It has a great power in destroying offensive odours, is a powerful bleacher and an intense oxidiser. Sunlight and vegetation are the two generators of ozone, and the fact that Leamington abounds in trees determines the amount of ozone in it and in the neighbourhood. Considering therefore that we have abundance of fresh water, perfect drainage, absence of dust, open streets, where the rays of the sun may come, and a judicious amount of foliage, is it to be wondered at that we live in a pure ozonized atmosphere?

It is surprising to what ripe old ages people live here, especially women, and as a medical man I can testify that many of my patients look upon four score summers as in no way near the goal to which they hope to attain. For young children also, the climate is particularly health-giving, and the foregoing explanation

gives the reason. I am often asked, "What is the season for Leamington?" The answer depends upon which season is meant. If the season for water-drinking and bathing, I answer from April to October, although, as I have already stated, the waters may be taken all the year round, with benefit and safety. If the season for gaiety, the answer is, from November to May. This is known as the "hunting season."

#### THE DRAINAGE.

The borough has a model system of drainage. The drainage matter is pumped up to the Earl of Warwick's sewage farm at Heathcote, situated in a parish to the south of Leamington, there to fertilize the soil, and to prove a substantial investment.

The sewers have numerous ventilators, and consequently there is an efficient escape of sewer gas, thus insuring the healthy sanitary condition of the houses. Following this, as a good result, is the almost entire absence of typhoid fever, diphtheria, and other ailments dependent on foul air.

#### WATER SUPPLY.

Drainage, however effectual, must carry with it a good water supply. Fortunately for all concerned, this Leamington possesses. In its infancy, like most towns, Leamington depended for its water supply on private wells, and for many years was supplied by filtered (?) water from the river Leam. In the year 1874 an

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artesian well was sunk, and now the borough and neighbourhood enjoy all the privileges of pure water, and plenty of it. Dr. Tidy according to a recent analysis states "that as a dietetic water it is in every way of excellent quality, and for wholesomeness leaves nothing to be desired."

#### MORTALITY.

Considering the number of people who come here in search of health, and who have already fatal diseases wasting them away, and taking into consideration the number of residents, Leamington bears a favourable comparison with other inland watering places. The small number of deaths from zymotic diseases proves the accuracy of what I have stated with reference to drainage and pure water. The death-rates for the years 1881-82-83 were respectively 15·02, 15·4, and 15·3, giving the extremely low average for the last three years of 15·24 per 1,000, and from zymotic diseases 1·1. These figures speak for themselves, and will bear favourable comparison with any health resort, of equal size, in the kingdom.

#### AS A SEAT OF EDUCATION.

I have previously said that the climate is well adapted for children. Parents, therefore, may have confidence in sending their boys and girls to school here. Leamington College, though not one of the largest public schools in England, enjoys the reputation of claiming many who, from being pupils, have gained high honours at Oxford

and Cambridge, and who, in after-life, have become men of eminence in the State, in the learned professions and in the public services. A High School for young ladies has recently been founded, with every evidence of success. It is for day pupils only, its object being to afford a liberal high-class education to young women, at moderate term-fees, and also to enable pupils to reside with their parents. There is likewise a High School for ladies who are boarders, to say nothing of the many other well-conducted private schools for both sexes.

#### SOCIALLY CONSIDERED.

In addition to those who come in search of cure, it must not be forgotten that there are others who come with invalids, and many who come to "enjoy life." All classes and all temperaments can be accommodated. For those who are fond of "good works" there is plenty of scope in various ways; for those who come to enjoy themselves, as they call it, there is the noble sport of fox-hunting, which they may follow to their hearts' content; there are frequent balls, a very elegant, recently-built theatre, and also a School of Art, a club, archery, lawn tennis, very good boating on the Leam and on the historic Avon, a Free Library, an Institute, and political clubs—Conservative and Radical.

#### GEOLOGICAL.

The geological formation on which Leamington is situated is the Triassic series of the Mesozoic or Secondary epoch, which is represented on the Continent

of Europe by three distinct divisions:—1st, the Keuper beds; 2nd, the Muschelkalk or lime beds; and 3rd, the Bunter sandstone. The second portion, however, of this division is absent in England; hence there is no sharply-defined physical feature by which to distinguish the remaining two except a few fossils and the more marly nature of the Keuper, the greater difference being in their chemical composition.

It is from the Keuper beds that saline waters are derived, the Bunter sandstone constituting a great natural reservoir holding fresh water, as exemplified by the source of our present town supply.

From the complex condition of the strata towards the southern side of Leamington, where the Keuper beds and Bunter sandstone unite or intermix, great variety in the mineral constituents of the springs is conspicuous, and has even been shown to exist in the same boring, salt water being met with in the light blue marl, near the surface, and at a greater depth of 38 feet, fresh water in large quantity. At a still greater depth of 119 and 173 feet respectively, first fresh water and then salt was found, both in the red sandstone.

There seems to be a succession of blue sand, sandy clay, red marl, light blue marl, red marl, red sandstone, light blue marl, red sandstone, grey sandstone, and so on.

All these, in their way, play important parts and become decided factors in the health-giving properties of Leamington generally, and must not be overlooked in estimating it from a medical point of view.

## THE MINERAL WATERS.

A few observations on the natural elements contained in the strata from whence the saline waters are derived will here not be out of place, and, without engaging the reader with any lengthy scientific description, will doubtless prove of interest to many.

The principal compounds found are :—

1st. Dolomitic clays and limestone, composed of carbonates of calcium and magnesium, with varying proportions of oxide and occasional traces of sulphide of iron.

2nd. Scattered deposits of gypsum crystals, which in some instances attain considerable size, and always contain traces of iron.

3rd. Underlying and interspersed with the above, immense deposits of chloride of sodium with minute quantities of bromide and sometimes iodide of sodium.

The iron mentioned by some of the chemists as being found in several of the saline waters may be traced to the gypsum, dolomitic stone, ironstone-nodules, and fragments of bog ironstone, interspersed with the strata in general.

The foregoing enumeration will account for the various compounds or salts shown by analysis to exist in the Spa waters in general—the slight difference apparent between the several springs being accounted for by the different proportions in which the natural salts are present in the respective localities in which they rise.

I will now proceed to give the analysis of the different

wells. The water from the first two is to be had at the Pump Rooms, and is used for drinking and bathing purposes there ; that from Lord Aylesford's well in Bath Street, and the Public Fount, is chiefly used for drinking, unless carried to patients' homes to be used for a bath.

THE CONSTITUENTS OF THE SEVERAL SPRINGS ARE AS FOLLOWS :—

*Pump Room (No. 1).*

Analysis made by Professor J. S. Brazier, F.I.C., F.C.S., Professor of Chemistry, Aberdeen University, March 14th, 1885. Chief gas is carbonic with small quantities of oxygen and nitrogen ; temperature, 40° Fahr. ; Sp. gr. 1·011008. Alkalinity expressed as carbonate of calcium is equivalent to ·87 grs. per pint.

	Grains per pint.
Sodium . . . . .	33·34
Magnesium . . . . .	1·61
Calcium . . . . .	6·08
Chlorine . . . . .	51·83
Sulphuric Acid . . . . .	20·53
Carbonate of Iron . . . . .	0·08
Carbonate of Calcium . . . . .	0·78
Carbonate of Magnesium . . . . .	·04
Silica . . . . .	·01

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114·30



*Combined as follows.*

	Grains per pint.
Chloride of Sodium . . . . .	84·80
Chloride of Magnesium . . . . .	0·49
Sulphate of Calcium . . . . .	20·66
Sulphate of Magnesium . . . . .	7·44
Carbonate of Iron . . . . .	0·08
Carbonate of Calcium . . . . .	0·78
Carbonate of Magnesium . . . . .	·04
Silica . . . . .	·01
	<hr/>
	114·30
Bromide of Sodium . . . . .	
Chloride of Potassium . . . . .	} Traces.
Carbonate of Sodium . . . . .	

*Pump Room Well (No. 2), otherwise known as "Grove's Well."*

Analysis by Dr. Meymott Tidy, M.B., F.I.C., F.C.S., Professor of Chemistry, Medical Jurisprudence, and Public Health, the London Hospital, and Analyst for the City of London, made March 20th, 1885.

	Grains per pint.
Sodium . . . . .	36·35
Magnesium . . . . .	2·33
Calcium . . . . .	7·52
Chlorine . . . . .	56·15
Sulphuric Acid . . . . .	25·05
Peroxide of Iron . . . . .	·25
Silica . . . . .	·14
	<hr/>
	127·79

The same analysed by H. Wilson Hake, Ph.D., F.I.C., F.C.S., and C. Napier Hake, F.I.C., F.C.S., of Westminster Hospital, April 25th, 1885.

	Grains per pint.
Sodium . . . . .	36·17
Magnesium . . . . .	2·55
Calcium . . . . .	7·71
Chlorine . . . . .	57·79
Sulphuric Acid . . . . .	24·67
Carbonic Acid . . . . .	·92
Silica . . . . .	·12

*Combined as follows.*

	Grains per pint.
Chloride of Sodium . . . . .	92·01
Chloride of Magnesium . . . . .	1·02
Sulphate of Calcium . . . . .	21·87
Sulphate of Magnesium . . . . .	11·52
Chloride of Calcium . . . . .	1·85
Carbonate of Calcium . . . . .	1·54
Silica . . . . .	·12
	129·93
Ammonium . . . . .	} Traces.
Nitric Acid . . . . .	
Iron . . . . .	
Potassium . . . . .	
Lithium . . . . .	

Sp. gr. 1·0111049. Gas—carbonic acid with small quantities of oxygen and nitrogen. Alkalinity expressed as carbonate of calcium is equivalent to ·75 grs. per pint.

*Aylesford Well, Bath Street.*

Analysis by Professor Brazier, made April 25th, 1885. Sp. gr. 1.009. Chief gas is carbonic, with small quantities of oxygen and nitrogen. Alkalinity expressed as carbonate of calcium is equivalent to .87 grs. per pint.

	Grains per pint.
Sodium . . . . .	31.13
Magnesium . . . . .	1.64
Calcium . . . . .	5.17
Chlorine . . . . .	41.65
Sulphuric Acid . . . . .	26.64
Carbonate of Iron . . . . .	.05
Carbonate of Calcium . . . . .	.39
Carbonate of Magnesium . . . . .	.15
Silica . . . . .	trace.

*Combined as follows.*

	Grains per pint.
Chloride of Sodium . . . . .	68.63
Sulphate of Sodium . . . . .	12.82
Sulphate of Magnesium . . . . .	7.20
Sulphate of Calcium . . . . .	17.58
Carbonate of Iron . . . . .	.05
Carbonate of Calcium . . . . .	.39
Carbonate of Magnesium . . . . .	.15
Silica . . . . .	trace
	106.82

## CHALYBEATE.

*The Public Fount, High Street.*

Analysis by Professor Brazier. Sp. gr. 1.0108.  
 Made April 25th, 1885. Gas—carbonic acid with  
 small quantities of oxygen and nitrogen. Alkalinity  
 expressed as carbonate of calcium is equivalent to 1.12  
 grs. per pint.

	Grains per pint.
Sodium . . . . .	32.67
Magnesium . . . . .	1.53
Calcium . . . . .	5.18
Chlorine . . . . .	45.12
Sulphuric Acid . . . . .	25.74
Carbonate of Iron . . . . .	1.01
Carbonate of Calcium . . . . .	.67
Carbonate of Magnesium . . . . .	.03

*Combined as follows.*

	Grains per pint.
Chloride of Sodium . . . . .	74.35
Sulphate of Sodium . . . . .	10.63
Sulphate of Magnesium . . . . .	7.65
Sulphate of Calcium . . . . .	17.61
Carbonate of Iron . . . . .	1.01
Carbonate of Calcium . . . . .	.67
Carbonate of Magnesium . . . . .	.03
	111.95

*Table showing the comparative composition of the Leamington  
from some of the popular German and*

SPA.	SOURCE.	Sodium Chloride.	Magnesium Chloride.	Calcium Chloride.	Sodium Sulphate.
LEAMINGTON—					
	Pump Rooms . . . .	84·8	·49	...	...
	Grove's Well . . . .	92·01	1·02	1·85	...
	Aylesford Well . . . .	68·63	...	...	12·82
	Public Fount . . . .	74·35	...	...	10·63
MARIENBAD.	Kreuzbrunnen (Bohemia)	16·32	...	...	47·55
TARASP.	Great Spring (Lower Engadine) . . . .	36·70	...	...	20·67
FRANZENSBAD.	Salzquelle (Bohemia) . . . .	11·25	...	...	22·50
ELSLER.	Marienbrunnen (Saxony)	17·87	...	...	28·25
ROHITSCH.	(Styria) . . . . .	...	...	...	18·75
BADEN . . . . .	. . . . .	2·48	2·01	...	2·65
KISSINGEN.	Ragozci (Bavaria) . . . .	55·88	2·91	...	...
	Pandur . . . . .	52·98	2·02	...	...
	Maxbrunnen . . . . .	21·90	·63	...	...
HOMBURG.	Elizabethenbrunnen				
	(Nassau) . . . . .	94·6	7·0	6·6	...
	Kaiserbrunnen . . . . .	68·8	4·0	5·25	...
WIESBADEN.	(Nassau) . . . . .	65·61	1·85	4·5	...
SODEN.	(Nassau). Milchbrunnen	22·1	...	...	...
	Warmbrunnen	32·66	...	...	...
	Wilhelmsbrunnen	130·1	...	...	...
	Soolbrunnen . . . . .	143·0	...	...	...
ARNSTADT . . . . .	. . . . .	32·62	·62	...	1·90
BOURBON LANCY.	(Saône-et-Loire) . . . .	11·37	3·5	·43	2·18
BOURBONNE-BLES-AINS.	(Haute-Marne)	50·75	3·5	...	...
SALINS-MOULIERS.	(Savoie) . . . . .	99·02	...	...	5·6
BRIDES-LES-BAINS.	(Savoie) . . . . .	10·69	...	...	9·02

ers with those of similar saline and carbonated saline waters  
 nch spas. Expressed in grains per pint.

	Magnesium Sulphate.	Calcium Carbonate.	Magnesium Carbonate.	Iron Peroxide.	TOTAL.	
6	7.44	.78	.04	.08	114.3	} With traces of bromide of sodium, chloride of potassium, carbonate of sodium, and lithium.
7	11.52	1.53	...	.25	129.96	
8	7.20	.39	.15	.05	106.82	
1	7.65	.67	.03	1.01	111.95	
	...	4.98	4.16	.33	85.13	} With bicarbonate of sodium in varying proportions.
7	...	22.36	9.60	.25	141.55	
	...	2.86	...	.02	47.88	
	...	1.37	...	.43	55.06	
	...	13.75	11.25	.07	51.32	
6	...	1.62	...	...	17.46	} With small quantity of chloride of lithium.
3	5.62	10.17	...	.30	81.54	
7	5.73	9.73	...	.25	76.04	
2	2.27	5.77	...	...	33.31	
2	...	14.5	.25	.22	126.49	} With chloride of potassium.
2	...	8.8	.37	.22	89.86	
6	...	4.01	...	.05	78.30	
4	...	3.41	1.71	.20	29.32	} With chloride of potassium.
1	...	5.58	3.28	.37	44.1	
2	...	10.47	1.60	.37	147.4	
5	...	10.78	.36	.75	161.97	
5	.90	1.25	.05	...	41.42	
7	...	.52	1.31	.17	19.82	
0	...	.87	...	.02	66.72	
3	6.58	8.79	...	...	132.48	
5	6.12	2.84	...	.14	49.73	

Such then are the analyses of the four principal Wells—the only ones at present in use in the Royal Spa. The reader may ponder over the bases and combinations for himself, and later on hope to find explanations in the pages that are to follow. Of the four, I call the Public Fount the Chalybeate Well.

I have said that in each well will be found a simple prescription, and I think every intelligent practitioner will admit that such is the case. It is a well-known fact in medicine, that *the action of mineral waters is different in character and degree from pharmaceutical solutions of their ingredients.* This is especially borne out by Sir Henry Thompson in his remarks upon the action of salines in cases of gravel. An intellectual practitioner of the present day, when he writes a prescription, keeps in view the cause of the complaint, and prescribes remedies which he believes, on physiological principles, will produce certain results. He does not jumble up all manner of incompatibles, but strikes at the root of the thing. So it is with the simplicity of the Leamington saline waters. They are simple, straightforward prescriptions, and, in the case of certain maladies, to be hereafter mentioned, are physiologically correct. It will be observed, on looking at the analysis of each, that the bases of the salts seem all to tend in one direction so far as the diseases go for the relief of which they are indicated. The proportions, therefore, are well balanced; and this enables them to be borne for lengthened periods, which, of course, is all-important. Strong

remedies, like strong drink, must be taken in moderation. It has been the fashion to imagine that the stronger the mineral water is in aperient properties, the more likely it will be to produce favourable results. Hence the number of bottled foreign aperient mineral waters which adorn the windows of chemists' shops. The idea is that the more the ingredients and the stronger the solution, the better the results. This is a fallacy. These aperient waters are all very useful in their way, but as intended for a course of mineral water-drinking, they are not to be thought of, when better and safer results are to be had from the mother wells on the spot. The late world-famed Abernethy was wont, I believe, to illustrate the difference between strong aperients and laxatives by this simile. He said that "a strong dose of salts was like pushing a besom through the stomach and bowels the wrong way, and that a laxative represented the same piece of culinary mechanism drawn the smooth way." The Leamington saline represents the latter method of action.

On pages 40 and 41 I have arranged a table of comparison with foreign mineral waters, from the works of Braun and Vintras (German and French). It is impossible, in the bowels of the earth, to find two mineral waters alike, but certain springs belong to certain groups, and that being so, I refer the reader himself to the various groupings. The combinations, temperature, and gases may probably vary somewhat, but in the chief ingredients they have much in common. The table is intended to assist practitioners to select Leamington where patients



require a mineral water similar to those of foreign spas, and where they (the patients) may wish to avoid fatigue and foreign travel and have the rest and comforts of home in England.

I have endeavoured, in comparing foreign spas, to follow the analysis of bases more than the analysis of combinations, although they are expressed as such in the tables; and, as sodium, magnesium, and calcium are the bases upon which I shall build my therapeutics, I have selected foreign waters chiefly containing these salts, irrespective of the manner in which they are supposed to be combined in their respective wells. So far as totals go, Leamington will be seen to compare favourably with all. Would that the foreign mineral waters were not combined, and without wishing to be too critical I fear many of the combinations would be found to exist in imagination only.

I nail my colours to the sodium, magnesium, and calcium groups as they exist in the Leamington saline.

PHYSIOLOGICALLY AND THERAPEUTICALLY CONSIDERED  
—EACH BASE SEPARATELY DEALT WITH.

Before arriving at the general conclusions as to the action of the Leamington saline waters as a whole, I think it well to bring before my readers, first, the bases of the salts, and their separate actions; second, the salts themselves as they are separately supposed to be combined in the waters; third, what the real action of the

waters is, from the time they enter the body as a whole till they leave it by the bowels, kidneys, etc. ;—their consequent influence on the tissues and the blood ;—and, finally, the ailments indicating their administration.

### I.—SODIUM.

*Uses.*—Internally, sodium salts are more slowly absorbed into the system than those of potash, but they are more powerful in the alimentary canal, because they are less diffusible.

In the Leamington water, sodium enters the stomach in the form of chloride, and assists the digestion of albumen ; and it must not be forgotten that bicarbonate of sodium, when received by the same organ, is in part converted into the chloride.

#### ACTION ON THE BLOOD.

The salts of sodium are slowly absorbed into the blood, and are slowly excreted from it, remaining in it chiefly as the bicarbonate and phosphate. They are taken almost daily in food, and are the chief sources of the natural alkalinity of the liquor sanguinis. This alkalinity may be increased by their being given in the form of medicines, or of mineral waters containing chloride or sulphate of sodium, as well as other sodium salts. The fact that sodium salts are alkalizers of the blood is utilized in gout, rheumatism, gravel, and liver diseases.

## REMOTE ACTIONS.

Sodium salts are excreted by all mucous surfaces—kidneys, liver, bronchi, and probably by the skin.

During their passage, the activity of these membranes is increased.

The different salts of sodium have different actions, some affecting one organ, some another, but all are ultimately alkalizers.

When, therefore, we sum up the “all round” action of the sodium salts, we say—they act on the alimentary canal, blood, tissues, and on the organs and passages of the body by which they are excreted.

They are, therefore, indicated in those whose unfortunate bodies are known as “gouty,” “rheumatic,” “acid,” or where there is chronic derangement of the liver.

“Chloride of sodium possesses the ordinary action of sodium” (Mitchell Bruce), and is greatly used for the diatheses above mentioned in the waters of Homburg, Wiesbaden, Kissingen, and Baden-Baden.

Therefore, I conclude that it is an important factor in the Leamington saline, as an alkalizer.

## II.—MAGNESIUM.

Internally, magnesium has the power of decomposing the contents of the stomach and intestines, under different circumstances.

By this process it neutralizes ordinary or too abundant acidity in these organs, and is itself converted into

the chloride, lactate and bicarbonate, thus removing irritant acids, and forming salts of magnesium, which have a stimulant or purgative action on the intestines.

The chloride and sulphate when given directly, as in the Leamington water, are but slowly absorbed, and if in sufficient quantities produce marked local effects as *saline purgatives*.

#### ACTION ON THE BLOOD.

“Magnesium enters the circulation as the chloride, increases the alkalinity of the plasma, of which it is a normal constituent, and helps to hold in solution any acid which may be in excess” (Mitchell Bruce). “It will, therefore, be found useful in gout, lithiasis, and chronic rheumatism.”

#### REMOTE LOCAL ACTION.

“If magnesium does not act as a purgative, it is excreted chiefly by the kidneys, rendering the urine more abundant and less acid, and dissolving uric acid. Its diuretic and alkalizing effects contribute to the value of magnesium waters in gout and gravel” (Mitchell Bruce).

### III.—CALCIUM.

#### IMMEDIATE LOCAL ACTION, ACTION ON THE BLOOD, AND REMOTE ACTION AND USES.

Internally, calcium is an antacid. As it exists in the Leamington water it is rather insoluble, enters the circulation in small quantities, and appears in the serum

as the phosphate. It increases the alkalinity of the blood, and in the form of chloride is strongly recommended in scrofulous diseases of glands, and in consumption and anæmia.

Calcium salts in mineral waters, such as Leamington and Bath, have a marked diuretic power.

PHYSIOLOGICALLY AND THERAPEUTICALLY CONSIDERED  
—EACH SALT SEPARATELY DEALT WITH.

SULPHATE OF SODIUM

Plays an important part in the composition of some of the Leamington saline springs. It is the salt, above all others, which appropriates itself to the liver, and has the power of "stirring it up."

Dr. Rutherford, of Edinburgh, in his experiments with liver stimulants, places it as one of no mean order as such. But sulphate of sodium has likewise another power. It has a particular action on the blood. In the portal circulation, gouty blood, which is highly charged with uric acid, is neutralized by the sulphate of sodium, by being alkalized by its alkalizing properties as a sodium salt, and also by the excesses being diverted through the bowels by hydragogue purgation, and through the tubules of the kidneys by diuresis.

I admit that the other constituent salts assist this action. In combination, therefore, sulphate of sodium, in addition to its stimulant properties, promotes secretions,

increases the peristaltic action of the bowels, and alkalizes gouty and rheumatic blood.

#### SULPHATE OF MAGNESIUM.

Is a painless, non-nauseating, mild purgative, not so rapid in its action as the sulphate of sodium. It does not act upon the muscular coat of the stomach and intestines, but simply stimulates the intestinal glands. Belonging as it does to the magnesium group, it is a diuretic, has alkalizing powers, and is therefore useful in gout and gravel.

#### SULPHATE OF CALCIUM.

This salt is rather insoluble and probably remains in the intestines for a somewhat lengthened period before being absorbed, unless it be carried away from the bowels in the act of purgation. It is met with, in a medium amount, in the Pullna, Sedlitz, and Friedrichshall waters, and is said to exercise alkalizing and diuretic properties.

#### CHLORIDE OF SODIUM.

This is found in greater quantities in the saline water than any other salt, and, as is well known, enhances its value.

Chloride of sodium is found in the human body, as part and parcel of it; and if through disease it be reduced in quantity, its presence in the salines makes up the deficiency, when prescribed as a remedy. Dilute solutions of chloride of sodium have the power of dissolving albumins and globulins, while strong solutions

precipitate globulins and withdraw water from the tissues.

Chloride of sodium, therefore, acts on the gastric glands in proportion to the strength of its administration. If the dose be weak, it acts as a mild stimulant ; if strong, the action is irritant, and the result is sickness or purgation.

During its stay in the body the salt does not seem to alter the composition of the tissues ; but what change takes place seems due to its action on the solubility of albuminous substances, on the processes of osmosis between the intercellular fluid and the blood, and the circulation of lymph in the tissues.

Therefore chloride of sodium increases tissue change by an increase in the amount of urea excreted. It is not always present in the body in the same proportion. According to the quantity taken daily, so is the balance kept up, less or more, although it may take two or three days to become apparent. Chloride of sodium stimulates the construction of tissues generally, and retards retrograde metamorphosis. In addition to all these properties, its value is enhanced as a remedy by belonging to the sodium group.

#### CHLORIDE OF CALCIUM.

In my introductory remarks I gave this quotation :—  
“ About the year 1730, strangers and visitors came and drank of the healing waters chiefly as an antidote to

scrofulous affections." Although the particular healing salt was probably not then differentiated, nevertheless I have little doubt that chloride of calcium, in combination with the others, was the one which had the virtue in it.

There is an old saying that "there is nothing new under the sun,"—so it comes to pass that in the present day the calcium preparations are largely and scientifically prescribed in strumous affections.

The use of the chloride of calcium as a remedy in strumous diseases is considerable. Dr. Robert Bell (*Lancet*, page 275, 1877) finds that it possesses wonderful power in controlling, if not in actually curing, many forms of tubercular disease; and in the wasting of childhood he has found it to be a therapeutic agent of inestimable value. Dr. J. G. S. Coghill (*Practitioner*, page 247, 1877) regards chloride of calcium as possessing quite the character of a specific in strumous disease—more potent and more manageable than iodine preparations. All this I have found to be true. The proportion of the salt in the Leamington saline is certainly very great, and adds very much to its value.

Chloride of calcium, therefore, assists the chloride of sodium in preventing retrograde metamorphosis of tissues; it stimulates the reconstruction of them generally, and has a peculiarly remedial action upon glandular substances, as is seen in struma, tabes mesenterica, bronchocele, certain stages of consumption, and in chronically enlarged tonsils. Chloride of calcium has of late found



favour in the treatment of tubercular diseases, after being discarded for something like fifty years.

#### CHLORIDE OF MAGNESIUM.

This salt is a laxative. It acts freely on the bowels, and its use is not likely to be followed by constipation. It does not seem to continuously irritate the gastric and intestinal glands, and hence its administration does not "fidget" the patient with repeated desires for action.

#### CARBONATES OF MAGNESIUM AND CALCIUM.

These are met with in small proportion in some of the wells. They more or less act as alkalizers and remove acidity—the one more actively, as in the case of the magnesium carbonate, and the other in a less degree. They both, however, operate in the right direction, and are valuable in gout, rheumatism, and gravel.

#### AMMONIUM, POTASSIUM, LITHIUM, SODIUM BROMIDE, AND SODIUM CARBONATE.

These are found in traces in some of the wells, and enhance their value. When we consider how much importance is attached to even a trace of these metals in Continental waters, I think I am justified in calling attention to their presence in those of Leamington. All are alkalizers, and are more or less antidotes to gout.

#### CARBONATE OF IRON.

In the water of the Public Fount, carbonate of iron is met with in the proportion of more than a grain to the

pint. In anæmia this is most valuable, and materially assists the other ingredients.

Such, then, are the simple, scientific prescriptions; and to tinker with them is, in my opinion, to spoil them. I do not say that they are perfect—far from it; but if it be necessary to prescribe other drugs, I consider it best to give them separately by themselves, and not add them to the mineral waters.

I have purposely avoided verbosity and complexity in the foregoing remarks, knowing full well that standard works on Physiology and Therapeutics exhaust all the subjects on which I have touched.

#### THE COMBINED ACTION OF THE LEAMINGTON SALTS.

The question arises, What is the action of the Leamington waters? I will try and answer the question in as few words as possible.

Action—purgative and diuretic; they are alkalizers and general blood purifiers.

Taken warm, at the source, in the early morning, in quantity from ten to twenty ounces, succeeded by a gentle walk, and it may be a cup of tea or breakfast, the effect upon most people is a smart liquid purge, with a feeling of relief of weight from the abdominal cavity generally. On being received into the stomach, not unfrequently a slight sense of oppression is experienced

which quickly passes off; at times, also, a little sense of determination of blood all over the bowels. This feeling generally gives place to a subdued sense of "settling down," and very little more is felt till the well-known twinge or general quiver announces that an effect is to be expected, and the patient is seldom disappointed. Copious, free, liquid, easy purgation is almost invariably the result, and a general sense of lightness is felt afterwards.

The exact manner in which purgation by saline cathartics is brought about has been a puzzle to physicians, but what with the experiments of Rutherford, Matthew Hay, Lauder Brunton, and others, our knowledge on the subject is becoming more exact. It is not intended in this little volume to enter fully into the subject, but a few extracts from Dr. Matthew Hay's summary may not be out of place.

The reader is referred to the masterly works of the above-named gentlemen for full details of this complex subject.

Dr. Hay draws his conclusions thus—

"A saline purgative always excites more or less secretion from the alimentary canal, depending on the amount of the salt and the strength of the solution, and varying with the nature of the salt.

"The excito-secretory action of the salt is probably due to the bitterness as well as to the irritant and specific properties of the salt, and not to osmosis.

"The low diffusibility of the salt impedes the absorption of the secreted fluid.

“ Between stimulated secretion on the one hand and impeded absorption on the other, there is an accumulation of fluid in the canal.

“ The accumulated fluid, partly from ordinary dynamical laws, partly from a gentle stimulation of the peristaltic movements excited by distention, reaches the rectum, and produces purgation.

“ The salt excites an active secretion into the intestines, and probably for the most part in the small intestine, all portions of this viscus being capable of yielding the secretion in almost equal quantities.

“ When sulphate of sodium and sulphate of magnesium are administered, they become split up in the small intestines, the acid being more rapidly absorbed than the base.

“ A portion of the absorbed acid shortly afterwards returns to the intestines.

“ During the alternations of absorption and secretion of the acid, it is the salt left within the intestines which excites secretion.

“ Sulphate of sodium and sulphate of magnesium, when administered in the usual way, produce a gradual but well-marked increase in the tension of the pulse.

“ According as the salt solution within the intestine increases in amount, there occurs a corresponding diminution of the fluids of the blood.

“ The blood recoups itself in a short time by absorbing from the tissues a nearly equal quantity of their fluids.

“ The salt, after some hours, causes diuresis, and with

it a second concentration of the blood which continues so long as the diuresis is active.

“As the intestinal secretion excited by the salt contains a small proportion of organic matter as compared with inorganic matter, the purgative removes more of the latter than the former from the blood. In certain cases a large quantity of the salts of the blood is thus evacuated.

“The amount of the normal constituents of the urine is not affected by the salts.

“After the administration of sulphate of magnesium much more of the acid than of the base is excreted in the urine.”

These are a few out of the many conclusions arrived at by Dr. Hay, and exactly explain the action of the Leamington saline waters as regards purgation, diuresis, and the removal of acids from the body, when they exist in excess, as they do in gout, rheumatism, some forms of dyspepsia, and gravel.

Having already entered fully into the therapeutical action of the bases of the Leamington salts upon the tissues and the blood, I will now proceed to discuss the maladies in which I find the water useful, and its mode of operation in each. But before doing this I will make a few

#### INTRODUCTORY REMARKS ON THE THERAPEUTICAL AND CLINICAL INDICATIONS.

In the following observations I shall endeavour to apply to ailments and their treatment a great deal of what I have

spoken of in preceding pages. I shall avoid even giving general outlines of treatment, as each case requires its own particular management. It is impossible for any medical man, however accomplished, to direct, at a distance, a course of mineral water remedies, and I therefore consider practitioners on the spot the best able to indicate and carry out the treatment of diseases which may come under their notice.

In selecting cases to be treated by the Leamington saline water, great care is necessary. Some are apt to imagine that it is only necessary to swallow so many half-pints or pints of the water in the early morning, and they have done everything required. This is a mistake. In some cases the laxative properties are indicated; in others, the alterative. For instance, if a patient who is threatened with an acute attack of gout or gouty eczema indulges in what he calls a "course" of the water, he will frequently do much harm; and a premature and severe attack will be the result.

It is, therefore, in the more chronic forms of these complaints—or after the active symptoms have subsided—that a regular course is indicated, and this only under medical advice.

#### THE THERAPEUTICAL AND CLINICAL PROPERTIES OF THE LEAMINGTON SALINE WATER.

In dealing with diseases which have come under my notice for saline water treatment, I shall begin with those that affect the alimentary canal.

*Stomach Disorders generally.*—When the breath is offensive ; the tongue loaded ; there are foetid eructations ; the appetite is faulty ; general distention of abdomen, and sometimes constipation, and sometimes diarrhœa ; a course of Leamington saline water, with appropriate diet, is indicated. To aid this, the cause must be stopped, if possible. Errors of diet not unfrequently bring about such a state of things. But it must be borne in mind that hereditary and constitutional predisposition very often has as much to do with it. It is a fashion, now-a-days, with those who advocate extreme measures, to put down every ailment which flesh is heir to to excesses “in drinking.” This is an error. Far be it from me to countenance transgressions in this direction, but I boldly assert that indulgences in eating—especially of meats of various kinds—are as liable to overstrain a willing digestion as the cup which, when indulged in too well, inebriates.

DYSPEPSIA, WITH PALPITATION OF THE HEART, INTERMITTENT PULSE, AND DEPRESSION OF SPIRITS.

*Atonic.*—Where there are general debility, want of tone in the coats of the stomach, degeneration of the peptic glands, gastric juice deficient, sensations of weight at the pit of the stomach, also fulness and discomfort after food, with real pain, which is relieved by pressure, where there are feelings of sinking in the epigastrium in a spot “about the size of a shilling,” where digestion is protracted and foul

gases are generated, where the tongue is large, flabby, moist, and furred, where there is habitual constipation and the motions are firm, white, and offensive, with absence of bile, where the pulse is weak and the heart beats rapidly on exertion, where the skin is clammy and the hands and feet are cold, where there is a sense of lassitude and a feeling of weight on the chest, as if being garotted or having a burglar's knees planted on the breastbone, where the breath is short, with a little cough and palpitation, I find a judicious course of the Leamington waters, with careful dieting, most useful.

Another form of dyspepsia, known as *irritative*, gives rise to the following—burning at the pit of the stomach, increased by food, heartburn, acidity, thirst, vomitings of acid mucus, eructations, red tongue, throat irritable, causing a “sicky” cough, sometimes constipation—sometimes diarrhœa,—a cutaneous eruption, palms of the hand and soles of feet burning, pulse frequent and feeble, urine scanty and charged with urates.

Here, too, the saline water is most beneficial, and this is easily accounted for when we consider its composition. Sir William Gull has borne testimony to this fact.

I will here give a clinical account of two cases of dyspepsia that came under my notice, out of many others, which well illustrate the meaning of what I have been indicating under the headings “atonic” and “irritative.”

A. B., a professional gentleman, aged forty-five, thin, tall, and slightly anæmic, had latterly been getting out of health. He had worked hard at his profession in early



life, and as he had, from one cause and another, become pretty well independent, he retired from the active duties of his calling. To appearance, an ordinary observer would have naturally remarked "that he looked as if a substantial dinner would do him good." But not so in reality. He could not face a well or ill-cooked meal. His nervous system "gave way," as he called it, and because he had had no regular employment he was miserable, and could not eat, and the little he got down did not digest. His symptoms were those of the first kind mentioned above. His breath was foul—"enough," as he said, "to stop a watch or arrest the progress of a passing bee")—and he had all the miserable feelings appertaining thereto.

The cause of these troubles was explained to him; he was put upon a course of the water, and a diet suited to his case, and in two months he went away, a happier man, with his digestion as well as it need be, and in all respects cured.

The other patient was as different as can be in physique and character from the above.

He was a robust, ruddy, healthy-looking man, with a sprinkle of what is commonly known as "the jolly" look about him. His life had been an active one, and now, at the age of forty-three, still was so. He, too, had been successful in his calling, had daily fared well, but now from one cause and another found himself in the state described under irritative dyspepsia.

When he consulted me he was sleepless—afraid to go

to bed lest he should be awake all night ; some nights if he happened to get off he would sleep well, other nights—and these were the most common—he would lie awake the whole time—tossing about, getting up and reading, and again lying down trying to woo sleep, but all to no purpose. On the days following the bad nights, he was miserable, and, when not actively engaged, was constantly repeating to himself, “I hope I shall sleep to-night.”

He had consulted several doctors, and had taken various remedies. By one he was sent away for a change to the sea and ordered to drink stout at night, to make him sleep. He was on a visit to relations, and some of the juvenile members of the family used to chaff the healthy-looking uncle by asking “the invalid,” as they called him, to have another bottle of porter.

Although he did not show it, all this was most galling. He was a man who needed sympathy, and to be told firmly that by a little judicious treatment he would get quite well. It was no use making light of the matter. To him it was serious ; at the same time to the doctor it was not.

I told him to have faith in himself and in the remedies, and he would soon be well.

He took the Leamington waters and used the baths, he adhered to a diet suited to his ailments, and has long ago been quite well, and now, when he meets me, blesses the day when he was led to get up in the morning and go regularly and drink of nature’s medicine at the fount in Bath Street.

This poor sufferer, for such he was, declared to me that he was sure his heart was diseased, and that he would "die in a hurry." He could note his pulse stop at night, on the pillow, and he had all manner of queer sensations at his chest. A kind of wave used to come over his breast and move here and there, which was relieved by eructations from the stomach. He often also had "creepy feelings" about the head which caused him to stagger when walking.

The meaning of all this lies in the fact that the fermentations of acids that went on in the stomach irritated the filaments of the pneumogastric nerve which supplies that organ; these telegraphed, so to speak, to the base of the brain;—that branch of the same nerve—the superior aryngal, "wired" to the heart and, being the nerve depressor, inhibited its function; and the result was the chest wave described, the intermittent pulse, and the little commotion in the head, causing vertigo.

The explanation of good results in such cases lies in the fact that the Leamington saline waters removed fæcal matters from the alimentary canal that were a source of irritation. They also prevented an accumulation of such matters as produce disturbances in other organs—such as head disturbances and the general conglomeration of symptoms alluded to above—affecting the sensory and motor nerves, and the general circulation; they likewise neutralized the fermentations of indigestion, and removed the excesses by purgation and diuresis.

## CONSTIPATION.

Saline aperients are generally beneficial in chronic constipation. The Leamington saline water is particularly so. When there is chronic catarrh, with loss of power in the muscular coats of the stomach and intestines, a well-regulated course of the saline water affords marked relief.

## HÆMORRHOIDS OR PILES.

In this painful malady treatment by Leamington salines is often very happy in its results. This is easily explained when we consider the relations of the veins in the abdomen. A smart aperient dose of Leamington saline relieves portal plethora, by abstracting a quantity of serous fluid from the portal blood. Indirectly this relieves the congested hæmorrhoidal plexus of veins around the anus; for the superior hæmorrhoidal vein is a branch of the inferior mesenteric vein, which gathers up, in addition, venous blood by the sigmoid veins, and from the left colic, and, after being strengthened by all these tributaries, empties itself into the splenic vein, which is a branch of the portal.

## CONGESTION OF THE PELVIC ORGANS.

Especially of the female.—This is not the place to enter into all the factors which bring about an over-congested state of the ovaries and uterus. Suffice it to say that the Leamington saline waters form an admirable adjunct to treatment in the following states of these parts

—namely, in congestion of the ovaries, with the usual pain in the right or left part of the abdomen—low down; with forcing and bearing-down pains generally.

The pathology is congestion of the ovaries and sub-involution of the uterus, which means hypertrophy of the muscular coat of the womb, equally with that of the connective tissue. The cause of this state of things is generally laceration or bruising of the cervix in parturition, the too early getting up after delivery, miscarriages, and child-bearing at a late period of life. I have found a well-regulated course of the internal administration of the Leamington saline, and also a continuous course of vaginal douches of the same water, sometimes at a temperature of  $110^{\circ}$  Fahr., sometimes tepid, and sometimes cold, together with the administration of bromide of potassium and iron, a remedy to be sought after by most who suffer in the manner I have indicated.

The explanation of a course of treatment in these disorders by saline purgation, by the Leamington water, lies in the fact of its being well borne for a lengthened period, and the fact that branches of the inferior mesenteric vein inosculate with those of the internal iliac, and thus establish a communication between the portal and the general venous system. So it comes to pass that the pelvic congestion is lessened, the ovarian neuralgia done away with, and hypertrophy of the uterus reduced.

#### CONGESTIONS OF THE KIDNEYS.

These are relieved in three ways, by the skin in per-

spiration, by the use of purgative salines, and by diuretics, be the complaint acute or chronic.

The Leamington saline is diuretic, but in chronic kidney disease, this power is assisted by the aperient relief gained by portal derivation, and the explanation is, "that besides the anastomoses between the portal vein and the branches of the vena cava inferior, the anastomoses between the portal and the systemic venous system are formed by the communication between the left renal vein and the veins of the intestines, especially of the colon and duodenum, and between the superficial branches of the liver and phrenic veins."—(Gray.)

Independently, however, of these "communications" anatomically, there is a much more important physiological relation between the two excretory organs (bowels and kidneys), for if Leamington salines fail to purge, or purge but in part, they pass on to the kidneys and act as powerful diuretics. In dropsy this is most valuable. The magnesium and calcium salts in the Leamington waters are distinctly stimulants of the renal epithelium. When passing through the cells, these salts carry with them a quantity of water from the venous plexus around the tubules, and actually produce diuresis. To this class of remedies the name "saline diuretics" is given.

These are chiefly alkaline in their influence on the blood and urine, but are also independently active as specific renal stimulants, and in them we have an indirect means of influencing the venous plexus around the tubules, and in this manner the whole

renal circulation and the general blood pressure are relieved.

In congestion of the kidneys I have found the saline vapour or Turkish baths materially help the internal administration of the saline aperient, by acting on the skin, and both combined will often relieve and cure dropsies from some causes.

#### CONGESTION OR HYPERÆMIA OF THE LIVER, AND OTHER ENLARGEMENTS.

These may be due to many causes—to wit, exposure to wet and cold; exposure to excessive heat—with malaria; also the enforced use of foul and polluted water for drinking purposes, and errors of diet, such as excesses in eating and drinking. There are also other causes, such as “family livers.”

A judicious course of saline waters is most advantageous in congestion of the liver, or in what is known as Indian liver. The following case will illustrate what I mean, and is a typical one:—

C. W., aged twenty-four, a tall, strong, well-built, temperate young officer in the Royal Navy, had been exposed to all the hardships of warfare in the British Expedition in Egypt against Arabi. He was present at the siege of Alexandria, and other minor “brushes” with the enemy up to and including the battle of Tel-el-Kebir. He had been exposed to excessive heat, hard work, and hard living, especially as to being obliged to drink conta-

minated water, and the consequence was congestion of the liver and jaundice.

He was invalided home, and by the time he arrived in England all acute symptoms had subsided. He consulted a Court physician in London, who ordered him a course of mineral waters at Homburg. It so happened that he was obliged to come to Leamington, and, by some chance, consulted me. It was inconvenient for him to go abroad, and I advised a course of Leamington saline water, with other appropriate treatment as to diet, etc. The result was that in six weeks he left for his ship, with a liver normal in size; the jaundice quite gone; and in other respects well.

A case, having the same pathological characters as the above, will also be instructive. In the autumn of 1884, an Anglo-American gentleman, aged forty-two, consulted me about his liver. He was a man of education, business habits, and push, had been in "big things" off and on ever since he was twenty-seven, and on the whole had much to be thankful for. He had seen good and bad times, had drudged in a mercantile house in New York, and again spent months on the plains in many parts of the United States; he had grown oranges "down Florida," and had cattle-ranched under the shadow of the Rocky Mountains. At one time he was baked in the sunny south, at another almost frozen in the far north. Sometimes he lived like a king; at others he fared like a beggar. On the whole his health had been tolerably good, but every now and then he got attacks "of fever,"



jaundice, and gout. He said the last ailment was inherited, and I took his word for it.

When he came under my care he looked older than his age; his face was pale, pasty, and somewhat cadaverous. His countenance bore marks of anxiety, he was dark round the eyes, and looked careworn. He had a generally enlarged liver, could not sleep at night, his appetite was faulty, his bowels were constipated, his kidney secretion scanty—sp. gr. 1030, and loaded with urates and uric acid. There were no casts and no albumen. His skin, though not jaundiced, was marked, in various parts of his body, with large brownish patches of bile pigment. He had also remittent attacks of “fever.”

I put him on a suitable diet; he took the Leamington saline water, had saline baths twice or three times a week, and he drank salutaris (distilled, aërated) water with his meals. After a course of nine weeks' treatment he left for “home,” to all intents and purposes a changed being—for the better.

I have heard of him now, just five months from his leaving England, and he says he is “all right, sleeps well, and has no liver troubles at all.”

The purgative effect of the Leamington saline, and a diet properly regulated, in both cases relieved the congested portal circulation which lies at the circumference and between the lobules of the liver. At the same time, doubtless some of the salts were absorbed into the blood and excreted by the kidneys, which they powerfully stimulate, and thus opened up the urinary discharge

which is the second great channel of relief to the liver. Therefore I say that the use of the Leamington saline was physiologically and pathologically sound. This kind of liver affection is often met with in India and America, and benefit is almost invariably derived from this mode of treatment. The saline aperient water is beneficial in almost all liver congestions, except those due to pressure from malignant tumours.

*Jaundice.*—I have referred to jaundice accompanying congestion of the liver and disappearing with it. The cause is evident—under treatment the pressure upon the bile ducts was removed; and the bile fluid took its natural course into the intestines, instead of appearing in the skin from being absorbed into the system.

#### GOUT.

I have already stated that care is necessary in applying the Leamington saline to gout. It is in chronic gout that treatment by this remedy is indicated. It is an old saying that gout is “brewed” in the liver. This is true to a great extent. It is generally said that an attack of gout is due to excesses of stimulants and gorging; but family history has frequently much more to do with it. Gout unfortunately is, in most cases, an ailment which accompanies the patient through all his years of existence, and, be it “suppressed” or “well-developed,” periodically has to be dealt with by remedies and diet. Potash and colchicum, of all other medicines, “look acute gout straight in the face;” but

in the chronic forms the course of mineral water treatment from time to time completes that which these fail to accomplish. The excesses of urates and uric acid in the blood are eliminated from the system by a well-directed plan of treatment by Leamington saline water. The strain upon the kidneys is lessened by the deposits being extracted, and the general tissues of the body are left in a healthier condition.

So far, therefore, as the treatment of gout is concerned, the Leamington saline waters operate freely upon the portal circulation, they wash out from the tissues uric acid, and urate of soda from the tubules of the kidneys. Indirectly, therefore, gout is relieved and, in many cases, for the time cured—by the uric acid being alkalized by the sodium and magnesium and calcium salts, and by the channel of excesses being directed through the bowels and kidneys, as has already been pointed out.

The regular use of saline aperients is especially necessary in gouty persons with contracting kidney and high blood-pressure. How far their utility is to be ascribed to their direct effect in lowering the blood-pressure, and how far to the removal of waste products which might raise the pressure, is “a very nice question,” as the lawyers would say. Nevertheless their use is undoubted.

I here quote two cases which came under my care, and well illustrate what a regulated diet and treatment by the Leamington saline will do. They bear upon gout, with gouty effusions into joints.

F. H., an officer in the Army, aged thirty-three, of fleshy build and inclined to plethora, had served with his regiment in different countries for eleven years. He had been exposed to great variations of climate—from the heats and colds of Canada to the tropical and malarial influences in India. He was a man who lived the ordinary barrack life and was not given to excesses in any way,—“he messed daily, and took his wine with the rest.”

While in India he contracted an acute attack of gout, which left a chronic state of things, with, amongst others, a large effusion of fluid into the right knee joint, and to which the name rheumatic gout was given. On his way home, on sick leave, he tried the waters and baths of Aix-les-Bains, with some relief. When he consulted me in June 1883, the effusion into the knee joint had grown to the size of the head of a child eight months old. He was, of course, very lame and generally debilitated. The kidneys acted scantily, the sp. gr. of the secretion being 1040—urates and uric acid being enormously in excess, bringing the sp. gr. up to that of diabetic urine.

Suffice it to say that, in two months, after a well-regulated course of mineral water treatment and careful dieting, the patient left for the Highlands with joints of normal size, and himself prepared thoroughly to enjoy the balmy and bracing air of bonnie Scotland. This class of case is most instructive, and well illustrates what a careful course of the Leamington saline water will do

for a frame shattered by exposure, and by a chronic malady such as gout. In eight weeks the secretion of the kidneys had passed from a sp. gr. of 1040 to 1015. Further comment is unnecessary, except to add that all meats and stimulants were excluded from the diet.

By way of illustration I quote another case. A squire in a northern county consulted me in May 1884. The history of his case was this. In the autumn of 1883 he had shot as usual, had attended to the harvesting on the home farm, had got into perspirations, was wet with rain many a time, cooled and dried as best he could, and took no particular care of himself. He had done it before, and, machine-like, he thought he might do it for ever. But about October he began to feel a little pain and stiffness in his heel, then again in the elbow; in fact, first in one place and then in another; swelling of the great toe now showed itself, afterward the same kind of thing appeared in the thumbs. These gave place to redness, swelling, pain, and heat in most of the joints of the body. He was attended by his family doctor off and on till the following May, when he was sent to Leamington for change. When I saw him, all active or feverish symptoms had passed away; his joints, however, were swollen and stiff; he was obliged to walk downstairs backwards; his liver was slightly enlarged; he had heartburn after meals; he went night after night without sleep; used to sit up and read half the time, and only got a nap after luncheon; his

bowels were constipated, and his kidney secretions acid and scanty.

His doctor told him that "he was at a standstill, and must have a course of mineral water internally, and baths to complete the cure." Accordingly I set to work to carry out that gentleman's wishes. On rising, the patient took a pint of the carbonated saline water brought from the Pump Rooms every morning; he had three saline baths a week at a temperature of 100° Fahr.; he took a little vegetable tonic and an anti-gout diet.

In a fortnight he was able to walk regularly to the fountain for the morning cup, a distance of a mile and a quarter, and in five weeks could play lawn tennis. At the end of eight weeks he went to his home, where he continued to improve in strength daily. Writing in October 1884, he says: "I am in every respect quite well. I can sleep at night, and walk for six or seven hours a day with my gun. With the exception of a little stiffness in the morning after a heavy day, I am as well as ever I was."

#### SCIATICA OR HIP GOUT.

In approaching this ailment I feel that to some varieties the treatment by the Leamington saline water is not applicable. I also feel that I am confronted by the opinion of many physicians, who say that not unfrequently sciatica gets well under no particular treatment.

In fact, from time immemorial, the cause and treatment of sciatica have been vexed questions.

The local causes of sciatica are, most frequently, long-continued sitting, colds or draughts upon the buttock, and sitting upon damp; but not uncommonly the cause is associated with gout or rheumatism and mental depression. I have found the Leamington salines promote a cure when all other remedies have failed, and I cannot speak too highly of the happy results obtained by this mode of treatment.

In order to illustrate what I mean, I give the following authentic cases, which speak for themselves. A gentleman in the spring of 1883 contracted sciatica. He had been exposed to cold and other predisposing causes, and underwent a course of treatment at one place and another, including baths, electricity, etc. Towards the end of April I found him suffering from acute inflammation of the sciatic sheath and excessive pain in the nerve. The usual remedies—rest, hypodermic injections of morphia, galvanism, medicines by the mouth, warm and Turkish baths—were tried. All these remedies, jointly and severally, had the effect of bringing the ailment from the acute to the chronic stage. But the pain remained the same, except when relieved by the morphia injections. And here the improvement seemed to cease. Accordingly I put the patient upon a regular course of Leamington saline with appropriate diet, and in six weeks, from being in a state of chronic agony except when under sedative influences, he entirely lost

all pain and stiffness of the affected leg, improved in general health, and was, when he left for a change of air on July 1st, quite well.

I quote another remarkable case, the more so when the age of my patient is taken into consideration. I have permission to use his name, and I shall give his own version of the case. Mr. Hyde, of 15, Church Hill, Leamington, says:—"About the year 1871 I had a severe attack of sciatica. I tried the baths and waters at Buxton, Matlock, the Isle of Wight, and the ozone baths at Llandudno, likewise galvanism; but all to no effect. This had been going on for seven or eight years, and I got worse instead of better. I had to carry a camp-stool when I went out, and had frequently to sit down, the pain coming on suddenly. In addition to sciatica, I had rheumatism in my feet and hands, which were much swollen, and for weeks at a time rendered me quite helpless. I was told that the complaint was chronic, and at my age (eighty-one) I must not expect a cure. I was not satisfied with this verdict, and determined to try the Leamington spa water, which I did. I began a course, and soon experienced benefit; and after persevering for several months I was quite cured, and remain so, although this is now thirteen years ago."

This is a remarkable and well-known case in Leamington.

I give yet another which came under my notice amongst the poor.

S. B——, a poor woman, aged fifty-nine, living in



Kenilworth Street, had been subject to sciatica for many months. She had undergone varied treatment in the way of plasters, blisters, and the usual run of remedies, internal and external. She got no better, but worse, although, to my knowledge, the treatment had lasted for many weeks. There was a family history of what she called rheumatic-gout, and bearing this in mind, I put her upon a course of treatment internally and externally, and in eight weeks she had lost every symptom of sciatica, and was quite well, and has continued so, thanks to the Leamington saline water.

I might quote many more cases, but I abstain from doing so. I have brought these three forward as representing in a high degree the kind of sciatica which is likely to be benefited by the Leamington saline—in the upper and the lower ranks of life; and the results only confirm the indications physiologically and therapeutically, which I have been trying to inculcate.

#### RHEUMATISM.

The forms of rheumatism which I have found benefited by a course of the Leamington waters are “muscular rheumatism,” lumbago, stiffness and pains in joints and muscles after repeated attacks of rheumatic fever, or of general rheumatism; chronic articular rheumatism of those advancing in years, and chronic “rheumatics” generally.

The warm saline or Turkish baths often materially assist the internal administration of the water; and

massage, medical rubbing, together with the direct application of the douche to the affected parts, when persevered in, do great good.

During the last twelve months I have had from different parts of England an exceptional number of cases of chronic rheumatism in various forms to treat, and I here subjoin three which will give the reader some idea of how the Leamington waters operate on this ailment.

A. B——, a surgeon in the midlands, had an attack of rheumatic fever in January last. He was, he said, as ill as ill could be, had gone through the fire, and came out stiff and crippled in many joints. He was ordered to Leamington, and in the end of March I saw him. He could then just crawl about, and was very much debilitated. He drank the water only, and took a ferruginous tonic, and in a short time went home to Staffordshire and resumed his practice, well.

B——, a young married lady of title, consulted me in June 1884. She was sent to Leamington by Dr. Hermann Weber, who wrote to me thus: "B—— is a great sufferer from rheumatism, which sometimes prevents her from following her favourite occupation—hunting. *Baths* alone are insufficient. If you are able to cure B—— by the internal and external use of your waters combined with diet, you will do me a great service and perhaps also your spa!"

This young lady had been the subject of several attacks of acute rheumatism, and had been sent abroad

to different watering-places year by year, including Baden-Baden, Aix-les-Bains, Homburg, etc., etc. She had taken regular courses there, including mud and sool-baths. She had derived benefit, but she hated the idea of having all the trouble of long journeys. She was in a position to go here, there, and everywhere when she wished to, but feeling ill with rheumatism, she preferred to get cured at a watering-place at home. When Dr. Hermann Weber mentioned to her the usual German spas for the cure of rheumatism, she asked, "Can't you send me to a place in England where I may get equal benefit? I do not wish to go abroad if I can help it. I prefer a quiet place in this country, if I can get cured." "Yes," said he, "go to Leamington."

To Leamington she came, and stayed here eight weeks. I put her upon a diet and a course of Leamington water treatment, and she went to her home in Bucks quite cured. In February 1885 her husband writes: "I am glad to say that she" (his wife) "is much less subject to rheumatism this winter than formerly, and is very well."

A gentleman living in Prince's Gardens, London, was sent to Leamington by Dr. Mitchell Bruce in August 1884. He had been subject to rheumatism off and on for many years. Previous to settling for good in London, he had been used to the life of a country gentleman. He had hunted, driven, and shot, been out in all winds and weathers, and had repeatedly had

attacks of rheumatism. Dr. Mitchell Bruce described his case as "one of pure rheumatism, not gout."

He had gone abroad year after year, and in the summer of 1883 had a course of waters and baths at Aix-les-Bains. He went thoroughly in "for the whole thing," and was very much reduced and debilitated in consequence.

Dr. Bruce remarked, "You will find him weak, for it is a well-known fact that at many foreign watering-places more notice is taken of the system of water treatment than of the effect produced upon the tissues of the body."

The patient was dieted. He took half a pint of saline water daily, and a saline bath at a temperature of 98° Fahr. three times a week. He took a ferruginous tonic also. From being stiff all over, in pain in most of his joints, and generally weak, he became at the end of five weeks an altered being. He could stoop with ease, put his coat on without agonizing pains in his shoulders, could walk with comparative comfort, and was in all respects well.

Writing in February 1885 from his town house, he says: "I hasten to assure you that I am a living proof of the efficacy of the Leamington waters. I cannot say that I am entirely free from all stiffness in my shoulders, more especially when I get up in the morning; but I soon lose all recollection of that, and in a quarter of an hour all sensation of stiffness has disappeared. I feel even now (five months after the course at

Leamington) that I am gaining upon my old enemy, and I fully expect to be free from the last dregs as soon as the warm weather overtakes us."

I will not weary my readers by reiterating all that I have said by way of explaining the action of the Leamington salines in rheumatism. Themselves "alkalizers" of the blood, they act upon the plasma indirectly, by combining with the rheumatic acid, whatever it may be, and carry it with them out of the system by virtue of their diuretic influence. In addition to and in combination with this power, the value of the plasma is affected by their purgative properties, as seen in the influence they exercise upon the salts, water, and other constituents of it in the portal system.

#### ANÆMIA—CHLOROSIS.

Anæmia means deficiency of the red blood corpuscles, and may be due to direct loss of blood, imperfect formation, or excessive destruction.

It is to the latter I would direct attention, under the name of chlorosis. Females are generally most subject to this ailment from fifteen to twenty-five years of age.

Chlorosis, or "Green sickness," is met with in all ranks of life, and the chief symptoms are—pale conjunctiva, pale gums, tongue, and lips; subjects stout enough, but with waxy look, and in some cases a kind of pea-green, pasty look, or faces like alabaster, and bloodless.

These patients generally suffer from constipation, dys-

pepsia with eructations, headaches, dizziness, noises in the ears, neuralgia in various parts, especially in the left side, and attended with tenderness, violent palpitations, sleepless, dreamy nights, shortness of breath on going upstairs or walking uphill, derangement of menses, and general lassitude.

There are hæmic murmurs at the heart, and the pulse is compressible, feeble, and weak.

Such a state of affairs may lead to consumption if not attended to ; and it is with a view to proving the powerful influence for good of the Leamington saline water that I have taken the pains to succinctly enumerate a few of the leading symptoms of this disease.

Strong as is my belief in the curative properties of the Leamington saline waters in the previously related forms of disease, yet equally—nay, I may say, more strong is it in cases of chlorosis in young women. I could bring scores of cases to prove the superiority of a course of this water in chlorosis, combined with appropriate diet and chalybeate remedies.

I have purposely tried the same patients, suffering from chlorosis, upon the aloes aperient and ferruginous treatment, and I can conscientiously say that the results have come nowhere near those obtained by the Leamington saline and chalybeates.

I have also tried patients with chalybeates in combination with other salines—not of Leamington—and the results have not been so good, nor anything like it.

If the “poor body” has “gone back,” so to speak,

and the Leamington salines, especially those from the Public Fount, have been the means of assisting the reconstruction in a way more rapid and more lasting, in conjunction with chalybeates and appropriate diet, than by vegetable aperients or other salines, then I claim the Leamington waters to be, especially in this respect, an unbounded boon to the chlorotic female, when taken under proper direction. The Leamington saline waters, and especially those from the well referred to above, are therefore antianæemics. Not unfrequently have I found, on prescribing chalybeates alone, that hæmoglobin reached a certain point, and beyond that it did not go; but by giving the Leamington saline the benefit was in a short time made manifest. Therefore I conclude that for chlorotic young women—or women who are “waxy-looking,” or for others who look like “alabaster”—with all the constitutional disturbances herein described, the Leamington saline, with other remedies named, is an almost certain specific. And the treatment may be carried on at any time of the year, provided the water be got fresh from the wells.

I have had under my care recently two young ladies who have suffered from anæmia for some years, and who have during that time taken iron or steel in one form or another. They have had changes to various parts of this country and the Continent, and have been almost blown away at Margate, Scarborough, Aberdeen, and Braemar, because, as they said, they were ordered bracing air to assist the remedies. When they came

under my care they presented the usual "waxy" chlorotic and, as they described it, "fashionable" appearance. I put them upon a regulated course of Leamington saline treatment with chalybeates and a properly regulated diet, and the result surpassed my best expectations, and gratified the patients and their relations. Rosy cheeks took the place of pea-green faces, hearts that beat in discord now beat in tune, and all the other dependent difficulties vanished one by one.

#### CLIMACTERIC DISORDERS OR DISORDERS DURING THE CHANGE OF LIFE.

When there is a headache, especially in the back of the head, when there is aphasia, when there are epileptoid attacks, when there are heats and chills, giddiness or vertigo, when there are disorders of the digestive organs, associated with a tendency to grow fat, when there is derangement of the liver, kidneys, and skin, when there are constipation and flatulent distension of the intestines, when there is lithiasis or passing of gravel or red sand, a proper course of Leamington saline does great good. The physiological and therapeutical actions of the principal salts, which have been previously dealt with, give the proper explanation, and I can with confidence recommend these waters as being a pronounced assistance to every physician or surgeon who makes the diseases of women his particular study.



## STRUMA.

When the glands in the neck, under the chin, or in other parts of the body become enlarged and suppurate, and discharge cheesy matter, as well as pus; when there is scrofulous disease of joints, "white swelling"; when the alimentary canal suffers from stasis or atony in its whole course, complicated with *tabes mesenterica*—in fact, when we get the usual scrofulous constitution—a saline course, with tonics, is of great value. The chemical composition of the water and the pathological condition of the parts affected fully warrant such success. The chloride of calcium has already been referred to as having anti-strumous properties, and the various maladies connected therewith have been dealt with jointly and severally under the heading "Chloride of Calcium."

## LEAD POISONING.

Where the breath is offensive, where there is a blue line on the gums at their junction with the teeth, where the skin is dry and sallow, where there is emaciation, where the pulse is too slow, where there are tremors of the muscles, where there is "drop wrist," the internal use of the saline water and the baths considerably assist other remedies, such as iodide of potassium and cod-liver oil. Massage and medical shampooings and saline warm douches are all adjuncts to the treatment, especially where there is local paralysis.

## SKIN DISEASES.

*Eczema.*—Eczema, especially when associated with chronic gout, which it often is, demands some notice. I have seen admirable results from a course of saline water; and when the eruption becomes dry, the baths materially assist its internal administration. During the last five months I have had under my care a young man of twenty, who had suffered from eczema more or less from childhood. When I saw him first he was literally covered with scabs—face, body, hands, arms, and legs. He had taken the usual remedies, had been for weeks in the Warneford Hospital, but had never been treated by the Leamington water. He was put upon a fish and milk diet, with cod-liver oil and Leamington saline water, and now, June 1st, 1885, his skin from his head to his feet is as smooth as it need be. He took no stimulants of any kind. I contend that the spa water was the means of working this cure, for he had undergone similar treatment for years before, with only partial relief.

The above case has been the means of bringing many sufferers from eczema to consult me with equally good results, for, partly by reason of his complaint, the young man is well known about Leamington.

I think the following, too, is an interesting and instructive case. M. C. W——, the daughter of a former tradesman on the Parade, aged fifteen, consulted me in

August 1884. She called me in for a sharp attack of asthma, with the following history.

Her mother said that since three weeks old she had suffered from eczema. With every tooth she cut she had it worse, even her gums and mucous membrane of her mouth being affected. The complaint, however, as she grew older, was confined principally to the arms, legs, and face. She had been attended by many doctors, all of whom did their best to effect a cure. For a week or two at a time she got a little better, but was never cured. There was a history of gout on her father's side, and her aunt is now a confirmed invalid from rheumatic gout.

Called to treat the asthma, I directed my attention to her "system all round." The breathing was soon relieved, and then I proposed "a long course" of Leamington water, with dieting and a simple chalybeate. Suffice it to say that she went steadily on with the spa water, in a month's time felt better in every respect, the breathing was considerably relieved, the skin lost all eczema moisture and scales, and now, nine months from the time of my first visit, the patient is quite different in every way, with normal breathing, except when she gets a cold, and the skin soft, smooth, and free from any eruption. She used no outward applications.

#### PSORIASIS.

The following case is instructive, because the history is mixed up with rheumatism and the cure was complete.

Mrs. B——, aged thirty-nine, the wife of a mechanic living in Queen Street, had during the last twelve years two attacks of rheumatic fever. She suffered much, off and on afterwards, from rheumatic pains, and was pestered by a persistent scaly eruption on her knees and elbows. She was told that it would not be wise to stop this rash, and she bore it with Christian-like patience. She was seen by me in the early part of the summer of 1884, when the inconvenience from the rash had become intolerable.

She was ordered the Leamington saline principally, and a suitable diet, and in three months the rash which she had on her for more than six years entirely disappeared, and now, nine months from the time of the first consultation, she has continued well.

The three cases above referred to each and all show where the cause of the skin disease lay. In the first two it was in the gouty diathesis, and in the last in the rheumatic. Appropriate mineral water remedies in such ailments do more to effect a cure than any other kind of treatment.

In selecting patients for treatment care is necessary, for I have seen much harm done by the ignorant and indiscriminate use of the water. It is in the chronic forms of this disease that benefit is looked for.

*Acne, Lichen, Prurigo.*—I have found obstinate cases of acne, lichen, and prurigo, when mixed up with struma or gout, or where the liver and stomach are disordered, yield to the spa water, regulated dieting, and regular habits.

*Herpes Zoster or Shingles.*—Most medical men have found the neuralgia which accompanies this painful complaint, and which in those advancing in years follows it for weeks and months together, a vexed and worrying problem as to treatment. At any rate, I have. And I am glad to be able to record the fact that I have, I feel sure, advanced the treatment in a satisfactory manner, by the internal administration of the saline water and the baths. It is a long, trying, and tedious malady to conquer, especially when the patient is more than sixty years of age, and if anything can be found to assist other remedies one is very thankful. This I have found the Leamington water do.

SOME GENERAL AILMENTS OF THE BODY AND MIND  
WHICH DERIVE RELIEF FROM TREATMENT BY THE  
LEAMINGTON SALINE COMBINED WITH OTHER  
REGIMEN.

It is a well-known fact in medical practice, that where the gouty diathesis exists, we not unfrequently find bronchitis or asthma alternate with or accompany an attack of gout. In the chronic stages of these alternating complaints I have often found the bronchial affection relieved, and the distress of breathing overcome by a well-directed saline course.

Likewise, I find that where there is fatty degeneration of muscles, or fatty infiltration amongst the tissues of the body, a combined, regulated, and sustained course of spa water, with iron separately prescribed,

gives admirable results. The sulphates and the chlorides prepare the stomach, liver, spleen, intestines, and the blood for the simple addition of the chalybeate.

As a happy result of such a line of treatment, I give the following in supposition :—

A gentleman has lived an arduous professional or commercial kind of life. He has laboured hard with his brain to serve his clients or his employers, and to remunerate himself. He has lived well withal, “dined” daily, and has taken a fair share of wine. He has taken little exercise and few changes, “as,” said he, “there was no time.” His object in life was to get together a sufficiency to maintain himself in independence in his latter days. His life has been one of great anxiety, and at the age of sixty he finds himself getting “puffy” and short-breathed ; he has grown stout and perhaps a little gouty, so he begins to think of retiring into private life, when, “one fine morning” about eight, just after his morning “tub,” he is overtaken by paralysis of one side and loss of speech. Alas, poor fellow ! he has laboured “not wisely, but too well.”

The active symptoms pass away ; he regains partial use of the affected limbs and speech, and becomes what is called a chronic case ; or he may recover sufficiently to be able to return to business again. It is when the patient gets over the active symptoms that I have found the saline water, with dialysed iron, most useful. In such a case, the Leamington saline water relieves the

chylopoiëtic viscera, and in due course the chlorides prepare the way for and assist in the reconstruction of the tissues generally, and the blood in particular. Consequently, the addition of the chalybeate pushes the regenerative process further on, helps the muscular tissue of the body as a whole, and the vascular system especially,—even to the fibres of the heart. I have at present more than one case of the kind above described under my care, in which I can trace decided benefit from the almost habitual use of the Leamington saline and dialysed iron. The system bears this water much better than Hunyadi, Pullna, or Æsculap, all of which “pull” at the system, and do not appear to have the same reconstructive powers.

Therefore I conclude that where a patient is over sixty, where he has had great mental work, moderate indulgence in the good things of this life, and no exercise, where there has been or is slight paralysis, where there is shortness of breath, or what patients call “pumpings” in breathing, where there are traces of albumen in the water, where there is obesity with gouty tendencies and signs of fatty degeneration, this latter perhaps affecting the heart muscle, where, too, there is an intermittent pulse in consequence, and where there is constipation, a well-regulated course of Leamington saline water, with iron in one form or another and proper dieting, helps the crippled frame from day to day, gives tone to the system, and prolongs life. In this way the *blood pressure is lowered*, and the further rupture of

a blood-vessel and consequent apoplexy are prevented.

Another important fact in connection with the use of the Leamington saline water is that it prevents straining at stool, where violent efforts are dangerous, as in aneurisms, rupture (hernia), and weakness of vessels in the eye, when their coats have become degenerated and there is a tendency to give way under pressure.



## CONCLUDING REMARKS.

In bringing this short treatise to a close, I venture to suggest to the medical profession generally, and to the London consultants especially, that they might with advantage to their patients recommend a course of the Leamington saline water in such cases as I have, imperfectly I know, tried to describe. I have stated certain things about the curative properties of these waters, all of which I am prepared to substantiate. The late Sir Robert Christison, in his letter to me, which I quote, and in his lectures to his students in medicine, most strongly recommended the British mineral waters, and those of Leamington particularly. We know their analysis, and, as medical men, we know their medical qualities. Why, therefore, send patients to the Continent for that which they can get at home?

Sir Robert Christison says: "The best means would be to convince the consulting physicians of London of the folly of the present fashion." HE could afford to say this. I cannot; but I WILL say I think they might do much worse than send their patients to Leamington and to other British watering-places of equal value.

I have tried, as plainly as I can, to describe the Leamington saline waters and their medicinal properties. I have endeavoured to explain all that I have stated in their behalf, and in conclusion, let me make a parting common-sense suggestion. And before doing this, let me offer an explanation. From the beginning of May to the middle of July the London season has been in full swing. During this time, "Society" enters into all that is dazzling, enticing, intellectual, enjoyable, fatiguing, and wasting.

In the case of many men and women the strain of night and day entertainments tells sadly on their minds and bodies, so much so that generally there are many "breakdowns" before the season is on the wane. "They must have a change," "they must have rest," "they must have mineral waters to correct disordered stomachs, livers, and nervous systems." The present fashion is to order them abroad, where, possibly, they may have the same character of water as the Leamington saline, as will be seen by the table of comparison at pages 40 and 41.

Why not, I ask, order them to Leamington? Here they might have rest, regular hours, and a mineral water physiologically correct as to their ailments. They could here enjoy an equable climate and most enchanting surroundings, and after three or four weeks' repose go northwards to the Highlands, where they might breathe the pure mountain air, inhale the mellifluous scent of the heather-bell, or follow, if they may, the

track of the ptarmigan, the black cock, the grouse, or the red deer, and thus regain that which they have lost—namely a sound mind in a sound body.

### THE BATHS.

At the Pump Room there is a well-appointed system for saline bathing, and also a small but perfect Turkish bath.

There are in connection with the saline baths douches of various kinds for direct application to specially affected parts; there are likewise shower and saline vapour baths, to say nothing of a magnificent swimming bath, which is kept up to a uniform temperature, and is a great luxury to bathers.

In my former edition I said that “I met the Committee of Management, which includes the Mayor and several members of the Corporation, and suggested to them many improvements and additions to the Baths, and to the Pump Rooms generally. The consequence is that a large sum of money has been voted to be spent in making the whole bathing system more complete, and in every way up to modern and Continental ideas.” Unfortunately, the scheme was “blocked” for a time; but now there seems every prospect of my suggestions being carried out, and I have reason to believe that ere long we shall have a bathing establishment second to none—worthy of our mineral water and worthy of our town.

The saline baths are useful in muscular and various other forms of rheumatism, in gout, derangements of the liver and stomach, in diseases of the nervous system, and in some diseases of the skin, such as dry eczema, psoriasis, and acne. The hot and vaginal douche is most beneficial in abrasions of the os, leucorrhœa, and subinvolution of the uterus.

## WHEN TO DRINK THE WATERS.

I generally recommend patients to drink the waters in the morning before breakfast, and, if possible, to walk to the wells.

Very frequently, too, I order a dose to be drunk about four o'clock in the afternoon. Sometimes I recommend the water warm, at other times cold.

With regard to the quantity to be taken :—

Patients are so differently constituted that it is impossible to lay down a fixed limit; but as a rule, ten to twenty ounces taken upon an empty stomach will act as a powerful aperient, and also on the kidneys as a diuretic; and I notice that the less the aperient effect the more the diuretic. How this comes about I have fully explained.

FINIS.

## NOTICES OF THE FIRST EDITION.

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“The object of this little book is to induce the medical profession, and especially London physicians, to send their patients to Leamington instead of the fashionable health resorts of the Continent. From the description of the town given by the author, it appears to have two very strong points in its favour—a good system of drainage and an abundant supply of pure water, with the natural result of an almost entire absence of typhoid fever, diphtheria, and other zymotic diseases. We agree with him in the opinion that the rest, regular hours, equable climate, and enchanting surroundings of Leamington, combined with a judicious use of the waters in cases which require it, are likely to prove at least as effectual in restoring to health those who have broken down under the strain of the night and day entertainments of the London season as a resort to any of the fashionable Continental watering-places, with their, in too many instances, very insanitary conditions.”—*The Lancet*.

“Every effort to call attention to our own health-resorts deserves recognition, and we are glad to see that Dr. Smith calls attention to the forgotten glories of Leamington. There is no question that the place is a pleasant one, offering many attractions, as regards situation, climate, houses, parks, and all material comforts. Its waters, which are almost the only English ones which contain sulphate of soda in any considerable amount, are undoubtedly efficacious in a variety of diseases which are ascribed to abdominal congestion. Waters which improve the action of the chylopoietic viscera cannot fail to benefit the system generally. For details we must refer to Dr. Smith’s pleasant little book, which will be found an useful guide to those who think of paying

Leamington a more or less prolonged visit."—*The British Medical Journal*.

"In this neat volume, an account, which is fair without being overdrawn, is given of the Leamington waters, which are not at present taken advantage of by Britons to the extent they deserve to be. At Leamington there are the inducements which a pure water supply, a good system of drainage, and a charming neighbourhood hold out; while it is at least a question whether a course of the mildly saline springs there is not more permanently beneficial than that of the stronger waters of a similar class met with abroad. The change, as a mere change, may not be so complete, but the presence of home comforts and of national cookery would counterbalance, to the invalid who does not speak German, some possible attractions. The sufferer from chronic gout, or from a congested and sluggish liver, might do well to try a season at Leamington before resorting to Carlsbad or Marienbad."—*The Edinburgh Medical Journal*.

"Many of us have heard of the flocks of patients that used to resort to Leamington, while that remarkable man, Dr. Jephson, was the ruling genius of the place; and what has been not so very long ago surely may be again. We trust that Dr. Smith's little treatise, written in a lively and popular style, will contribute to the very desirable end of bringing patients back to Leamington. The town is well built and drained. Its climate is good. It is healthy, and contains beautiful gardens; is in the very centre of England, in a rich and interesting country, and is easy of access. There is a good Pump-room, with a small Turkish bath, and Dr. Smith tells us that the authorities of the town are about to enlarge and improve the bathing arrangements. Our author runs over the physiological action of the chief solid constituents of the waters, and arrives at the satisfactory conclusion that they are physiologically correct agents for the treatment of many ailments. Therapeutically, Dr. Smith finds pretty extensive scope for the use of his waters. He employs them in derangements of the stomach, in consumption, in hæmorrhoids, in congestion of the pelvic organs, in congestion of the kidneys and of the liver, in jaundice and gout, in sciatica, rheumatism, anæmia, chlorosis, climacteric disorders, struma, and many skin diseases, and several general conditions of the system—in short, in as many affections as the officers of the Leamington Hospital

enumerated many years ago. The fact of these waters being so generally useful depends on their action in stimulating the functions of the abdominal organs, thus quickening tissue changes and reducing visceral enlargements—objects which, if attained, are very important ones under a variety of circumstances. Dr. Smith has done good service in recalling attention to Leamington, which is in so many respects a desirable resort, and to which he has furnished a very useful medical guide.”—*Holiday No. of London Medical Record, by Inspector-General McPherson, M.D., author of “The Baths and Wells of Europe.”*

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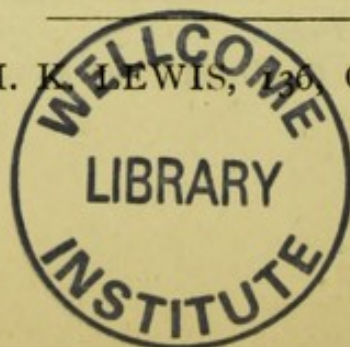


those who believe in mineral waters, and who do not care to move far from home, the pleasant town, with its interesting surroundings, deserves attention. Dr. F. W. Smith, in a little volume just issued, tells us all about the place under eight heads—geographical, geological, meteorological, drainage and water supply, education, social life, mineral waters and baths, and the value of Leamington saline waters in their chemical, therapeutical, and clinical aspects. We commend the book to the attention both of doctors and patients. It has several nicely-executed copper-plate illustrations.”—*The Times*.

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