Some account of the Walton water near Tewkesbury ; with thoughts on the use and diseases of the lymphatic glands, in a letter ... / by James Johnstone.

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SOME ACCOUNT
OF THE
WALTON WATER,
NEAR
TEWKESBURY;
WITH
Thoughts on the Uſe and Diſeaſes
OF THE
LYMPHATIC GLANDS.

IN A LETTER
To *J. B******d - M.D. &c.*

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——*Sacros Auſus recludere fontes.*

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THE

PREFACE.

THOUGH Walton *Water, is here held out, as poſſeſſing the ſame Properties, and Medicinal Powers as* Cheltenham *Water, it is not done with the moſt diſtant View, to leſſen the Reputation of that Water, and the Reſort to* Cheltenham. *On the contrary, it is preſumed, it will be a Satisfaction to Invalids to be aſſured of having, within a ſmall Diſtance, a Water of the ſame Kind, to which recourſe may be had, when the Numbers are ſo great at* Cheltenham, *as to be inſufficiently ſupplied from the Well there.*

In this point of View, the Water near Tewkeſbury *muſt be uſeful to* Cheltenham *in full Seaſons, and, cannot injure it in any one, as its priority in uſe, and, the habit of Reſort for Amuſement as well as health will give* Cheltenham *the Preference.*

Tewkeſ-

Tewkeſbury, *however, has equally a Right to the Benefit of its natural Riches, and to the Advantages which may accrue to it from the Vicinity of* Walton *Waters in particular. This Borough is ſituated on a fertile Plain, at the Conflux of the River* Avon *with the* Severn. *The Town is well built, and now well paved, and, Proviſions of every Kind, particularly the fineſt Salmon, are in great plenty. It communicates by a very good Road, to fine rides towards* Worceſter, Upton *and* Malvern, *and is only eight Miles from* Cheltenham.

In theſe rides, the various Views of a moſt Pictureſque Country, charm the Eye, and make the ſalutary Exerciſe of riding delightful. Malvern, *riſing in benign Majeſty, diffuſes all around a pure and temperate Air; a Water exceeding all others in elementary Purity; which every Year manifeſts its ſalubrity in curing Diſeaſes which have baffled the Power of Medicine in other Situations.*

Tewkeſbury, *and its Environs, beſides the ſtriking beauties of the Country, preſent to the Obſervation of the curious; A Field of Battle where a Victory was obtained, which fixed the Crown on the Head of* Edward *IV. A Church, one of the fineſt* Gothick *Structures in* England; *in which lie the*

Remains

Remains of Edward *Prince of* Wales, *Son of* Henry *VI. cruelly murdered in cold Blood, with the Duke of* Somerſet, *and many other Noblemen and Gentlemen who ſhared his Fate after that deciſive Battle.*

———Sacros Auſus recludere fontes.

My Motto, is proper in more Senſes than one; for taking Advantage of the Epiſtolary Form; I have attempted to illuſtrate the Uſe of the Lymphatic Glands, acknowledged to be hitherto undiſcovered, as well as to make known the properties of a new Medicinal Water.

E R R A T A.

P. 4, l. 15, *for* 1736 *r.* 1786—p. 7, l. 7, *for* on Solution, *r.* in Solution—p. 8, l. 17, *after finally* a comma—p. 14, l. 10, *for* Catharatic, *r.* Cathartic—p. 16, l. 12, *for* pleniful, *r.* plentiful—ib. l. 33. *for* Civilian, *r.* Savilian—p. 22, l. 11, *for* exite, *r.* exit—p. 27, l. 17, *for* ſplendily, *r.* ſplendidly—ib. l. 18, *for* his, *r.* this—p. 29, l. 30, *for* Cruickſhank, *r.* Cruikſhank paſſim—p. 31, l. 3, *for* pericordium, *r.* pericardium—p. 40, l. 22, *for* ſtated, *r.* ſeated.

SIR,

AT length, I ſend you, an account of the Experiments, made on the Medicinal Water near Tewkeſbury, of which, ſo much has been ſaid at Cheltenham, in the courſe of this Seaſon and the laſt.

I firſt heard of this Water in paſſing through Tewkeſbury in 1786. It had been for ſome time reſorted to, by Perſons in the Neighbourhood, and, was reported to have effected Cures in the Diſeaſes, for which the Cheltenham Water is found to be ſo efficacious, and, on account of which, Perſons of every Rank, reſort to that Place in ſuch Numbers, as to exhauſt ſometimes the Spring on which they reſt their hopes of recovery.

This Well is ſituated near Walton, a Village about a mile from Tewkeſbury, upon an eſtate belonging to Nicholas Smithſend, Eſquire. The Ground about the Well is a deep Clay Soil, under which, at the depth of about ſeven or eight yards, runs a Stratum of blue ſlaty Stone; on piercing this Bed of Stone, plentiful Springs of Water ariſe, which are always more or leſs impregnated with Salt.

The Well, of which I write, is about twenty feet deep.

The Water from the Pump, or ſoon after, has a ſoft, almoſt Oleaginous taſte, numerous Air Bubbles riſe, and ſparkle in the Glaſs; after it has been drank, it leaves the Chalybeate, and Saline taſtes on the tongue, and when ſhook in the Bottle, the Hepatic ſmell is very perceptible.

Its reſemblance in taſte, and other appearances to the Cheltenham Water, ſtrikes every one who makes the compariſon.

Its operation on the Body, alſo, is exactly the ſame, a Pint or more, acts as a gentle Laxative and Diuretic: And it occaſions a ſlight giddineſs in ſome perſons, in others a ſort of heavy pain in the head.

Theſe teſts, though of themſelves, ſufficiciently convincing, will be confirmed by the Experiments which I made on the Walton Water, in the Summer of 1786, and this Summer, in which I had the aſſiſtance of the worthy Surgeons, and Apothecaries, at Tewkeſbury, particularly Meſſrs. Terrett, Dillon and Spilſbury, who are in very deſerved eſtimation, there. 1. When the Walton Water is mixed with Clear filtered Lime

Lime Water, it becomes immediately cloudy, and, a copious white ſcaly precipitation enſues.

The ſame cloudy appearance ariſes in Lime Water, when the Air, ſeparated by Heat from the Walton Water, is conveyed by a Pipe and Bladder, connected with the two Bottles, into the Bottle, containing the Lime Water, and ſhaken with it.

If the Walton Water has been taken from the Well, twelve or more hours, the precipitation by Lime Water, does not take place immediately, in the manner it does in a Glaſs of Water from the Pump.

White Arſenic, diſolves more readily in the Walton Water, than in common Water, and renders the Hepatic ſmell thereof, ſtronger and more perceptible.

2. When Walton Water, freſh from the Pump, is mixed with an Infuſion of Green Tea, the mixture aſſumes a Purple Colour, and by ſtanding, the Colour becomes deeper.

3. A Solution of Saccharum Saturni, mixed with freſh-drawn Water, becomes brown, and is rollowed by a blackiſh precipitation. This is a teſt of the preſence of Hepatic Air,

which alſo diſcovers itſelf in this Water, by its characteriſtic Sulphureous ſmell. This often is produced by putrifying Vegetables. Biſhop Watſon, obſerves, that Sulphureous Waters are produced in Moraſſes and Bogs, from rotten Wood; that Shale, a ſtone ſo called, of which there is a Stratum, extended all over the Country about Harrowgate, and from which the Sulphur Springs there ariſe, contains both Vitriolic Acid and Phlogiſton, the conſtituent parts of Sulphur; and ſome pieces of Shale, when calcined properly, have been found to communicate the Sulphureous impregnation to Water, Ph. Tranſ. 1736. It is ſufficient to obſerve, that Walton Water emerges from a bed of ſtone, probably ſimilar to this, and that the Soil abounds with the remains of rotten Vegetables reſolved into it, and, that from one or both theſe ſources, it derives the Hepatic Gas perceived in it.

4. After Walton Water has been drawn from the Pump ten or twelve hours; it no longer becomes purple or blackiſh, by the addition of aſtringents, (No. II.) and a precipitation with Lime Water, does not immediately enſue, (No. I.)

5. Its Colour neither becomes Green nor Red, with Syrrup of Violets.

6. It

6. It does not effervesce with the Vitriolic or Nitrous Acids.

7. It becomes milky by mixture, with the fixed Alkali, and more so with the Volatile Alkali prepared with Lime.

8. Solution of Silver, makes it milky and a flaky precipitation subsides.

9. Two ingenious friends, and accurate observers, found the whole fixed contents of the Water left by evaporation, amounted to one ounce in a gallon.

10. After various evaporations, I found it yielded exactly that quantity.

When a Gallon of the Water is reduced by evaporation to two ounces and under, a considerable quantity of an earthy powder remains in the vessel in which it was boiled. And when the liquid is set to christalize, Chrystals, in shape and size, resembling the Glauber salt are formed. They are hexagonal, and when dried in the Sun, are calcined into a white powder. The taste cool and bitter.

Some cubical Chrystals of marine salt, and, a deliquescent bitter lixivium remains.

The

The powder, dropped by boiling in the veſſel, conſiſts of Magneſia, and an abſorbent earth, which entirely diſſolve in Vinegar, with conſiderable effervescence.

The quantity of large Chryſtals amounted to ſix drachms or more, from a Gallon of Water, evaporated in 1786; but by after experiments, I find this impregnation is not conſtantly in the ſame quantity, and proportion.

11. Laſtly, the Chryſtals of the Walton Water; and the white powder into which theſe dried Chryſtals fall; when diſſolved, the Solution is again perfect, and clear in an exceedingly ſmall quantity of Water.

Salt of Tartar, added to this Solution, becomes Milky and a copious white ſediment ſubſides, found to be Magneſia.

Lime Water added to the Solution, occaſions a Milky whiteneſs, and a ſoft Alkaline precipitation, but it does not happen near ſo ſoon as that made by ſalt of Tartar.

EXPE-

EXPERIMENT 1.

SHEWS Walton Water abounds with fixed Air. Lime becomes quick, calcined or cauſtic, by the expulſion of this Air by fire; and being attracted again from this Water, the Calcareous Matter before held on Solution, becomes mild and precipitates in form of a clear and white powder. The immediate precipitation, which takes place by the mixture of Walton Water with Lime Water, and ſtill more clearly the Air forced from Walton Water agitated with Lime Water, is therefore a certain teſt of the preſence of fixed Air in Walton Water.

2. By this experiment, Iron in a ſmall quantity, appears to be one of the Fugitive ingredients in the Walton Water. This, as well as ſome abſorbent earth, is kept in a diſſolved ſtate by the fixed Air, and the Sulphureous Gas contained in it: When the fixed Air flies off, which it does much ſooner than the Hepatic Gas, the Iron precipitates, and the Water is no longer capable of becoming Purple by aſtringents. The action of heat carries off the Hepatic Gas, which appears to hold the abſorbent earths in Solution, which

which are left by evaporation ; and to which the ſoft, almoſt oleaginous taſte, with which this Water ſtrikes the tongue, is probably owing.

3. The addition of Saccharum Saturni diſcovers the preſence of the Hepatic Air, another fugitive principle contained in this Water, as well as in that of Cheltenham : But it is much leſs fugitive than fixed Air, being often perceived, both in the Cheltenham and Walton Waters, after they have been bottled a conſiderable time. This Sulphureous or Hepatic Air, found in this and in other Waters, has been the occaſion of much controverſy among the Gentlemen who have analized Waters : Mr. Kirwan, has probably finally ſettled the diſpute, by ſhewing that Hepatic Air is no other, than actual Sulphur kept in Solution, in an aerial State, by union with the matter of heat, Ph. Tr.

4. It is evident, from this article, that the fixed Air only diſſolves and keeps Iron ſuſpended in the Water. Its diſappearance ſo ſoon, ſhews its very volatile Nature, and, the neceſſity of reſorting to theſe Springs, to have the benefit of a principle and ingredient, which gives penetrability, and action to the Saline contents of the Waters.

5, 6. Shew

5, 6. Shew the Salts contained in theſe Waters are neutral: And, that neither the acid nor the Alcali, of which they are compounded, prevail.

7---11. Demonſtrate, that Vitriolated Magneſia, is a part of the purgative Salt contained in the Walton Water. The attraction of an Alcaline Salt, and eſpecially that of the cauſtic Alcali, with the Vitriolic Acid, is greater than that of the Magneſia, which is precipitated in theſe experiments.

8. The exiſtence of Sea Salt, is manifeſted by this experiment, and by the entire Chryſtals, formed in the reſiduum, by chriſtallization.

9, 10. From all our experiments, fixed Air diſſolving a ſmall quanity of Iron: Hepatic Air, united with an abſorbent earth, appear to be the fugitive ingredients of the Walton Water. The fixed ingredients diſcovered by evaporation, and chriſtallization, appear to be a Vitriolated Mineral Alcali, or, a Glauber Salt, united with Vitriolated Magneſia, in the quantity of ſix or ſeven drachms, in one Gallon of Water. Magneſia, Lime and abſorbent earth, and a deliqueſcent bitter Lixivium, conſiſting of ſalited Magneſia and Lime, with a few grains of entire Sea Salt, altogether, about a drachm or two to a Gallon.

That theſe alſo are the component Medicinal ingredients in the Cheltenham Water, appears by the analyſis, of the learned Dr. Fothergill, of Bath.

This Gentleman, in his very valuable experimental inquiry into the nature and qualities of Cheltenham Water, p. 42, concludes, "from the preceeding experiments, a Gallon of the Water, wine meaſure, appears to contain the ſubſequent principles, nearly in the following proportions; Native Glauber Salt, with a portion of Epſom Salt, one ounce; Sea Salt, five grains; Iron combined with fixed Air, five grains; Magneſia combined with fixed Air, twenty-five grains; Calcarious earth, or Selenitc, forty grains; fixed Air, combined with phlogiſticated Air, twenty-four ounce meaſures. To theſe may, perhaps, be added a ſmall proportion of Hepatic Gas, or Hepar Sulphuris converted into Vapour by the ſeparation of its phlogiſton."

By this ingenious work, it appears, and, is ſufficiently known to all who frequent Cheltenham, that the Iron is very ſoon precipitated from the Water, after it is drawn from the Pump; and, in a ſhort time it cannot be made to aſſume a purple colour, by the addition of aſtringents.

The

The Salts of the Walton and Cheltenham Waters, are both ſoluble in a very ſmall quantity of Water, equal to their weight nearly: And their impreſſion on the human ſenſes, and, their action on the bowels, is the ſame.

In ſo many points, the Cheltenham and Walton Mineral Waters, are entirely like each other; a pint or leſs of each opens the body; ſome find a ſmall addition of the Walton, neceſſary to produce the ſame effect in the ſame degree; others find no difference; the purgative Salt is ſomewhat leſs, about a drachm in a gallon, in my experiments; but the quantity of fixed Air, and Steel are at leaſt equal. The Hepatic Air ſeems to prevail in the Walton Water, over the Cheltenham, which gives it a moſt pleaſing almoſt Oleaginous ſoftneſs, and makes it highly grateful in taſte, and gentle in operation, and, far more ſuitable in diſeaſes of the kidneys, and urinary paſſages, than the Cheltenham Water itſelf.

Without, therefore, entering into a farther detail of Chymical reſearch, I apprehend the ſimilarity of the Walton to the Cheltenham Water, to be ſufficiently aſcertained, to warrant its uſe and application in the diſeaſes, for which Cheltenham Waters have been uſed with advantage.

The analyſis of Mineral Waters, undoubtely is highly uſeful; but notwithſtanding the perfection to which it is carried by diſcoveries in modern Chymiſtry, I apprehend it gives a very imperfect idea of the real compoſition of Waters; in ſhort, ſuch an idea as diſſection gives of an animated body, a view of its parts disjointed, and ſeparate, very different from that union, on which ſymmetry and life depend.

It is on this account, that the exhibition of the ingredients found to compoſe Mineral Waters, and the imitations of many of them, adminiſtred as Medicines, fall ſhort of the Waters prepared by nature, eſpecially when drank at the ſources.

It is the ſame in other parts of the Materia Medica: An analyſis, in ſome meaſure, aſſiſts in accounting for the operation of a Medicine, but ſeldom enables us to prepare, and compound to perfection, the natural productions we pretend to imitate.

The uſe, and advantage of Waters, is eſtabliſhed by experience alone, as well as that of every article in the Materia Medica. The advantages found from the uſe of the Walton Well, in various eruptive diſeaſes, and in old ſordidulcers, as well as in many other diſeaſes,

has already been ſo conſiderable, as to confirm the expectation grounded on their being ſimilar to the Cheltenham Water.

It will undoubtedly be found as much like Cheltenham Water, as that Water is like itſelf at different ſeaſons. Seaſons occaſion accidental differences of ſaturation in all Mineral Waters, the cauſe of which, is ſometimes known, and ſometimes is unknown. Rainy ſeaſons, while they make Springs more abundant, render the Mineral impregnation at the ſame time weaker. To this alteration, the Walton Water muſt be ſometimes liable, as it lies on a plain, part of which is frequently overflowed with Water. But if by experience, this ſhall be found to have any conſiderable influence, means will be uſed to remove the inconvenience. An inconvenience which is very ſeldom likely to happen in dry and warm ſeaſons, in which Waters of this claſs, are for the moſt part reſorted to.

After all, I am perſuaded, that the dilution of Mineral Waters is very ſeldom any injury to the patient. The virtues and powers of Mineral Water, depending principally on the quantity of Water, the medium, in which the Medicinal ingredients are ſuſpended; the vehicle which conveys them into the ſmalleſt veſſels, and, makes them capable of removing

ing obſtructions fixed in them, and in various glands; hence the ſame Medicinal ingredients, given in the uſual forms, have but little efficacy in removing ſuch diſeaſes.

The healing powers of the Walton Well, and thoſe of its elder Siſter of Cheltenham, are owing to the mixture of a neutral compound of vitriolated Magneſia, commonly called Epſom, or catharitic Salt; to vitriolated Mineral Alcali, or Glauber Salt, with a ſmall portion of ſalited Mineral Alcali, Magneſia, and Lime, nearly to the quantity of a drachm, in a pint of Water; alſo, to a conſiderable quantity of fixed Air, and Hepatic Gas, by the former of which Iron, and by the latter Magneſia, and abſorbent earth are held in Solution.

The whole is a compoſition, friendly to appetite and digeſtion; as well as ſoft, and pleaſing to the taſte. It is alſo a penetrating deobſtruent, and, attenuating medicine, and in ſenſible operation, a quick and gentle laxative and Diuretic; and, when applied with diſcretion, it may be continued a long time without any diminution of ſtrength.

It is obvious, this Water contains Saline ingredients, and, others poſſeſſing different attractive powers and affinities, which, though balanced

balanced in the Water; yet, when mixed with animal fluids, and Salts in the courſe of digeſtion, Chylification, and in circulation with the blood, muſt be ſo changed, and varied as to form new attractions, and combinations in their courſe through the veſſels, whence compounds poſſeſſing properties, different from what exiſted before, will be produced, and the ſyſtem itſelf will be changed. It is well known, that cold is generated by diſſolving Salts; and, that while Saline Bodies, of different affinities, and attractive powers, are forming new compounds; ſuch Salts in the proceſs of mutual attraction, and incorporation, produce heat. In this manner, and from ſuch cauſes, new ſtimuli, with other alterations take place in the glands, and remoter veſſels of our ſyſtem, from the Salts, combined with other ingredients in Mineral Waters; and, it is by theſe means, as well as evacuation, they become beneficial, and are really valuable alterative Medicines.

The Walton Waters, being a compound, *ſui generis*, ſimilar to Cheltenham, they both operate primarily, and principally on the inteſtines, as a gentle purgative, "Their mode "of operation, (ſays Dr. Smith, p. 21, 22.) "upon the inteſtines, producing an eaſy, "ſudden diſcharge, is explainable upon the "principle of the tenuity, and uniform "diffuſion

" diffuſion of the ingredients in the Water. " For the Water, after having performed its " ſtrengthening, and exhilarating office upon " the ſtomach, paſſes quickly into the inteſ- " tines as fluids do, carrying along with it, " more or leſs of all its ingredients, but par- " ticularly its great dilution, and conſequent " diſperſion all over the internal ſurface of " the canal, vellicates the innumerable, little " exhalent veſſels, with which that cavity is " crouded, into a pleniful ſecretion; and " notwithſtanding the ſtimulus may be but " ſlight on any particular part, on account " of the minuteneſs of the particles of the " Salt; yet, as they are univerſally diffuſed, " and act upon the whole ſyſtem of exhalents " at once, a more copious and expeditious " evacuation is produced, than what is often " attainable from a much larger quantity of " any of the other more ſtimulating purga- " tives leſs attenuated; attended at the ſame " time with theſe important advantages; " that as the ſtimulus is gentle, no griping " pain is likely to be excited, and as it is " ſuperficial, the particles muſt ſoon be " waſhed off in the general current, with- " out leaving behind them any of thoſe " diſagreeable feelings that uſually hang in " the rear of other Catharticks."(a)

Corollary

(a) See Obſervations on the uſe and abuſe of Cheltenham Waters, by J. SMITH, M. D. Civilian Profeſſor of Geometry, Oxford.

Corollary. Mineral Waters in general, derive their healing powers much leſs from the metals, earths, and, Salts, often inconſiderable in quantity, which remain after evaporation, than, from the volatile principles, united with them, but diluted in a very great proportion of Water; and, they univerſally owe the activity the whole poſſeſſes, to the incorporation of the volatile and fugitive principles, both with the Water, and, with the groſſer ingredients, combined together moſt intimately.

THE taſte of the Walton Water, freſh from the Spring, as has been already obſerved, is at firſt ſoft, and, afterwards agreeably Saline; the Sulphur and Iron, are alſo plainly taſted in it, in the quantity of a pint, and, often leſs, it occaſions two or three lax ſtools, and, operates without the leaſt ſickneſs, griping, or any kind of inconvenience.

The quantity of urine is alſo encreaſed; it ſits eaſy on the ſtomach, and, appetite is promoted.

The volatile principles fly off, ſoon after the Water is removed from the Well; and, as theſe are ſo eſſential to its efficacy, and, render it agreeable to the taſte and ſtomach, and, carry the Saline, invigorating, and deobſtruent contents of the Water into the veſſels and glands, it is neceſſary to drink them from the Pump, or very ſoon afterwards.

Theſe Waters not only remove coſtiveneſs, but encreaſe appetite, and, the powers of digeſtion. The chylification of digeſted aliment is more perfectly elaborated, and, the errors of the firſt digeſtion prevented, and, remedied in an effectual manner; whatever is injurious to health in the ſtomach and inteſtines, acidity, bilious, putrid matter are carried out of the body. Worms, and, their nidus are expelled. In this manner the ſeeds of diſeaſe will be prevented in the chyliferous veſſels; and the Chyle itſelf being highly elaborated, and, withal diluted with the Water, enters the lacteals poſſeſſing, ſuch qualities and powers, as bid fair to obviate, and remove obſtructions which have taken place in the channels of the chyle and lymph.

Hence

Hence, obſtructions in the meſentery and glands will gradually be reſolved, as this Water will be likely to dilute, and diſſolve any tenacious matter, incapable of moving in the chyliferous veſſels, on account of its glutinous, cheeſe like, and, ſteatomatous conſiſtence, and, will ſtimulate the veſſels, and, meſenteric glands, by its Saline contents, ſo as to enable them to puſh on any obſtructing matter.

Some portion of the Waters, being abſorbed into the vena portarum, will act as a powerful deobſtruent in obſtructions of the liver.

By thinning the Hepatic bile, and, carrying that fluid regularly into the inteſtines. By preventing the ſtagnation of bile in the gall-bladder. By gently ſtimulating the biliary veſſels, and, encreaſing their action. In a word, by the united influence of theſe powers, recent obſtructions, or older ſcirrhoſities, which have taken place either at home, or by reſidence in warm climates, will be remedied.

Calculous concretions in the biliary ducts, and, in the gall-bladder, when of a ſize capable of being carried into the inteſtines, will be diſpoſed and moved thither, by that ſtimulus, which acting originally on the

duodenum, will extend its influence along the Ductus Choledochus. In like manner, new concretions of the biliary kind, will be effectually prevented.

So that this Water will be found a very effectual remedy for jaundice ariſing from gall-ſtones as well as from other cauſes, obſtructing the diſcharge of the bile into the inteſtines. It will alſo be found uſeful in removing obſtructions in the ſubſtance of the Liver; and, in preventing hemmorrhoidal, and, other diſcharges of blood, which moſt frequently originate from obſtructions in the Liver.

Hemmorrhoidal ſwellings, and, diſcharges of blood from other cauſes, obſtructing, or retarding its motion, and, return through the branches of the vena portarum, will be eaſed or relieved by a ſeaſonable uſe of this Water.

The ſoftneſs, which is peculiar to this Water, renders it proper in diſeaſes of tbe urinary paſſages; as it acts powerfully on the Kidneys, and, occaſions an encreaſed ſecretion there, as well as in the inteſtinal tube; gravelly concretions will be prevented or waſhed away. As the ſecretion of urine is in experience, found eſſential, for carrying out of the body, the Salts, and oils, which are preju-

prejudicial to health; the purity of blood will be very greatly promoted by the encreaſe of this ſecretion; ſo that by the free diſcharge from this emunctory, along with that from the alimentary canal, the ſkin will be cleanſed from hot red eruptions, and, from ſcaly, and ſcabby incruſtations, which notoriouſly ariſe from, a blood, and habit overloaded with acrid, and impure matter; when by exceſs in diet, or by improper food, by imperfect digeſtion, or inadequate ſecretion and excretion, ſuch acrid corrupt matter is formed, and retained in our bodies. Gentle evacuation, by the uſe of ſuch Waters, is generally a certain relief under theſe circumſtances; this has been experienced by various perſons, but very remarkably by one Tanner from Kidderminſter, who has had a leprous eruption removed from his face, and other parts, by drinking the Walton Water, and, applying it externally; which relief, for ſix years paſt, he had not obtained by any means whatever.

The preſerving the bile in a fluid ſtate, and, the regular conveyance of it into the duodenum, will powerfully operate in compleating the digeſtion, and, Chylification of the food; and, will give the blood thoſe properties, which ſupport the health, and, vigour of the body.---With that all cutaneous foulneſs will diſappear, and, the bloom of beauty re-aſſume

its

its charms, along with the eaſe, and chearfulneſs inſeparable from wholeſome fluids, and, from good health.

By removing the fomes, which cauſes Scurvies, Scrophulous, Herpetic eruptions, Leproſies, and, every kind of cutaneous foulneſs, whether of the red, and pimply, or the ſcaly, and, ulcerous kinds; I ſay, by gradually draining off this fomes, and, ſoliciting its exite from the emunctories, ſuch foulneſſes of the ſkin, accompanied with itchings, ſores, and, even ſcirrhous, and, cancerous taints, will often be prevented, removed or palliated.

Chronic weakneſs, and, dejection of ſpirits, ariſing frequently from the ſame latent ſources, will receive relief from the ſalutary, though ſlow operation of theſe Waters.

Obſtructions in the uterine ſyſtem, ſuppreſſions of the menſtrual diſcharge, and, other irregularities, and, exceſſes peculiar to it; the fluor albus, ſcirrhous tumours, and, other diſeaſes of the womb, will in many circumſtances and conſtitutions, find a uſeful remedy in the Walton Waters.

Obſtructions left by the long continuance, and, the frequent return of intermittent fevers, will,

will, probably, yield to a prudent uſe of theſe Waters; and, they will prepare the patient, and, put him in a fit ſtate to receive further benefit from the Bark.

Obſtructions in the lungs, from a ſcorbutic cauſe, and, acrid humours in the blood, and, inveterate ophthalmia's, have been relieved, and, are likely to be ſucceſsfully treated by the Walton Water.

I ſhall not give many directions concerning the uſe of this Water, profeſſedly ſimilar to that of Cheltenham, the method of drinking, of which, has been long aſcertained by eſtabliſhed uſage, and, the public is poſſeſſed of the directions of eminent, and, able practitioners explanatory of their experience.

The Summer Months are the ſeaſon to drink the Walton Waters; as they will, in theſe months, and, in dry weather be in their moſt perfect ſtate of impregnation.

Like Cheltenham, the Walton Waters are their own preparative; three quarters of a pint, drank at the Pump, may be taken in the morning, and afternoon, this quantity may be encreaſed to three half pints afterwards, if the former quantity does not ſufficiently open the body.

But

But I would obſerve, that the middle doſes, ſuch as merely preſerve the body in a lax ſtate, not exceeding three ſtools daily, is preferable to greater evacuation; the buſineſs and intention, being to carry off the ill digeſted remains of meals, perhaps of exceſs, and of luxury, and, of all kinds of corrupt recrementitious matter lodged in the alimentary canal, without impairing ſtrength and digeſtion.

Early hours are neceſſary to an advantageous uſe of the Waters at the Well, where only they are drank without the loſs of the active Volatile ingredients, which give power to thoſe that are more fixed, to penetrate into the glands, and ſmalleſt veſſels.

Exerciſe ſub dio, is alſo equally proper to ſecond the operation of the Water, and to ſtrengthen the body.

An eaſy digeſted nutrient diet, conſiſting, when it agrees with the ſtomach, of milk in the morning and at night, of light meats and vegetables at dinner, with general temperance, and moderation in the uſe of vinous liquors, rather than total abſtinence from them, is highly expedient.

In a ſituation, where excellent fiſh is ſo plentiful, it is proper to obſerve, that moderation in this article will be prudent, as a very frequent uſe of fiſh is found often prejudicial in diſeaſes of the ſkin, and, ſometimes produces the more obſtinate diſeaſes of that claſs; diſeaſes, for which theſe Waters are peculiarly proper.

It is almoſt ſuperfluous to add, that, however uſeful it may be to entertain the mind with pleaſing ſociety, and, an agreeable ſucceſſion of amuſements, it is always neceſſary to retire to reſt at an early hour, and, before eleven o'clock at fartheſt to be in bed, that the conſtitution may have the advantage of nature's ſweet reſtorer, balmy ſleep.

In the cutaneous diſeaſes, and, many of the affections of the glands, for which the internal uſe of theſe Waters is proper; Baths of different degrees of heat from that of common cold Water, to that of one hundred degrees of Fahrenheit's ſcale, will be highly expedient; this will appear in a ſtronger light, from what I ſhall offer concerning the functions, and diſeaſes of the lymphatic glands. I apprehend, the diſeaſes of theſe glands, are chiefly to be reached by the means of remedies, which are applied, ſo as to be abſorbed by the lymphatic veſſels, which paſs

to the glands. I am confident, that the moſt obſtinate cutaneous, and glandular diſeaſes would yield to a due perſeverance in the external and internal uſe of Waters and other proper remedies. But what theſe remedies are, and, alſo the uſe, whether external or internal of Mineral Waters, and of Medicines of all kinds, which are to produce any important and ſalutary conſequence can only be determined in particular caſes, and conſtitutions, by the judgment of an able, and experienced phyſician.

THE

THE uſe of Mineral Waters in diſeaſes of the glands, leads me to offer ſome thoughts, which, I believe, are either new, or have not been enough attended to concerning the uſe, and diſeaſes of the lymphatic glands.

The lymphatic ſyſtem, which makes an important article in the anatomical diſcoveries of the laſt century, has received much improvement in this. It is not my buſineſs to aſſign to each improver or diſcoverer, his due proportion of merit. I acknowledge my obligations to them all. To Haller, Meckel, Monro, Mr. Hewſon, Dr. William Hunter, and Dr. John Hunter, Mr. Sheldon, and Mr. Cruikſhank; who have all contributed, and, ſome of them very ſplendily, to perfect the knowledge of this important part of the animal ſyſtem; and, let them not deem it amiſs, that profiting by their labours, I endeavour to make them ſubſervient to the knowledge of the animal œconomy, and to the healing art.

That the lymphatic veſſels ariſe from every viſcus, and, from every cavity in the body,

as well as from the ſkin, and the cellular membrane inveſting the body, in prodigious, and till lately, in undiſcovered numbers, is an anatomical truth of the greateſt importance, now clearly demonſtrated, and univerſally acknowledged.

The lymphatic veſſels, and lacteals are of the ſame kind, and, conſtitute a ſyſtem of veſſels, no where connected with the veins, containing red blood; but, which univerſally terminate in the lacteal ſac and duct, and convey chyle, and lymph collected in every part into the ſubclavian vein, where it mixes with the blood, and no where elſe.

The ſole, and excluſive function of this ſyſtem of veſſels is abſorption.

Some, indeed, have held, that the red veins are ſupplementary abſorbents, eſpecially on ſome occaſions; and, the illuſtrious Walther, and others, with ſome probability, have aſſigned this office to the vena portarum, eſpecially in diſeaſes, in which the conglobate glands of the meſentery are ſcirrhous, or obliterated by age, as ſome have ſuppoſed, or, the lacteal ſac, and duct itſelf is obſtructed. The proofs of this are equivocal, and accounted for on different principles, by the ſchool of Hunter, particularly, by the accurate

rate Sheldon and Cruikſhanks, who contend, that abſorption is carried on, by the lymphatic veſſels *alone*.

The lacteal, and lymphatic veſſels univerſally paſs through conglobate glands, before the fluid they convey, reaches the lacteal duct; thoſe ariſing from the inteſtines, enter the different orders of meſenteric glands, and, the chyle and lymph depoſited in theſe glands, is again abſorbed from them by the vaſa lymphatica efferentia, in order to be conveyed to the thoracic duct. (c)

This law is univerſal, and, the lymphatic veins wherever they ariſe, in no inſtance enter into the lacteal duct, without previouſly, and repeatedly throwing the lymph into the conglobate glands, which are an eſſential part of this ſyſtem, a part of the greateſt importance, for the advantage of which, the lymph is abſorbed, in order to be conveyed to them; and from them the lymph is taken up in a more purifyed, and aſſimilated ſtate, and is conveyed by the lymphatica efferentia into the lacteal ſac and duct.

The ſtructure of theſe glands is both vaſcular and cellular; into theſe cells the lymph is thrown, and the abſorbing lymphatics,

(c) Cruickſhank, p. 76.

phatics, the lymphatica efferentia, are the only excretories, to all the conglobate glands; the uſes of which are acknowledged to be unknown and undiſcovered, by gentlemen to whom anatomiſts are ſo much indebted, Meſſrs. Sheldon and Cruikſhank, the lateſt improvers of the lymphatic ſyſtem. (b)

Yet it is a matter not only intereſting in the ſcience of phyſiology, to aſcertain their uſe, but is likewiſe neceſſary to enable us to underſtand more perfectly the diſeaſes of the glands, and, to treat them with ſucceſs: we will therefore purſue the inquiry.

A fluid is conſtantly exhaled into the cavities containing the viſcera; this fluid is liable to be altered, either by remora or mixture; the abſorption of this fluid is the function of the internal lymphatics, and, when it is prevented, either by obſtruction of

(b) The ingenious diſcoverers, who have lately ſo much improved the knowledge of the lymphatic ſyſtem, all acknowledge their ignorance of the uſe of theſe glands. Mr. Cruikſhank, the lateſt publiſher on this ſubject, ſays, "Though we know ſomething "more of the nature, ſtructure, and diſeaſes, of the lymphatic "glands, we know no more of their real uſe than the ancients. As "they inform us, however, of the paſſage of infectious matter "into the blood; and as from their ſtate, we are enabled to judge "of the preſence, or abſence, of other diſeaſes; the knowledge of "them is of great importance, in the practice of medicine. "Anatomy of the abſorbing veſſels of the human body, p. 68, 69.

"Why the lymphatic's and lacteals terminate firſt in the glands, "I do not know, p. 81.

"It

of the conglobate glands, or, by any other cauſe; Dropſies in the brain, thorax, pericardium, abdomen, and the widely diffuſed cellular membrane ariſe.

The lymph along with the chyle, and nutritious liquors prepared from the food in the inteſtinal canal, is abſorbed by the lacteal and lymphatic veſſels, for they are the ſame; theſe fluids are immediately thrown into the meſenteric glands; and, they are more numerous there than in other parts, becauſe their office is peculiarly important, that of perfecting the chyle or nutritious fluid, extracted by digeſtion from food. That fluid is perfected by intercepting what is noxious in the cells of the conglobate glands, where it undergoes a digeſtion before it is abſorbed by the ſecond and third orders of the lacteal veſſels.

Numerous lymphatic veſſels, ariſe alſo from the ſtomach inteſtines, and from the glandular viſcera; from the pelvis, the bladder, and parts of generation, both in males and

"It will appear ſtrange, that I have ſaid nothing of the uſe of "the abſorbent glands. I avow abſolute ignorance of this matter. "There are none in turtle and in fiſh, and, only two in the necks "of ſome birds. Why there are ſo many in men, and quadrupeds, "I do not know, nor why they exiſt at all," p. 187, &c.

Once for all, I beg leave to expreſs my opinion of the work now quoted, as one of the moſt valuable and important acquiſitions, both to anatomy and medicine, this age has produced.

and females; they obſerve the ſame law, and paſs through the iliac conglobate glands, or others before they enter the lacteal ſac; and, their uſe is the ſame, to intercept crude, noxious, unaſſimilated matter, which has been rendered unfit by diſeaſe, or other means to mix immediately, and unaltered with the blood.

The food we take in, and the air we breath, while they convey the neceſſary ſupports of life, contain alſo the ſeeds of diſeaſe and death.

The lymphatic veſſels, which ariſe in the mouth, and from the trachea and lungs, (where their number is immenſe), convey the fluids they abſorb, with whatever extraneous matter has been taken up to the numerous conglobate glands of the neck, to the thyroid gland, thymus, and the glands of the lungs, where it is digeſted before it reaches the thoracic duct.

In young animals who take in their food by ſuction, in which action much is abſorbed by the lymphatic's; the glands are very large, numerous and conſpicuous, the more perfectly to digeſt, and animalize the crude fluids received by ſuction with the milk.

When

When that period of life is paſſed over, the thyroid glands and thymus are not quite ſo neceſſary, and abate in ſize, but are never totally obliterated.

In pointing out the buſineſs of purifying, and animalizing lymph, as the function, of the conglobate glands in general, I believe I have diſcovered the uſe of the thymus in infants, and, of the thyroid glands, hitherto one of the hidden myſteries in anatomy (d).

The external ſurface of the body, is no leſs abſorptive, fluids are imbibed, thirſt abated, urine and weight encreaſed from thence. Garlick, externally applied is ſoon ſmelled in the breath. Turpentine gives the urine a violet ſmell. Variolous matter, and the venereal poiſon introduced by the ſmalleſt puncture, produce ſimilar diſeaſes, and, previous to univerſal infection and diffuſion, the inguinal and axillary glands, are ſwelled and inflamed by the paſſage of the poiſon into them. Mercury, the antidote to this poiſon, alſo enters freely by the ſkin. Bliſters applied to the arms and ſhoulders inflame the axillary glands; thoſe of the neck in children, particularly are made hard and ſore by ulcers

 behind

(d) Cruikſhank, ſpeaking of the Thymus, ſays, "I know not the uſe of this gland;" and of the Thyroid gland, "as I have not the leaſt conception of its uſe, I do not underſtand what functions in particular its abſorbents perform," p. 183.

behind the ears; and in the head, and by bliſters to thoſe parts.

Ulcers and punctures in the legs, and other parts, often occaſion ſwellings along the lymphatics up to, the axillæ or inguinal glands. Purulent bubo's ariſe frequently from ſuch ulcers, and, from matter formed in the joints. The axillary glands are ſwelled by ſtagnating milk, by cancerous ſwellings, and inflammations in the breaſt. Cancers in the lips, and on the face, cauſe ſimilar ſwellings under the lower jaw, and, in the neck. The ſame glands are ſwelled by gum boils, and, by venereal ſores in the lips. Acrid matter abſorbed, inflames the lymphatic veſſel, and, the gland, univerſally, between the ſeat of the matter and ſore, and, the thoracic duct; and, its entrance into the body, may be prevented by cauſtic, or, by the exciſion of the part. Powders ſcattered over the ſurface of the body are abſorbed, thus calomel is known to enter; and, I remember a degree of ſalivation, and ſore mouth, produced by a ſmall quantity of corroſive ſublimate, rubbed with crude ſal armoniac and camphire ſcattered on bed linen, in order to prevent a morbus pediculoſus.

When we conſider theſe various facts, that all lymphatic veſſels perpetually enter the conglobate glands, and, in the cells, of which theſe glands univerſally conſiſt, depoſite the lymph

lymph, which being abſorbed once, and, again by larger lymphatics, is at length conveyed by the great channel, the lacteal duct, into the vena cava deſcendens, under the left clavicle. When we recollect, that the Venereal Virus, Cancerous and Variolous poiſons, enter the body by theſe channels, and, are primarily depoſited in theſe glands, occaſioning there tumours, ſometimes indolent, ſometimes painful, inflamed and ſuppurating. It ſeems clear, theſe glands are intended by nature, to purify the lymph, before it enters the blood veſſels, from matter, which may be noxious there, by arreſting it in the glands, univerſally connected with abſorbents.

In theſe glands, it is either altered by a concocting, and digeſting power inherent in them, or, when it is too noxious to be ſubdued into a ſalutary nature, it remains in the form of a tumour, or eſcapes by ſuppuration. When it cannot be ſubdued, nor removed by ſuppuration, and, thoſe ſalutary efforts of nature fail, it is then abſorbed, and, diffuſes diſeaſe in the conſtitution at large.

Thus the glands in the neck, and, the thyroid are interpoſed to intercept crude matter, or, noxious Virus taken up from the noſtrils, mouth, trachea and lungs, and other parts

about the neck and breaſt, more eſpecially in very young animals.

The meſenteric glands purify, and digeſt, whatever is abſorbed with the lymph and chyle from the inteſtines.

The axillary, and inguinal glands, alter and intercept whatever extraneous matter may happen to be abſorbed from the ſurface of the body, or the cellular membrane.

The glands have the power of aſſimilating into a ſound fluid, ſuch noxious matter, in very many inſtances. But when it is highly virulent as in the lues, in ſcrophulous, and in cancerous diſeaſes, that digeſting and aſſimilating function is overpowered, the gland remains ſcirrhous, or, is deſtroyed by ſuppuration, and, the matter enters, and contaminates the habit.

In fine, the uſe of theſe glands is to intercept as ſponges, and to alter as digeſtive organs, whatever is unfit to enter into the maſs of blood. In ordinary caſes, this is effected without obſtruction, or, inflammation, and, then no apparent conſequences detrimental to health appear, and, the depoſited matter is abſorbed again, and, goes along with the ſound lymph. In extraordinary caſes,

caſes, the poiſon remains in the gland, and, deſtroys its powers firſt, and its ſubſtance, and organization afterwards.

The fatal conſequences, which have followed injections of undigeſted alimentary fluids, directly into the red veins of living animals, are proofs that the lymphatic glands have the uſe and function here alledged, and, ſhew, that without the *lymphatic digeſtion*, liquors apparently harmleſs, are unfit to mix with the blood; and, produce fatal effects there (g).

How the glands alter, digeſt, and aſſimilate the matter abſorbed, and depoſited in them, I know not, and ſhall not attempt to explain; I think, that power implanted in them, as well as in the ſtomach and inteſtines; and, we ſee an important apparatus, ſet apart for the purpoſe, by Him! whoſe ability is too great in every inſtance, to be fully comprehended, and interpreted by us his creatures.

From the uſes here aſcribed to the lymphatic glands we ſee, why they are moſt numerous, where abſorption is greateſt; and, particularly in thoſe parts, in which crude matter is abſorbed. We ſee, why the glands are nearly as numerous in the neck as in the meſentery

(g) Haller, Elem. Phyſ. Tom. 1. p. 228.

meſentery (d); for beſide the matter abſorbed from the inſide of the mouth, noſtrils and trachea; the abſorbents from the brain join the glands of the neck. Though theſe have not been traced by anatomiſts; as a copious exhalation, and, abſorption conſtantly take place in the ventricles of that organ; as we have reaſon to believe, the Water in the internal hydrocephalus is ſometimes abſorbed; from the general law, we may preſume, that lymphatic's exiſt in the brain, though not certainly traced (e); this is confirmed by the internal hydrocephalus often happening in ſcrophulous, and ricketty children, in whom the glands of the neck are ſcirrhous.

It is well known, that ſwellings of the glands often follow eruptive diſeaſes. They ariſe after ſcarlet fever, meaſles and ſmall-pox. Dropſy, is ſometimes the conſequence of them all. And I have known the hydrocephalus internus, as well as other Dropſies ſuccced the ſcarlet fever; another preſumptive proof, that abſorption in the brain, is carried on by lymphatic veſſels as well as in other parts.

We alſo, ſee why the glands are more numerous in the meſentery, through which all the chyle paſſes, and are ſmaller, and leſs numerous

(d) P. 130. (e) P. 127, Cruikſhank.

numerous in the meſocolon, through which, hardly any chyle paſſes, whence Mr. Cruikſhank is led to ſay, "this looks as if the glands were intended to produce ſome remarkable change in the chyle" (f).

The meſenteric glands, as well as the conglobate glands in other parts, being cellular, as well as vaſcular, contain a white milky fluid, moſt conſpicuous, and abundant in young animals. Album perpetuo reperi, ſays, Haller, Elem. Phyſ. T. 1.

Theſe glands, though greatly leſs in adults than in young animals, are yet not totally obliterated. The illuſtrious Haller, has ſeen the thymus in the mediaſtinum, and the glands in the meſentery, and in the inteſtinum rectum in adults; in children, they are very large and ſucculent, Elem. Phyſ. T. 1. p. 192.

The lymphatic veſſels being deſtitute of the moving impulſe of the heart, and having no other principle of motion to carry on the liquors abſorbed, but that of the irritability of the lymphatic ſyſtem, the motion of the lymph is neceſſarily liable to be obſtructed. Hence obſtructions happen more frequently in the conglobate and lymphatic glands, than in

(f) P. 127.—of Cruikſhank.

in the conglomerate glands. The liver may be excepted, becauſe the blood conveyed into it by the vena portarum, undergoes a ſimilar retardation in that very ſingular vein.

The conglobate glands, are hence univerſally liable to ſcirrhoſity and obſtruction. The meſenteric glands are notoriouſly liable to great enlargement and hardneſs, and thereby often cauſe a ſlow conſuming fever and atrophy in infants. Similar ſwellings in the meſenteric glands are ſometimes obſerved from ulcerated inteſtines after dyſentery. The neck is ſeldom ſtrumous without accompanying obſtruction in themeſenteric glands.

The thyroid axillary and mammary glands, as well as the iliac lumbar and inguinal glands are all frequently found obſtructed and ſcirrhous. In a word theſe glands are not only obſtructed in venereal and cancerous habits; but the ſcrophula and rachitis, likewiſe originate in them, and are principally ſtated in the glands.

In all caſes of obſtructed glands, the chyle and lymph, being imperfectly aſſimilated, the blood becomes gradually vitiated, and, unfit for nouriſhment. Hence that acrimony often called ſcorbutic; an ulcerous and even cancerous diſpoſition of fluids originate. From the

the ſame ſource the bones become brittle, break in ſome, and, are rendered ſoft and flexible in others.

All theſe facts conſpire to ſhew the importance of the digeſtive, and aſſimilating power of the glands, and, lymphatic ſyſtem, in perfecting the animal fluids.

In diſeaſed glands, the chyle is not ſufficiently aſſimilated, and, that defect gradually induces acrimony, and impurity in the lymph, which ſoon taints the blood and habit univerſally.

It is more from this defect, than from the entrance of the chyle into the blood, being prevented by obſtruction, that maraſmus, and conſumption follow ſcirrhoſities in the meſenteric glands.

" It is poſſible," ſays, the ingenious Cruikſhank, " that children, and, even grown " perſons, may have died of the tabes meſen- " terica from obſtructions in the glands, ren- " dering them impervious to the chyle." But he never ſaw any ſuch ſtagnation of chyle, as theſe are ſuppoſed to cauſe, on any occaſion whatever (h).

(h) P. 107, Cruikſhank.

The lymph, and chyle, enters the blood but in a corrupted, crude, unanimalized ſtate.

I am confirmed in this opinion, by the experiments of another excellent Anatomiſt, Mr. Sheldon, which I ſhall quote from his ſplendid Hiſtory of the Human Lacteal Veſſels.

In ſubjects, in which the lymphatic glands of the meſentery, were found entirely obſtructed, ſometimes by a curd-like ſubſtance, ſometimes by calcareous earth, Mr. Sheldon, could puſh injections of quickſilver from the veſſels, below the obſtructed glands, to thoſe above them, though not a ſingle particle of quickſilver, could be made to enter the glands in this obſtructed ſtate. In this caſe, the collateral branches of the lacteal veſſels, which communicated with thoſe above, were enlarged, and, had conveyed the chyle into the lacteal duct.

The ingenious Dr. Cheſton, found the cavity of the lacteal duct totally obſtructed for a conſiderable length, by an earthy matter, in a man who had a Spina Ventoſa of the os ilium.

It is probable, the chyle, in this caſe, was conveyed from below, into the lacteal duct, above

above the obſtruction, by one or more collateral anaſtomoſing branches, which are every where numerous in the lymphatic veſſels, and, frequent in the lacteal duct itſelf. This being a proviſion of nature, for ſecuring more certainly, a regular conveyance of the chyle into the blood veſſels.

But, I remember a melancholy caſe, which ſhews the thoracic duct, ſometimes is obſtructed in a fatal degree; a young lady, high in rank, beautiful in perſon, and amiable in diſpoſition; had a ſwelling in the neck, which extended itſelf under the left clavicle, and, there obſtructed the entrance of the thoracic duct into the ſubelavian vein ſo completely, as to render her incurably dropſical in every part of her body.

What I have now offered, concerning the uſe of the glands, belonging to the lymphatic ſyſtem, will, I apprehend, derive ſupport from the late diſcoveries, and, will be found uſeful in the treatment of diſeaſes of the glands.

Medicines taken into the ſtomach, and, mixed with the chyle, are, indeed, in the direct channel, to reach the diſeaſed glands of the meſentery.

But this is not the caſe, reſpecting the conglobate glands in other parts. Medicines mixing with the blood, never directly reach theſe glands, and, but very remotely, and indirectly affect them; and, this is one of the reaſons why, diſeaſes, in theſe glands, have always appeared ſo ſtubborn, and, have ſo rarely yielded to the common treatment, and internal uſe of Medicine.

The confiding alone to Medicines, conveyed by the lacteals into the channel of circulation; the inattention to the only entrance into external diſeaſed glands, that by abſorption, are, I am perſuaded, cauſes why thoſe diſeaſes have proved ſo obſtinate, and rebellious to Medical treatment.

It is the cauſe why the ſcrophula, and ſcirrhous glands, have become cancerous, and finally incurable and fatal.

It is evident then, that the remedies proper for removing obſtructions ſhould be applied to ſuch parts, from whence the lymphatic's ariſe, which may abſorb, and conduct them to the glands, the obſtructions of which are to be removed.

Applications intended to remove glandular ſwellings in the neck, the thyroid gland, the bron-

bronchocele, &c. muſt be made to the head, neck, cheeks, and mouth internally, as well as externally.

Vapours inhaled by inſpiration, are proper in the diſeaſed glands of the lungs.

Remedies intended to paſs into the axillary glands, muſt be applied to the arms and breaſt.

In diſeaſes of the inguinal glands, the remedies intended to paſs into them, and through them, muſt be applied to the genitals, and to the legs and thighs.

The advantages found from the local application of Mercury in Venereal ſwellings of the inguinal, and axillary glands, and in ulcers of the throat, exemplify this doctrine in that diſeaſe.

The holding Medicines intended to remove the bronchocele, and ſwelled neck, in the mouth, and under the tongue, is eſſential to give efficacy to thoſe Medicines, as has been long experienced, in the Coventry Medicine. The ſaline ingredients, whether alcaline, or neutral, of which ſuch Medicines uſually conſiſt, are abſorbed by the lymphatic veſſels ariſing in the inſide of the mouth, and,

are conveyed directly to the diſeaſed glands, with conſtant good effect.

Internal obſtructions in the meſentery in particular are to be relieved by internal Medicines; and, in every kind of glandular obſtruction Mineral Waters have been found highly neceſſary and uſeful.

The Chalybeate, the ſulphureous, the ſaline, the hot, and the cold Waters, have all been tried with advantage.

Of laxative medicines, the purgative Mineral Waters, always operate with the leaſt diminution of ſtrength, and, with the leaſt diſturbance; the appetite is for the moſt part mended under their uſe, and, important alterations in the whole ſyſtem, ariſe from continuing to apply to them. Their operation principally affects the firſt paſſages in clearing away what is recrementitious, and hurtful in that ſeat and ſource of corruption.

They next directly operate on the lacteal veſſels and glands; they dilute the chyle, and ſtimulate the lacteals themſelves, which are ſufficiently irritable, and remove thereby, both the ſource of obſtruction, and the obſtructions, which may have taken place in the conglobate glands of the meſentery.

In

In this manner, they contribute to the purity, and perfection of the chyle and lymph, and, remove all obſtacles, to its perfect digeſtion in the inteſtinal canal, and in the lacteal veſſels and glands.

Hence, this ſource of tainted fluids being taken away from the chyle and blood, and, no new acrimonious depoſition falling on the remoter parts of the body, the lymphatic veſſels and glands, there, reaſſume their functions, and abſorb, and digeſt what was before lodged on the ſkin, and on the adjacent parts of the ſurface of the body.

Thus, under the uſe of ſuch Waters, continued for a ſufficient length of time, depoſitions, eruptions, and defedations of the ſkin, with ulcers, and glandular ſwellings diſappear. It is thus the Harrowgate, Cheltenham and Walton Waters prove beneficial.

The Sea Water, acts not only as a powerful internal remedy in the ſame diſeaſes; but has its efficacy greatly promoted by bathing; waſhing thereby away much cutaneous foulneſs, and, removing more by being directly abſorbed into the lymphatic's, and conveyed to the diſeaſed glands; at the ſame time, that a uſeful ſpring and vigour is given to the whole conſtitution,

I might

I might illuſtrate the practical importance of theſe principles by caſes, but this letter, being already too long, I now commit it to your conſideration. To you! who, joining reading to experience, and talents, make the healing art your ſtudy and delight.

From you, my humble, but zealous endeavours to excite the attention of the younger, and, liberal Gentlemen of the profeſſion, to improved methods of curing diſeaſes, are ſure of a candid reception.

As to others, whoſe ſole purſuit and ſtudy is gain;

Quærenda pecunia primum eſt,
Virtus poſt nummos.

I have not wrote for them, and, have certainly no attention to expect from them.

I am, &c.

JAMES JOHNSTONE.

WORCESTER,
Auguſt 20, 1787.

FINIS.