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AN
ANALYSIS
OF THE
LEAMINGTON SPA,
&c.



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ANALYSIS

OF THE

LEAMINGTON SPA,

IN

WARWICKSHIRE;

WITH

REMARKS ON ITS USE,

AND

Medicinal Qualities.

BY

GEORGE HUME WEATHERHEAD, M. D.

GRADUATE OF THE UNIVERSITY OF EDINBURGH, MEMBER OF THE
ROYAL COLLEGE OF PHYSICIANS, AND OF THE MEDICAL
AND CHIRURGICAL SOCIETY OF LONDON,
&c. &c. &c.

" Publica morborum requies, commune medentem
Auxilium, præsens numen, inempta salus." Claud.

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LONDON:

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AND SOLD BY BUDD AND CALKIN,

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1820.

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WITH
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AND
MEDICAL OPINIONS.

BY
GEORGE HUME WEATHERHEAD, M.D.
FELLOW OF THE UNIVERSITY OF CAMBRIDGE, MEMBER OF THE
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TO THE
KING'S MOST EXCELLENT MAJESTY,
GEORGE THE FOURTH,
THIS ANALYSIS

OF THE
Leamington Spa,

IN
WARWICKSHIRE,

IS MOST HUMBLY DEDICATED,

BY

HIS MAJESTY'S

MOST DEVOTED AND LOYAL

SUBJECT AND SERVANT,

GEORGE HUME WEATHERHEAD.

TO THE
KING'S MOST EXCELLENT MAJESTY,
GEORGE THE FOURTH,
THIS ANALYSIS
OF THE

“ ——— on the wat'ry calm
His brooding wings the spirit of God outspread,
And *vital virtue* infused, and vital warmth
Throughout the fluid mass, ——— ” Paradise Lost.

C. H. Barton.

AN ANALYSIS
OF THE
LEAMINGTON SPA, &c.

THE village of Leamington in Warwickshire is situated, as its name denotes, on each side of the Leam. This is a small stream, torpid in its course from want of sufficient descent, which falls, or rather glides into the Avon about a mile thence, on the back road to Warwick. Leamington is a place of some antiquity, and retains the agnomen of Priors from its being formerly attached to the monastery of Kenilworth. Though originally an obscure hamlet, it has risen, in consequence of the repute of its mineral springs, to be a village possessed of many elegancies to afford amusement to the gay, pastime to the idle, and health and comfort to the pitiable victims of

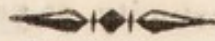
disease: there is a noble pump-room, with numerous baths attached, which is the usual promenade before breakfast; an assembly room furnished with news, card and billiard rooms, a Ranelagh in its infancy, and public libraries, besides many other springs and baths that are the private property of individuals. The immediate neighbourhood is rich in rustic beauty, choice in its walks and rides, and variegated and interesting in the scenery of ancient chivalry and romance.

The new part of the village is built on a rising ground on the north side of the Leam, and the houses are good and convenient: the old, again, presents an incongruous yet pleasing appearance, from the irregular intermixture of the original cottages of the villagers, and the more modern superstructures of hotels and lodging houses for the visitors.

Both the opportunities and inducements to exercise are many: the foot-paths through the fields lead in all directions; and when the visitor chooses to ride, there are many objects near Leamington to gratify his taste. If romance be the gusto, Guy's cliff and Warwick Castle present themselves; the first rendered interesting by

the haunts of Guy and the fair Phillis ; the second, not less so by the many armorial relics shewn of this knight of so much chivalric fame. If the ruins of gothic architecture attract him, those of Kenilworth Castle are not less worthy of regard ; and to the pilgrim of genius, Stratford upon Avon, the birth-place of the immortal Shakespeare, affords ample scope to indulge his warmest enthusiasm.

Warwick Castle is distant only about two miles, and is the finest baroneal residence perhaps in England. By the condescension of the noble owner it is shewn to visitors on stated days ; and, besides the armoury, the rooms, the grounds, and the castle itself, are all deserving of attention. There are several fine paintings in the castle by some of the ancient masters ; and in the garden is placed the celebrated vase from Hadrian's Villa at Tivoli.



GEOLOGICAL REMARKS.

THE stratification in the neighbourhood of Leamington runs thus: under the soil there is, 1st, sandy gravel; 2dly, pure sand; 3dly, red marly clay;* 4thly, blue clay; 5thly, rag-rock, as denominated by the labourers, which appears to be a gritty induration of the blue clay; 6thly, soft blue clay;† and 7thly, sandstone. Between 5 and 6 is found the common drinking water of the place, and under the sandstone is the saline spring. The *rag-rock* of Warwickshire appears to be the same as the *shaggy-metal* of the Cheshire miners.

* This red marl seems to be part of that extensive bed which Mr. Farey has traced so particularly in his "General View of the Agriculture, &c. of Derbyshire," drawn up by order of the Board of Agriculture.

† I have had no opportunity, as yet, of tracing the variations of the clay strata below that numbered 6, in the manner and series described by Dr. Holland, save the lamina which the digging for cellars, &c. developed, and the tapering leaves of strata, which overtopped the sandstone, where it became almost in a manner sub-cutaneous; but I shall not lose sight of the matter.

By comparing this series of strata with that of Cheshire, as described by Dr. Holland in the first volume of the Geological Transactions, and of Droitwich, near Worcester, by Mr. Horner in the second, I think it more than probable that they are productions of one and the same stratification. The sandstone becomes very superficial in many places: in the direction from Warwick to Coventry, the road is cut through it in many places to lessen the ascent; and on the road to Stratford upon Avon, it is to be seen equally near the surface. The exposition of it at Guy's Cliff, forms one of the romantic objects which give interest to this delightful spot; and the cave wherein, the legend of the place tells us, Guy, the great Earl of Warwick, passed his hermitage, is hewn out of this rock. Here I may remark that, as the saline spring is never found till they have penetrated this stratum, it seems feasible that the water might be got at more easily and speedily, by making the bore in these places where the sandstone comes nearly to the surface, instead of digging, as is commonly done, through twenty, and sometimes thirty, feet of the superstrata of clay, &c.

Sinkings, though made on the same level, and,

comparatively speaking, within a short distance of one another, frequently vary considerably as to depth before the saline spring can be come at. Dr. Holland makes the same observation concerning the stratification of the rock-salt district in Cheshire. There are moreover, several other coincidences besides the similarity of the dispositions of the strata, which make it probable that the geological districts about Northwich in Cheshire, Droitwich in Worcestershire, and Leamington, are contemporaneous, and perhaps continuous formations. 1st, The sandstone answers the descriptions given of that spoken of by Mr. Aikin,* Dr. Holland, and Mr. Horner. 2dly, Mr. Aiken remarks that the salt deposit of Northwich, and the salt springs of Droitwich, are subordinate to the sandstone; and lastly, there are no marine exuviae or organic remains found, as far as I could learn or observe, in the strata situated over the saline spring.

All which circumstances go to prove by analogy, if I be not mistaken, that the springs of Leamington get their impregnation of muriate of soda by flowing over a bed of pure rock-salt.

* Vide Obs. on the Wrekin, &c. *Geolog. Trans.* vol. i.

OF THE

LEAMINGTON SPRINGS.

PHYSICAL PROPERTIES OF THE WATER.

WHEN taken fresh from the spring, the water is perfectly colourless, transparent and sparkling. Its taste is distinctly saline, without any bitterness; and not at all unpleasant, unless in those springs charged with sulphuretted hydrogen gas.

The temperature of the water as it rises from its source is 50°. Exposed to the air the water suffers no apparent spontaneous change, save that of parting with minute air bubbles, which at first adhere to the sides of the glass, and afterwards escape; its taste then becomes vapid; but if kept for a twelvemonth, it deposits no sediment, if we except a little vegetable fibre.

The specific gravity of the water varies accord-

ing to the quantity of saline matter held in solution by the different springs ; the purely saline spring at the pump-room is as 1072 to 1000.

THE WATER EXAMINED BY CHEMICAL RE-AGENTS OR
TESTS.

Experiment 1. To a wine-glassful of the purely saline water, taken fresh from the spring, were added a few drops of the blue tincture of cabbage ; and when viewed between a sheet of writing paper and the eye, it distinctly appeared of a light pink colour.

Exp. 2. Tincture of litmus added to the water, got immediately from the fount, imparted to it a red tinge ; but the tint, in both of these experiments, was evanescent, for the water lost it on standing.

Exp. 3. Boiling deprived the water of this property.

Exp. 4. Lime water added to the recent water, threw down a white precipitate, which a few drops of nitric acid afterwards removed.

Exp. 5. After boiling the water briskly for some time, no sediment fell on allowing it to stand.

Exp. 6. Tincture of galls produced no immediate effect, but on standing 24 hours, a dark greenish precipitate obscured its transparency.

Exp. 7. Barytic water, nitrate and muriate of barytes produced severally a copious precipitate both in the recent and boiled water.

Exp. 8. Sulphate and nitrate of silver threw down large, dense and abundant flakes of a milky whiteness.

Exp. 9. Oxalate of potass precipitated likewise an abundant sediment.

Exp. 10. Turmeric paper was not changed in colour by being immersed in it.

Exp. 11. The hydro-sulphuret of potass indicated no manganese.

Exp. 12. Fuming nitrous acid added to those springs having a sulphureous smell and taste, produced no sediment.

Exp. 13. But silver leaf left immersed for some time in the sulphureous waters, got a slight dusky appearance.

Exp. 14. Lime water, added to the boiled water threw down a flocculent precipitate.

Exp. 15. Pure ammonia dropped in deposited a similar sediment.

INFERENCES DEDUCIBLE FROM THE PRECEDING
EXPERIMENTS.

1. From experiments 1. and 2. it is evident that a free acid exists in the water, and the circumstance of its being evanescent, proves it to be the carbonic.

2. Exp. 3. and 4. corroborates this statement, since boiling dissipates the acid gas; and the nitric acid shewed that the precipitate, formed in Exp. 4. was *carbonate* of lime.

3. It may be inferred that there is no carbonate of lime of itself in the Leamington waters. Exp. 5.

4. That a minute portion of iron exists in solution, sub-oxidated. Iron, we may observe, in order to afford a purple or black precipitate with tincture of galls, must be in the state of a red oxide, and then its deposition is instantaneous. Exp. 6.

5. That sulphuric acid is present. Exp. 7.

6. That muriatic acid abounds. Exp. 8.

7. That lime is one ingredient. Exp. 9.

8. That there is a minute and incalculable quantity of sulphuretted hydrogen gas dissolved in some of the springs. Exp. 13.

9. That magnesia is another constituent. Exp. 14.

OF THE GASEOUS CONTENTS.

One quart of the water was taken fresh from each of the different springs, and severally introduced into a retort, just holding that quantity, connected with a mercurial pneumatic trough. Heat was applied so as to cause the water to boil, and the gas was collected in tubes graduated in tenths of cubic inches. Lime water was afterwards introduced into the tubes, and shaken freely amidst the gas, and the measure of absorption marked in each. The residue unabsorbed proved on examination to be atmospheric air in all. The measure of result was as follows:

Springs.	Cubic in. of carbonic acid gas in a quart	Cubic in. of atmos. air in a quart.	Sulph. hyd. gas.
Pump Room, saline spring	$3\frac{8}{10}$	$1\frac{1}{2}$	None.
Ditto, sulphureous spring .	$3\frac{2}{10}$	$1\frac{1}{2}$	a trace.
Mr. Robbins' spring.....	4	$1\frac{1}{2}$	ditto.
Lord Aylesford's.....	$3\frac{8}{10}$	$1\frac{1}{2}$	} ditto.
Mrs. Smith's.....			
Mr. Wise's.....	$4\frac{1}{2}$	$1\frac{1}{2}$	ditto.
Marble Baths			
Sulphureous	$3\frac{8}{10}$	$1\frac{1}{2}$	ditto.
Saline.....	4	$1\frac{1}{2}$	ditto.
Chalybeate.....	$2\frac{6}{10}$	$1\frac{1}{2}$	None.

CHEMICAL ANALYSIS.

Experiment 1. A pint of the purely saline spring at the pump room, containing sixteen fluid-ounces by measure, was carefully evaporated to dryness at a temperature of about 200° , which towards the close of the experiment was lowered to about 185° , so as to avoid any of the salt being dissipated during the process. The product weighed exactly 116 grains.

Exp. 2. This saline mass was levigated and digested in alcohol, of the specific gravity of .835, for six hours, and frequently stirred in the interim. The solution was poured off, and fresh alcohol added as before, and allowed to stand four hours. The two fluids were put together and suffered to evaporate in the air. Numerous crystals, mostly of a cubical form remained, which when perfectly dried at a temperature of 66° , weighed $4\frac{1}{2}$ grains.

Exp. 3. Oxalate of ammonia, when added to

a solution of alcoholic salt in distilled water, threw down no lime ; and this test, we know, can detect one grain of lime in 42250 grains of water. The result of this experiment leading to the conclusion, that muriates of magnesia and of soda were the only ingredients abstracted by the alcohol ; the two following experiments were instituted to ascertain the fact.

Exp. 4. A crystalline mass was obtained as before stated, likewise weighing $4\frac{1}{2}$ grains, and dissolved in half an ounce of distilled water, to which was added a solution of the neutral carbonate of ammonia, which induced no apparent change ; a strong solution of phosphate of soda was then dropped in as long as it produced any deposition. The precipitate was dried at 66° , and weighed 2.40 grains, which, when reduced by a scale of equivalents, indicates 1.455 grains of the muriate of magnesia : the remaining 3.045 grains was muriate of soda.

Exp. 5. To a portion of the crystalline salt, obtained as the foregoing, sulphuric acid was added as long as it excited muriatic fumes, and

the superabundant sulphuric acid afterwards driven off by a strong heat. The mass was decomposed by sub-carbonate of potass, and the precipitate yielded, with muriatic acid, $1\frac{1}{2}$ grain of the muriate of magnesia.

Exp. 6. The residue, insoluble in the alcohol, left after experiment 2, was digested in two ounces of distilled water for four hours, and stirred from time to time. The solution was decanted from the sediment which remained undissolved, to which was added, first, nitrate of barytes, the precipitate, when dry, weighed 7.46 grains. Secondly, oxalate of potass was added, and the dry sediment produced, weighed 4.64 grains; and, lastly, a solution of nitrate of silver was poured in *guttatim*, and the muriate of silver obtained, weighed, when dry, 156 grains:

Exp. 7. The weight of the residuum not acted on by the cold water, was 14.5 grains. This was boiled in 100 times its weight of distilled water, and proved to be nothing but sulphate of lime with a slight adherence of muriate of soda.

The result of the preceding experiments was cross-examined by the following:

Exp. 8. One pint of Mr. Wise's well was slowly evaporated to dryness. The salt obtained, weighed 108 grains. This was re-dissolved in distilled water, and,

1st. Nitrate of barytes was added in excess, the precipitate weighed, when carefully washed and dried, 25.5 grains; which indicates 8.542 grains of sulphuric acid, according to the composition of the sulphate of barytes, given by Berthollet, to wit, 33.5 acid in 100 parts.

2dly. Oxalate of potass was added in excess. The precipitate weighed 19.5 grains: which is equivalent to 7.30 grains of lime.

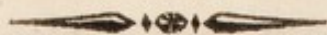
3dly. Solutions of the carbonate of ammonia and of phosphate of soda were added in succession, and the triple salt obtained weighed 2.25 grains, indicating .427 of magnesia.

4thly. Nitrate of silver was added, and the

dry precipitate weighed 155 grains, which indicates 29.527 grains of muriatic acid, agreeable to the proportions fixed by Dr. Marcet and Gay Lussac, forming muriate of silver, i. e. 19.35 acid and 80.95 base.

Therefore, after adjusting the equivalents, and adopting the mode of participation pointed out by Dr. Murray, the following are the ingredients and their quantities, in a pint measure* of the different springs.

* I have fixed upon a pint as the usual dose for an adult.



Contents, severally, of a Pint Measure of the Leamington Waters.

Springs.	Spec. grav.	Gases in cubic inches.			Salts in grains.							Total	Tempera- ture.
		Carb acid.	Atm. air.	Sulph. hydrogen.	Muriate of soda.	Sulphate of soda.	Muriate of lime.	Muriate of magnesia	Oxide of iron.	Vegetable fibre and loss.			
Pump room,													
1st saline	1072	$3\frac{8}{10}$	$1\frac{1}{2}$	None	55.84	39.89	17.81	1.455	A trace, but so mi- nute as to be in- calcula- ble.	1.005	116.	From 50° to 52°	
2d, sulphureous do.....	1038	$3\frac{2}{10}$	$1\frac{1}{2}$	Minute, but unappreciable	29.50	20.74	9.46	.921		.379	61.60		
Mr. Robbins's.....	1072	4	$1\frac{1}{2}$	Ditto	55.84	39.89	17.81	1.455		1.005	116.		
Lord Aylesford's.....	1064	$3\frac{8}{10}$	$1\frac{1}{2}$	Ditto	50.06	35.76	15.97	1.314	A trace, but so mi- nute as to be in- calcula- ble.	.926	104.		
Mrs. Smith's	1072	$3\frac{8}{10}$	$1\frac{1}{2}$	Ditto	55.84	39.89	17.81	1.455		1.005	116.		
Mr. Wise's.....	1067	$4\frac{1}{4}$	$1\frac{1}{2}$	None	51.99	37.14	16.59	1.355		.925	108.		
Marble Baths,													
Sulphureous saline	1029	$3\frac{8}{10}$	$1\frac{1}{2}$	Ditto	23.47	16.50	7.37	.602	A trace, but so mi- nute as to be in- calcula- ble.	.058	48.		
Saline.....	1064	4	$1\frac{1}{2}$	Minute	50.06	35.76	15.97	1.304		.926	104.		
3d, or chalybeate, as it is called	1012	$2\frac{6}{10}$	$1\frac{1}{2}$	None	9.62	6.87	3.07	.250		.19	20		

ERRATA.—Marble Baths. P. 23, for 'Sulphureous saline,' read 'Saline.'—For 'Saline,' read 'Sulphureous saline.'

As all the Leamington springs derive their salts from the same source, whatever difference there may be as to the strength of their impregnations; nevertheless, the ingredients bear the same ratio, one with another, as to their relative quantities. This difference in strength arises, in my opinion, from the extraneous admixture of some fresh water spring, issuing from between certain of the super-strata, and mixing with the saline ere it reaches the surface. With regard to the iron which the waters *testify* on the addition of tincture of galls, this is so minute in quantity, that I think its presence may be sufficiently well accounted for, by ascribing it to the saline components of the springs acting on the iron pipes through which they flow; for if these be examined, they will be found charged both externally and internally with a thick coating of ferruginous matter.

The analysis of what is called the chalybeate spring, shews that it has no manner of claim to that appellation: indeed it appears to be simply a brackish water with a very slight impregnation of the usual saline constituents.

I may mention that the Leamington springs add one other example, confirming the observation of the constant presence of sulphate of soda in waters containing the muriate of soda in any quantity. It is found in marine salt, and I find it mentioned as existing in the brine springs in the departments of la Meurthe, Franche Comté, Jura, &c.

OF THE MEDICINAL PROPERTIES OF THE SPA.

From the preceding analysis it is almost unnecessary to say that the Leamington waters are aperient and diuretic. Their laxative quality is gentle in its operation, unaccompanied by tormina, and leaves no relaxed or exhausted feeling after it, if not taken improperly. Nay, there is no debility produced by their use, although continued daily for three weeks together; but on the contrary, the usual effects are, that they increase the appetite, clear the complexion and invigorate the whole system. It is

the practice at the Spa to take the waters for a fortnight or three weeks, and then to desist for about a week, using the warm bath in the interim; the propriety of which cannot be questioned. All medicines are known to lose somewhat of their virtues by continued use, and mineral waters form no exception.

With respect to the application of the Leamington spring as a means of cure, this is very extensive. There are so many diseases which *originate* from a disordered state of the bowels — there are so many diseases that *induce* a disordered state of the bowels — there are so many diseases which are benefited by adjusting the deranged tone of digestion, that an aperient spring, operating in a mild manner, necessarily assists, nay, of itself often completes a cure. Therefore, let not the reader think the following list of diseases too numerous, because to him they appear so different; or imagine that we wish to represent the Leamington Spa as a catholicon, which supersedes the aid of every other means.

It is useful, 1st,

In ophthalmia, particularly of a chronic kind ; in all obscurities of vision dependent on an insidious and latent inflammatory action ; and in inflammatory affections of the eye-lids—indeed the water, externally applied, forms an excellent collyrium, or eye-wash.

2. In dyspeptic affections of the stomach, originating in a deranged condition of the digestive and assistant-digestive viscera.

3. In liver complaints, particularly after a course of mercurials, in conjunction with the warm bath.

4. In chronic dysentery affecting Indian constitutions.

5. In jaundice.

6. It is useful in all glandular obstructions ; hence in all forms of scrophula.

7. In all cutaneous diseases ; for sympathy imparts the stimulus it produces on the exha-

lants of the intestines to those opening on the surface of the skin.

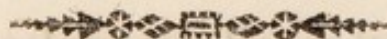
8. In foulness of the habit, exhibiting itself in spontaneous ulcerations, blotches, &c.

9. In paralytic affections, joined with the use of the warm bath, and in nervous head-achs.

10. In diseases of the joints, assisted by other curative means.

11. In Rickets, when the patient is convalescent.

12. In debilities and irritabilities left after infantile diseases, as measles, &c.



DIRECTIONS FOR DRINKING THE LEAMINGTON
SPRING, WITH DIETETIC AND OTHER REMARKS.

The usual and the best time of drinking the waters is before breakfast. The common dose is a tumbler full to an adult, which is to be repeated in a quarter of an hour, the patient walking about in the interim—he continues his walk for a short while after his second dose, when he is to return to breakfast, and drink freely of tea. But these directions apply only to those who are capable of taking the requisite exercise. To those whose state of health is too delicate to bear the cool of the morning, the above plan is inapplicable. In such cases it is better to delay taking the waters till the forenoon is somewhat advanced.

It is a practice with some, in cases where the usual dose of the spring is too weak to produce its operation, to take a blue pill over night ; but this is a plan I cannot quite approve of—it is in my opinion an unnecessary interference with the

special qualities of the water, particularly as this inconvenience can be more consistently remedied by ordering the pumper to add to each tumbler full of the water, a little of the evaporated salt : and here I beg to notice, that the *crystallized* salt sold in the shops, is not precisely the same as that contained in the spring ; in the preparation of it, it is evident, that the water is first concentrated by evaporation, and then allowed to cool, during which, the least soluble of the ingredients part from the fluid and crystallize : on analytic examination, I find it to consist *chiefly* of the sulphate of soda ; the other components remain in solution. I would therefore advise that the whole of the water be dissipated by slow evaporation, and the saline mass which remains to be used instead of that in the form of crystals.

When the water occasions any uneasy sensation of fulness or coldness at the stomach, the patient may take it rather warm, with two teaspoonfuls of some aromatic tincture added to each dose.

It is preferable, where it can be done, to drink

the water at the well, for it gets vapid by carrying it even to a short distance, from the escape of the fixed air ; and a warm bath ought to be taken occasionally, at least twice a week, desisting from the use of the aperient on the day of the bath. I may add that rising too early is not an object, since exercise before drinking the waters is not requisite, and the chill of the morning is adverse to the comfort and safety of their operation.

With regard to diet, the patient must be temperate in his eating. Let the food be plain and of easy digestion, and he must be sparing in the use of wine at table. Let the wholesome water of the place be his beverage at dinner, and he must avoid indulging too much in the use of fruit or esculent vegetables, as sallads, &c. The patient will find that the daily use of the waters, without causing a parching thirst, yet inclines him to drink more freely of the common spring-water at his meals than he was wont ; and I am inclined to ascribe considerable efficacy to this spontaneous taste. Water, we know, forms the main component of all the juices of the body,

and taking it thus freely tends much, in my opinion, to purify all the fluids of the system.

Of all meals, let the patient avoid suppers. They prevent sleep or render it disturbed. The beautiful lines of Armstrong, on this subject, deserve a place in the tablets of all who visit a watering place in search of health :

“ — Would you sweetly waste the blank of night
In deep oblivion ; or on Fancy's wings
Visit the paradise of happy dreams,
And awaken cheerful as the lively morn ;
Oppress not nature sinking down to rest
With feasts too late, too solid, or too full.”

Daily exercise is another adjuvant means in order to attain the full benefits of all mineral waters. Exercise, if not too violent, strengthens the body, imparts tone to the powers of digestion, promotes the secretions and excretions, quickens the circulation of the blood, and tends to remove its morbid congestions. Indolence, on the other hand, debilitates and unnerves the frame, diminishes the secretions and excretions, renders the circulating fluids sluggish in their course, and tends to induce plethora and obesity ; hence

hysteria, dyspepsia, gout; hence apoplexy, palsy, dropsy, and various obstructions.

Among other circumstances conducing to health is the proper regimen of the mind. The mutual influence which the body and the mind exert on each other, forms that interesting department of medical science which may properly enough be styled medical metaphysics. Hence the cheerful society of a watering-place, the health which a pure air yields, and the little, insensible, pleasing inducements to exercise which may be the casual *propos* of the day, all tend to dissipate the gloom of the melancholic, and allay the hurried feelings of the irritable—the man of business is relaxed from his cares, the student from too arduous and intense application, the gay sign a truce with dissipation, and that inactivity of mind, which is often the consequence of one uninterrupted sameness of scene and occupation, gets an healthy impetus from the busy, varied, and important pursuit of elegant trifles and agreeable nothingness.

To conclude, I may observe, that the proper

season for drinking the Leamington Spa, is when, and as long as, the weather continues warm. An open state of the body is attended with risk in cold weather, more especially in an invalid constitution. The remark of Hippocrates, touching the use of baths, is equally applicable to that of mineral waters. “Balneis etiam multis per æstatem, at per hyemem paucis utendum.” *De salub. victus ratione.* S. iv.

OF BATHS,

AND THEIR USE.

THE continual and abundant supply of water from the different springs gives to Leamington peculiar advantages from the facility with which the visitor may enjoy, at all times, the benefits of a hot or a cold bath. Every one must lament, with Montaigne, the disregard into which the practice of warm bathing has fallen ; a practice which in former times obtained so generally. This custom may be traced from the remotest antiquity. It is probable that the use of warm baths first originated in the hot climates of Asia; they were much used amongst the ancient Egyptians, whence they were introduced into Greece ; their use prevailed in Sparta, and hence the Roman name of Laconici applied to them. Homer speaks of them in many places of his

poems. Circe prepared a warm bath for Ulysses to refresh him from his fatigues. We have the most ancient medical authority in favour of warm bathing in that of Hippocrates.* Plato recommends it in several diseases, as well as for its admirable faculty of restoring health and vigour to the infirm and exhausted. Galen and Celsus testify the good effects of Baths ; and Tacitus records their use amongst the ancient Germans. Baths, in former times, were formed of various medicaments, of oil, of wine, and of milk, and history tells us of the horrible bath which Medea prepared to renovate her youth.

It is a wrong, although a very prevalent impression, that a warm bath is weakening and enervating ; if indulged in to excess it certainly is so :† hence Zenophon, as a name of reproach,

* The medical reader may likewise consult on this head, Aretaeus, Cælius Aurelianus, Oribasius, Aëtius, Trallianus, and Paulus Æginetæ.

† Hippocrates speaking of warm baths, saith, “ Et calidæ copiosior usus hæc parit incommoda, carniū effeminationem, nervorum impotentiam, mentis torporem, sanguinis profusiones, animi deliquia, ex quibus mors contingit,” de usu liquidorum, S. IV.

calls the effeminate Persians, *Balneatores*; and the troops of Hannibal proved the enervating power of excessive warm bathing when indolent, luxurious, and inactive, under the fine climate of Campania. The constant and daily practice of bathing among the Greeks and Romans, is the strongest practical refutation of this opinion. The latter, in particular, bathed their whole bodies as often as we wash our hands: every one made it a practice to bathe at least once a day; and abstinence from which was regarded as a proof of the austerity of the life of some of the priestesses of Greece.

The principal baths of the Romans were warm, as is evident from the construction of the superb ruins which remain at Rome and Pompeia.* Those of Dioclesian and Caracalla were the most extensive, which caused Ammianus Marcellinus to describe them as “*Lavacra in modum Provinciarum.*”

* Those who are curious concerning the structure of the ancient *Thermæ*, may consult Vitruvius, Montfaucon, Joubert, and Cameron.

Amongst the ancient mythologists the sources of hot springs were regarded with devotional reverence ; even the great Peripatetic applies the word *sacerrima* to them : and the ancients far from considering them as enfeebling, dedicated them to Hercules, the god of strength. Athenæus tells us of this. We read of the Balnea Herculeæ in Dacia ; and Suidas, Eustathius, and other old writers use the expression Balnea Herculeæ as synonymous with that of warm baths.

Leamington, though not possessed of such splendid Thermæ as the antique, yet recompenses the want of magnificence by pouring into her baths streams more sanative and pure than the turbid waters of the Tiber.

The superiority of a natural saline bath over that of one of fresh water is a persuasion too universally admitted to require argument to support it. The medicinal properties of salt were known to the ancient Jews (see Ezechiel, ch. 16, v. 4.) who were wont to throw salt on the surface of their new born babes, after having

washed them ; or they bathed them in salted water. The Greeks used the same custom. Galen, who lived in the second century, mentions that such was practised in his time, with the object of strengthening the skin so as to enable it to resist the too sharp impression of the external air ; and St. Jerom tells us the like.* In a late work, † I gave my opinions respecting the *modus operandi* both of a cold and a warm bath ; which I shall take the liberty here to transcribe.

Cold, I have observed, externally applied, constricts the surface chemically ; and the tone it gives the capillary circulation is similar to that imparted by a tight bandage ; but besides this mechanical effect, it distinctly gives an impetus to the nervous energy ; the consequence of which is an increased vivacity of the extreme nervous and vascular systems ; the one indicating itself in the *feeling* of glow which pervades the skin ;

* See Haly Abbas and Avicenna, Arabian physicians, on the same subject.

† Treatise on Rickets, p. 97.

the other, in the *vivid efflorescence* which suffuses its surface. But these effects do not terminate here ; they are communicated by sympathy to the stomach and intestines ; hence the keen appetite which the cold bath gives ; hence the healthy digestion it promotes, and the regular state of the bowels it eventually induces. But in mentioning the effects of a cold bath, it is incumbent on us to remark generally, that whilst in a strong constitution it is a good preservative of health, yet in a debilitated frame its use, *in all cases*, requires the greatest circumspection. In elucidation of this I have observed in continuation, that it were needless to expatiate at length on the effects of the same medicine in different conditions of the system ; that a dose of opium, for example, which would induce sleep under certain circumstances, will at another time produce very contrary effects.—The practical physician must almost daily meet with disappointments of this sort, and it indicates his superior acumen to meet with as few as may be : of this kind is cold, which, in a debilitated constitution, if incautiously used, instead of strengthening the tone

of digestion, rather impairs it. Hence, to people past the middle period of life, I never prescribe a cold bath. The system, when the spring of life is vigorous, under the impression of a cold bath, resembles a bow:—the more it is bent, the stronger is the consequent reaction when the force which inflects it is removed ; but in a weakened system the nervous elasticity is sometimes too far exhausted to resist or repel the imposing power, and like a rod of lead, it takes and retains, unresistingly, whatever arc is given to it. The effects of the warm bath again are, that it relaxes the clogged cuticular adstriction ; it excites the capilliary circulation, and promotes the exhalant perspiration : similar sympathetic effects are produced in the *primæ viæ* ; and the support which weakened life thus gains from the *fotus*, evinces itself in a softened skin, clearer and wholesome complexion, and improved appetite.

A warm bath is particularly beneficial to those in the decline of life, or whose constitution has been shaken by intemperance, or long residence between the tropics. Galen cites instances of

several who had attained extreme old age from the daily use of the warm bath; and he mentions the remarkable case of a Peripatetic philosopher who had a paroxysm of fever every time he abstained from taking a bath. Bilguer experienced great benefit in his practice from the use of the warm bath in the dysentery which prevailed among the troops in the campaign of the Prussian army in 1778. Celsus and Paulus Ægenetæ prescribed its use in the same disease. Hence to the desenteric invalid from abroad few places, perhaps, offer greater advantages than the waters and baths of Leamington.

The saline warm bath is of great service likewise in protracted cases of intermittent fever, and greatly assists the beneficial operation of other medicaments. The Neapolitan physicians use it in the endemic *Malacia*; and Tissot and Zimmerman speak of the success of warm bathing in other types of febrile disease.

There are several diseases wherein the use of the cold bath, whether of salt or fresh water, is

specially contra-indicated, besides that state of debility already pointed out; such as in all visceral diseases of an inflammatory cast, whether acute or chronic; as liver complaints, cases where the lungs are affected, as spitting of blood, consumption, asthma, &c. cases where the bowels are disordered, as diarrhoea, dysentery, &c. seeing the effect of the cold is to repel the blood to the interior—an effect which must always be prejudicial, if not dangerous in such diseases.

In speaking of the warm bath, we mentioned that it relaxed and depurated the clogged cuticular adstriction. It may be permitted us here to remark the intimate consensus which exists between the state of the skin and that of the bowels. Is the skin dry and parched? so are the bowels hot and constipated, from deficiency of due secretion. Is the skin corrugated, dry, and discoloured? and does this indicate weak and disordered digestion? This unhealthy state of the skin is chiefly conspicuous in chronic complaints, particularly in those having their seat in

the viscera of the abdomen, and origin in a disordered state of the digestive and cuticular functions. Are the lips hot and parched? so is the stomach, hence thirst. Is the tongue furred and foul? so are the primæ viæ. Does its edges clean and become moist? a like change is taking place on the inner surface of the stomach and intestines. The tongue, in fact, presents a cutaneous surface, from the fineness of whose texture and the ease of ascertaining its condition, as indicative of that of the first passages, physicians take advantage, as a very intelligent guide to form and direct their judgment in many instances. Produce healthy changes then upon the surface, and the interior will consent, and that the more readily, if the stomach and bowels themselves are treated by remedies appropriate to produce a similar effect on them, which you are endeavouring to accomplish on the skin; that is, induce in both an healthy action and a natural excretion, will be the consequences. These few remarks, on the connection of the skin and primæ viæ, by sympathy, will enable the reader to explain why aperient waters should render na-

tural the excretions of the skin, and improve an unhealthy complexion; and why the warm and the cold bath should increase the appetite, promote digestion, and induce eventually a regular state of the bowels.

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