

**Remarks on the Pitcaithly and Dunbarney mineral waters, in Perthshire : illustrative of their composition, and medicinal properties.**

**Contributors**

Horsley, William, M.D.  
University of Glasgow. Library

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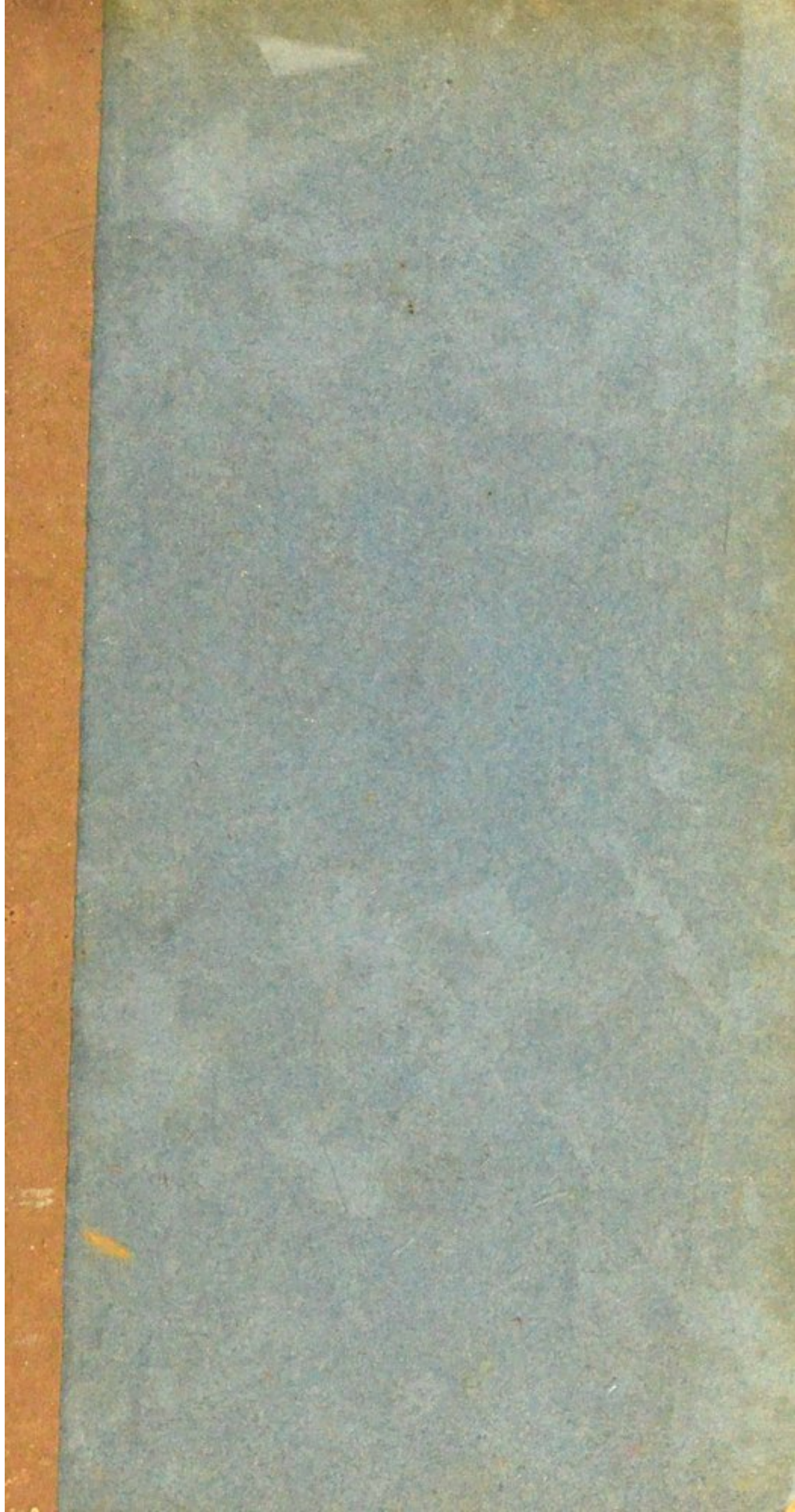
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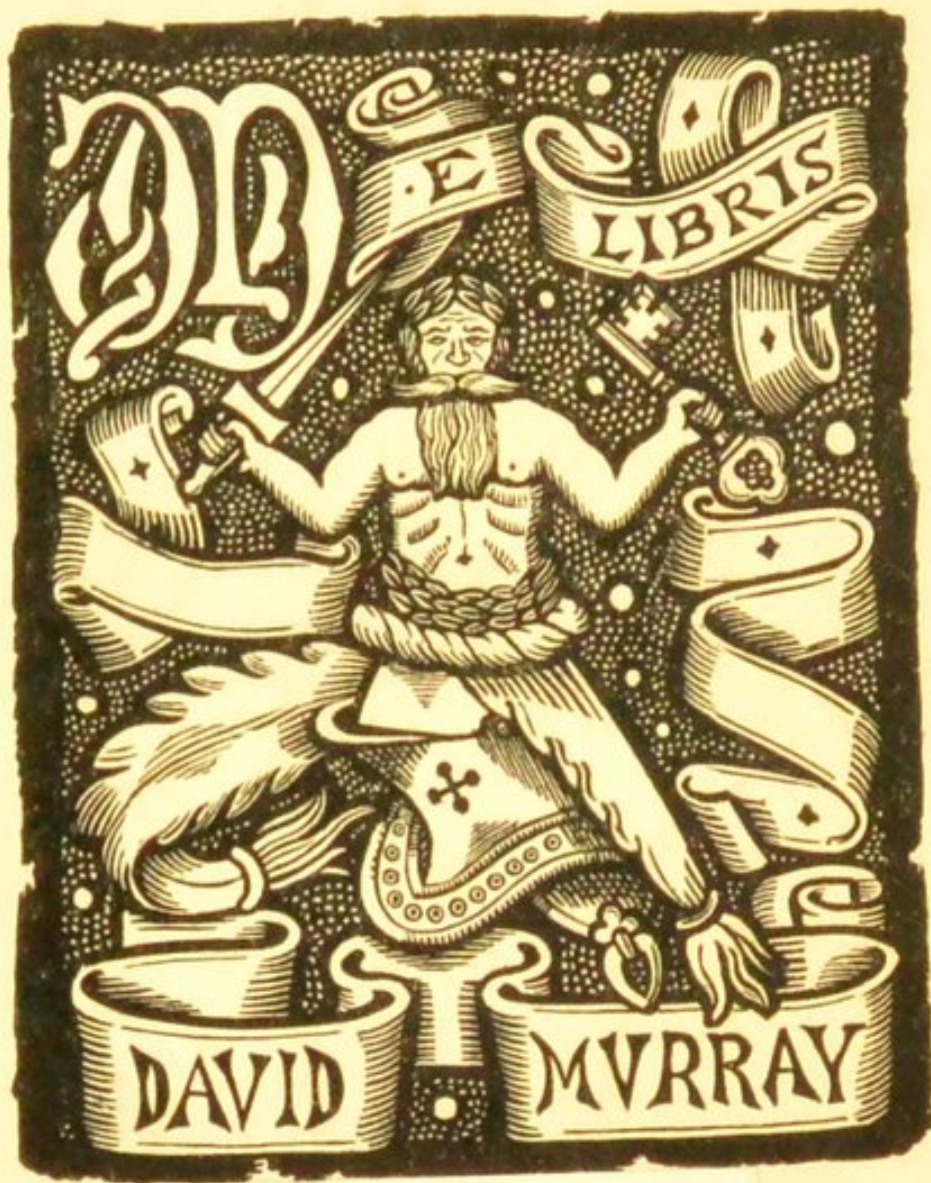
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REMARKS  
ON  
THE PITCAITHLY AND DUNBARNEY  
MINERAL WATERS,  
IN PERTHSHIRE:

ILLUSTRATIVE OF THEIR COMPOSITION, AND  
MEDICINAL PROPERTIES;

FOUNDED ON ACCURATE ANALYSIS:

INTERSPERSED WITH MANY INTERESTING FACTS ON  
MINERAL WATERS GENERALLY, TOGETHER WITH  
THEIR AUXILIARIES; AND THE CONDUCT  
OF INVALIDS IN GENERAL.

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BY  
WILLIAM HORSLEY, M.D. &c. &c.  
DURHAM REGIMENT.

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*"For want of timely care, millions have died of medicable wounds."*

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EDINBURGH:

*Printed by Michael Anderson,*

FOR JOHN ANDERSON AND CO. PARLIAMENT SQUARE;  
AND LONGMAN, HURST, REES, ORME AND BROWN,  
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OF THE ROYAL COLLEGE OF PHYSICIANS  
IN LONDON;  
PROFESSOR OF THE PRACTICE OF PHYSIC,  
MATERIA MEDICA, AND CHEMISTRY,  
AND  
SENIOR PHYSICIAN TO THE GENERAL DISPENSARY,

AS A TESTIMONY  
DUE TO HIS DISTINGUISHED PROFESSIONAL  
TALENTS,

AND  
A MARK OF GRATITUDE AND ESTEEM;

THIS WORK  
IS MOST RESPECTFULLY INSCRIBED,

BY  
HIS TRULY DEVOTED,

AND  
OBEDIENT HUMBLE SERVANT,

THE AUTHOR.

PERTH, }  
Nov. 1813. }

# THE HISTORY OF THE

ROYAL SOCIETY OF LONDON  
IN 1660  
BY THE REV. JOHN WALLIS  
OF THE SOCIETY OF LONDON

AND OF THE UNIVERSITY OF OXFORD

IN TWO VOLUMES

THE FIRST VOLUME

CONTAINS

THE

ORIGINAL CHARTER OF THE SOCIETY

AND

A HISTORY OF THE SOCIETY

BY

JOHN WALLIS

AND

JOHN WALLIS

THE SECOND VOLUME

## PREFACE.

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THE importance of a Guide to the Invalid, at all Watering Places ; more especially, where no professional man is on the spot, thoroughly acquainted with their virtues, or the patient's constitution, is at once an apology for the Author sending this small, though, he trusts, not unimportant, Tract, into the world. The remarks it will be found to contain are of the most vital importance to all ranks, aided not a little by practical observations and experience ; and, at the same time, founded on the basis of the animal economy. The detail given of the diseases, in which the efficacy, internally or externally, heated or cold, of the several waters, will be demonstrated (from a reference to the chemical analysis and studied nature of each disease), claims the particular attention of the reader ; alike,

it is presumed, for its perspicuity and interest. It should be observed, that these experiments were made during a dry season, and the water carefully procured at the fountain head. The specific gravity was also ascertained with similar caution, and in the usual manner.

The contra-indications of these waters the Author has not failed to point out, nor the importance of a due and well regulated mode of living to impress upon the mind. The conclusion, or chapter on the relative digestibility of both animal and vegetable productions, dietetics, as applicable to practice, will be found to possess much novelty, as well as to be truly interesting and important to the public.

Such are the outlines of a Work, calculated, the reader may be assured, to promote and secure the first blessing of life, Health ; a treasure, notwithstanding, of all others the least valued by the possessor, and scarcely to be truly rated, until lost.

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# REMARKS, &c.

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## CHAP. I.

### ON THE COMPOSITION, RELATIVE STRENGTH, AND MEDICINAL PROPERTIES OF THE MINERAL WATERS.

THE author, in the small tract he has now the honour to introduce to the public, professes not to treat of situation, scenery, climate, or origin of the Pitcathly and Dumbarny mineral waters. To the valetudinarian at a distance, or even upon the spot, such information would prove of comparatively small utility, or importance, however calculated to interest and amuse the curious reader. It was originally the author's intention to have taken the analytical report, (found to be pretty correct), of Messrs Stoddart and Mitchell, late druggists in Perth, on the composition of these waters; but having since found it convenient

to undertake the process himself, a thing seldom practicable, or even eligible in a medico-military life: it may not be amiss primarily to present the reader with a scale of the result of each, preparatory to a review of the relative strength, and medicinal properties of the whole.

*Messrs STODDART and MITCHELL's scale of the component parts of a wine gallon of the Pitcathly and Dumbarny Mineral Waters.*

	East Well.	West Well.	Spout Well.	Dumbarny Well.	South Park Well.	
Atmospheric air,	4	4	4	4	4	} Cubicinch.
Carbonic acid gas,	8	8	6	5	5	
Carbonate of lime,	5	$5\frac{1}{2}$	5	$5\frac{1}{2}$	3	
Sulphate of lime,	$5\frac{1}{2}$	5	$3\frac{1}{2}$	3	5	} Grains.
Muriate of soda,	100	92	82	57	44	
— — lime,	180	168	146	102	84	
Specific gravity of a gallon of each more than di- stilled water,	216	198	272	124	98	

*Dr WILLIAM HORSLEY's scale of the component parts of a wine gallon of the Pitcathly and Dumbarny Mineral Waters.*

	East Well.	West Well.	Spout Well.	Dumbarny Well.	South Park Well.	
Specific gravity,	226	200	180	140	96	
Azotic gas,		Un-	cer-	tain.		} Cubic inch.
Carbonic acid gas,	9	8	7	6	7	
Carbonate of lime,	7	7	5	6	5	
— of magnesia,	61	44	51	50	32	} Grains.
Sulphate of lime,	5	5	4	4	5	
— of magnesia,	71	56	61	31	29	
Muriate of soda,	160	118	120	90	85	
— of lime,	196	185	170	136	90	

In the history of Perth, I find, Dr Donald Monro of London, an indefatigable physician, published many years ago, through the late celebrated Dr Wood of the former place, in the philosophical transactions, a treatise on the composition of these waters; and the death of the latter gentleman is the more to be regretted, as he was so well able to have written on the subject, I now, therefore, presume to address the public. It is with much deference that I submit the analization of the Pitcathly and Dumbarny mineral waters, in contradistinction to that under-

taken some years ago, by two distinguished chemists, the Messrs Stoddart and Mitchell of Perth.

I am not, however, vain enough to suppose it free from error ; as it must be recollected, that a complete analysis either of mineral waters, or mineral substances in general, requires long and extensive application, a thorough knowledge of chemical science, and forms one of the most complicated and difficult processes of chemistry. Under these considerations, I must hope for the reader's indulgence, who cannot but be aware of my situation, for the performance of such experiments. With the exception of quantity, the difference between the two scales, consists in the detection of small quantities of the carbonate, and sulphate of magnesia ; the latter, experimentally, found to be one of the most invaluable purgatives of the whole materia medica.

Magnesia is not found in a pure state, but in combination with acids ; it is nearly insoluble in water, requiring 8000 times its weight to hold it in solution. It, also, enters the composition of several minerals, and in its pure state becomes useful in medicine.

The carbonate of magnesia, differs little from the calcined, either in its composition, or medi-

cinal properties; and proves, in sufficient doses, especially in combination with rhubarb, an useful, mild, and efficacious purgative.

The sulphate, commonly called Epsom salt, though nauseous, is a no less valuable laxative, and more certain in its operation.

The theory of airs, generally speaking, whether by inspiration, or exhibition in a fluid form, is now nearly exploded; notwithstanding the labours of Dr Beddoes and others to establish their utility in practice.

The aerated waters, containing much of the carbonic acid gas, or fixed air, and once considerably in vogue (though now on the decline) it must be confessed, however, have proved occasionally beneficial in stomach and gravelish complaints; where, in the former cases, no predisposition to acidity existed at the seat of the disease. I shall next consider the article lime, which the waters contain, in its several states, viz. carbonate, sulphate, and muriate. Lime of itself is a substance not found in its pure state, but mostly combined with an acid, especially the carbonic. Its utility in agriculture and manufacture, or even its various other states of native combination, I pass over, as foreign to my subject. The quan-

tity of this carbonate which these waters contain is small, and therefore cannot be expected to prove of much efficacy.

The same may be said of the sulphate, a less active production of this mineral. The muriate, found to exist considerably in the East, West, and Spout Well waters, and in no trifling degree amongst the Dumbarny and South Park Wells, adds not a little to their virtues.

Its efficacy in scrofulous cases, has been contended for by Drs Pearson, Beddoes, &c. and its diuretic and laxative properties acknowledged by all. It is, then, but reasonable to conclude, that in affections of the organs of digestion, of the urinary organs from calculi, and most ulcers not dependent upon a specific action, as venereal, &c. it will be found most eminently efficacious.

I have said thus much on the subject of lime, without further contending for its native impurity; and shall now observe, that neither is soda, nor natron, ever found in a state of purity. Its muriate, commonly termed sea salt, another of the compositions of these waters, next claims our attention.

I shall speak generally of the medicinal properties of that salt, forming so extensive a share in the composition of the mineral waters;

and for brevity's sake under three heads, viz. digestive, diuretic, and laxative. With respect to the first, as promoting the solution of the food in the stomach, salt, I am aware, taken in moderation, and in its first state, proves eminently useful, especially with the more crude vegetables, viscid, and farinaceous grains. In combination, however, with the dried, or potted meats, it becomes, though palatable, manifestly injurious. With respect to its diuretic powers, we must look to its state of solution, as in the mineral waters; and here, when duly proportioned, as is the case in the Pitcathly and Dumbarny mineral waters, it often proves extremely efficacious in some of the more obstinate affections of the biliary, the urinary passages, and of the skin. As to its laxative properties, it falls not short of the common, and most approved remedies of that class,—administered, especially, in combination with other powers, for instance, the muriate of lime, long famed not only for its laxative, but also diuretic qualities.

Most probably the intestines and kidneys are the only canals which evacuate copiously, and hence is it, by such outlets that we promote a consequent absorption of fluids in dropsy.

The value of aperients to invalids in general,

to the sedentary, the studious, the middle-aged, and the free-liver, is very considerable indeed, under a judicious selection, a sufficient and well-timed exhibition, and cool state of the surface of the body: the latter, without doubt, highly essential to secure the operation of all aperients, and especially of these waters, from the circumstance of their not containing a very large proportion of salt (a want I am by no means disposed to complain of); the operation of the neutral salts whether acting specifically, as it were, on the kidneys, or the bowels, being ever milder when largely held in solution, or, in other words, dissolved in a quantity of water.

I must, here, call the reader's attention to the practice prevalent (I presume) at most watering places, of drinking the waters without having proper regard either to circumstance, period, or quantity. Some, might not I add, many, imagine the efficacy of the water to consist in the quantity consumed, disregarding, for the most part, the effects produced; and others proceed from day to day, disregarding every admonition, so long as the stomach continues capable of retaining it: but when the tone becomes impaired, or destroyed, so as no longer to submit patiently to such severe

discipline, and their bodily diseases have acquired, in addition, a morbid mental sympathy, they unjustly exclaim against it as being destructive to the health, instead of conducive to its re-establishment.

This is an evil of considerable magnitude, and one likely to exist under a course of the Pitcathly waters; their mildness being such as might lead many to suppose that they would not prove hurtful, even when taken to excess.

But, notwithstanding the salutary properties of these waters, the moderate quantity of salts which they contain, and above all, their freedom from iron or sulphur—they are, without doubt, injurious under certain indispositions; and at all times, if taken in excess.

We cannot limit, it is true, the quantity of the saline mineral waters, different constitutions, and maladies, requiring diminished or increased proportions of them. We may, however, lay it down as a general rule, that the largest quantity of any of these waters to be taken daily, especially of the East, West, or Spout Well, ought not to exceed two English pints; and should it fail to produce a couple of easy motions, where the appetite is good, rather than increase the dose, it would be

more prudent, under such a confirmed constipation of the bowels, arising, probably, from the nature of the disease, or the patient's injudicious mode of living, to have recourse to a little of the sulphate of magnesia, or Epsom salt, a convenient solution of which might be kept by the patient, and added thereto, as occasion required, agreeably to the subsequent recipe.

Put half a pound of the above salt into an English wine pint measure—fill the same afterwards with boiling water, suffering it to stand until cold—then strain it off, keeping the liquor in a cool place, with the bottle well corked.

By this simple process we have a convenient, and by no means inelegant solution, wherein the salt is not liable to run into a state of crystallization; and about two drams of which is contained in one large table-spoonful of the fluid; consequently, a desert-spoonful added to a pint of the waters, taken cold or milk-warm, night and morning, will rarely fail to remove the most obstinate constipations of the bowels, even under the very worst of chronic diseases. The stomach being endowed with the most wonderful sympathy, and connected with the more distant parts of the fabric, principally through the medium of the

par vagum or great sympathetic nerve, it requires us, during a course of these waters, to endeavour, by all possible means, to provide against its liability to derangement. Should, notwithstanding, our best efforts fail, I would recommend at such times (but be it remembered without establishing it as an habit,) that the patient should add to each dose a little good whisky, brandy, or essence of Jamaica ginger, in order to prevent that tendency to generate acidity, from the most trifling causes, both in the stomach and bowels, which would necessarily add to the complaint; the former, at the same time, being productive of cramp, and the most severe pain in the stomach; and, the latter of irregularity, if not confirmed constipation of the bowels, and colics, or obstinate looseness, gripes, &c.

Such, however, as prefer it, may take any of the above immediately after the water, in a sufficiency of simple fluid, with or without sugar.

The best time for taking these waters is, a little before rising in the morning; at all times some hours before breakfast; and on going to bed: the object being to secure the operation of the morning's dose of the water, before a hearty breakfast be taken.

Others, when strength of constitution admits, might drink them at the well; and those again who cannot bear them so early in the morning, may wait for a couple of hours after breakfast, taking care that the same has not been of milk, eggs, or new baked bread.

With this latter description of people especially, suppers should never be eaten, and they ought to breakfast and dine early, go betimes to bed, sleep on a mattrass with little bed-covering, in a cool spacious apartment, exercise sufficiently, and above all live quietly and temperately. When I spoke of the patient's judgment in selection, my object was to exclude such medicines, as during their operation had a disposition to excite a feverish heat, and griping in the bowels, as is the case with some nostrums of the present age, viz. Anderson's, Dixon's, Barclay's, and other patent antibilious pills, at least so designated—compositions chiefly of aloes, calomel, colocynth, &c. all or most of which have a decided tendency to weaken, if not, irrecoverably, to destroy the tone of the bowels, producing tenesmus, ruptures, piles, &c.

The practice of administering drastic purgatives, on every imaginary occasion, is highly to be condemned, notwithstanding the arguments

and evidences of one whose age and experience I am bound to respect, and who is evidently not a little prejudiced in their favour.

I cannot here refrain from making a short remark on the compositions of some few quack medicines of this description, purchased, might not I add, with avidity, by all ranks, regardless of price, or consequences from the use of them\*.

The erroneous idea of worms being common to the intestines, first gave rise to the employment of worm quack medicines, calculated no doubt for their destruction, composed chiefly of aloes, scammony, gamboge, colocynth, calomel, &c. one and all adapted, it is true, to expel them if present, but often administered, I must confess, when worms never exist. Ching's famous worm lozenges are of two sorts—the yellow and brown; the former composed of calomel, sugar, and saf-

\* “We see,” says Lord Bacon, “the weakness and credulity of men is such, as they will often prefer a mountebank or witch, before an experienced physician; for, in all times, in the opinion of the multitude, witches, and old women and impostors have had a competition with physicians:”—and with Solomon it may be well said—“if it befall me as it befallerh to the fools, why indeed should I labour to be wise.”

fron ; the latter of calomel and sugar, with extract of jalap. Respecting their virtues, or rather dangerous tendency, especially when given in early life, I shall say nothing, the composition, not to say form, in which it is exhibited, speaking for itself.

When bilious affections were said to have become prevalent, or more properly speaking, plethora and indigestion to prevail, in consequence of sedentary pursuits, intoxication, and intemperance, the celebrated Barclay's patent antibilious pills (price only 5s. 6d.) composed most unchemically of tartarized antimony, extract of colocynth, soap, resin of jalap, guaiacum, &c. became the order of the day, and the epicure and glutton could not possibly exist without them. Others, also, have had their day, such as Dixon's antibilious pills, a similar composition to the above ; Anderson's pills, long famed, composed of aloes and oil of aniseed ; Daffy's elixir, the compound tincture of senna of the shops ; and, for the ladies, who at no period ought to be forgotten, Hooper's pills, a composition of aloes, myrrh, sulphate of iron, and that comforter of the nerves ! saffron.

Thus have the lives and purses of the human

race been sported with, in the most unwarrantable manner, and the health, not to say life, of thousands irrecoverably destroyed, by the injudicious application of the most unchemical, drastic, and dangerous remedies of the purgative class.

I shall hereafter have occasion to remark on others, which come under a very different denomination, and are, I candidly confess, probably somewhat less injurious.

But, to return to the mineral waters, the value of which, from the salts they are found to contain, uncombined especially with iron, or sulphur, as these are, is very considerable indeed.

One most important advantage attending mineral waters, different from aperients or purgatives in general, viz. Bristol, Cheltenham, Sedlitz, Spa, Pyrmont, Harrowgate, and a few others— notwithstanding some of them, the Spa, Pyrmont and Cheltenham, contain an oxyd of iron, the latter in no small quantity—and by no means an unimportant one, is, that the protracted use of them, including the mineral waters (the subject of these pages), or at the least of such as contain a far proportion of neutral salt, combined as little as possible with iron or sulphur, contrary to the common law of evacuants, increases their activity

rather than diminishes it ; consequently the quantity requisite for a dose, for the most part, after a continuance for any length of time, requires a diminution.

To this the invalid must pay most particular attention, and be assured when it proves otherwise, that the cause originates from some fault in the regimen, neglect of exercise—so essential with mineral waters—of exposure to a cool air, or what is still the more to be regretted, an increase of the patient's malady.

Upon a chemico-physical review of the whole, it must appear, I presume, evident, that, under a judicious management of these waters, especially (as heretofore observed) the East, West, Spout, and Dumbarny Wells, they cannot fail of being highly serviceable to the valetudinarian, and more particularly such as are afflicted with cutaneous affections, or ulcers, whether of a scrofulous or scorbutic origin : and further, I am led to conclude, that the efficacy of such waters depends much on the muriates of soda and lime, together with magnesia, demonstrated, in an especial manner, by their uniform action on the urinary organs and bowels, seldom failing to keep the latter in a perfectly soluble state.

I shall proceed next to consider mineral waters generally, and the internal and external use of them.

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## CHAP. II.

### ON MINERAL WATERS IN GENERAL, AND THE INTERNAL AND EXTERNAL APPLICATION OF THEM.

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IN our observations on the various productions of nature, in respect to mineral waters, we are naturally led to conclude, that the whole of them possess certain properties, as a common and cooling diluent, proportionably diminished or increased, as they are found to contain more or less of the carbonate or muriate of soda, or of lime; the neutral salts; of iron, and of sulphur.

The effects of such as contain a quantity of sulphur—for example, the Harrowgate, Moffat, and above all, the Spa at Middleton, in the county of Durham—are, in general ambiguous, and when they fail to act upon the bowels (as is frequently the case) being rarely, if ever, combined with soda, they excite that determination to the surface

of the body, which is symptomatic of general constitutional derangement: The same may be said of such as contain iron, with little or none of the above salt: The abuse of iron or sulphur, therefore, is the less to be regretted, whether the constitution or the palate be concerned.

Sulphur, it is true, is a production somewhat disposed to act upon the bowels, though rarely indeed to produce a sufficient effect, except in combination with a purgative. Its efficacy, in some of the more obstinate chronic diseases, through the medium of perspiration, is much to be disputed; now that the humoral pathology has become nearly exploded (and justly) from practice.

The once celebrated Dr Cheyne contended for its virtues as preventive of gout; nay, even went farther, and believed it almost specific in several other chronic affections: but, I am confidently of opinion, its operative powers through the medium of the circulation, or surface of the body, has been mistaken; and, that we ought rather to attribute its efficacy to having acted upon the bowels, or destroyed the appetite, at least for a time, so as to enable the stomach, a function of the utmost importance to the animal economy, to recover itself. It is

truly absurd to suppose that the internal use of the sulphurous waters\*, except such as are combined largely with neutral salts, can benefit in the smallest degree the valetudinarian, whose complaints are chiefly dependent upon the digestive powers; who is sensibly affected by whatever is productive of their derangement; and whose bowels for the most part are not to be acted upon by so inactive, and at the same time heating a mineral as sulphur, even if taken in substance, much less when largely diffused, and in an impure state, through the medium of water. The external application of sulphur, especially in the form of an ointment, without doubt is specific in itch; and, thus probably has it gained its reputation in other eruptive complaints, somewhat dependent, it might be presumed, on that contagious malady.

The Harrowgate water, as before said, is an exception to the purely sulphurous; and the Cheltenham to the chiefly chalybeate; both of them containing a very great proportion of neutral

\* I mean no disparagement towards the author of a small tract on the Dinsdale Water, in the county of Durham, however much I might feel disposed to differ in opinion from him regarding its medicinal properties.

salt; whereby the heating tendency of the one, and astringency of the other, is somewhat corrected. The analization of the latter, undertaken many years ago by that great and no less amiable physician, the late Dr Fothergill, appears to have been confessedly imperfect, as demonstrated with no small degree of accuracy, by that indefatigable chemist Mr Accum, of London, who discovered it to contain, in addition, the muriate and sulphate of lime. It, therefore, differs from the Pitcathly and Dumbarny mineral waters, probably the least of any, in having the carbonate of iron, which they have not.

These waters, (I mean the Pitcathly and Dumbarny) it must be admitted are the least active, though, I humbly presume, not the less efficacious. It has been, I believe, asserted, that in many instances they have failed to act at all, except on the urinary organs, when some had taken them even to the extent of a full gallon in the day: This, however, strikes me as void of foundation, unless the patient had taken the utmost possible pains to counteract the purgative operation. Experience warrants me in saying, that, if taken on an empty stomach, with sufficient exercise, and abstinence from food or drinks for a few hours,

unless under the most confirmed constipation of the bowels, the patient may be assured that a wine bottle, or two English pints of them, particularly the East, West, and Spout Wells, will rarely (if ever) fail to procure a couple of easy motions. At all watering places we shall ever find some occasionally disposed to become prejudiced against the waters: They visit such retreats, those more fashionably than medicinally inclined, wholly ignorant of their properties or effects, and astonishing to relate! under the sanguine hopes of deriving much benefit from them: the quantity is therefore disregarded; the dose being regulated neither by circumstances nor case, but taken as proves the most agreeable, so long as they are found to produce no absolute bad effect: the habits of the patient at the same time by no means correspond with a course of mineral waters; he becomes disgusted with their taste, and with the spot which gave birth to them; society no longer affords him a gratification to compensate for his increased expenditure of money, added to the loss of health! and he returns home highly disappointed from the expectations he had formed, and the not unfrequently fanciful increase of his malady. Thus is it that the waters suffer in their

reputation ; are either condemned as inert, and possessing no medicinal properties whatever, or malevolently said to act with such severity as to injure materially the health, if not to endanger life itself. It is truly absurd to suppose, that the operation of mineral waters is assisted by copious dilution with simple, or other fluids ; an error prevalent amongst all ranks ; the case being directly the reverse, unless by the kidneys, an outlet, with the exception of dropsical affections, for the most part sufficient in its natural state. Suffice it, then, to say, that great eaters, or drinkers of wine or spirits ; the indolent, and such as are prone to constipated bowels, must abstain rigidly both from liquids and solids, during the time of taking the Piteathly and Dumbarny mineral waters ; that is to say, until they have sufficiently operated—a precaution of the utmost importance to valetudinarians of the above description. The requisite peristaltic motion of the intestines is not to be effected by the gorging of fluids, so contrary to the common law of nature ; their fibrous contractions depending greatly on the secondary operations of the bile, the stimulus of which proves adequate, in a healthy state of the abdominal viscera, to the due performance of that truly

important function to the animal economy, nutrition; the irregularity of which becomes the source of the most obstinate and complicated maladies.

I might observe, in explanation of this doctrine, that by the excess of fluids, a sympathetic excitement is produced between the stomach and kidneys, whereby the urinary organs (occasionally the surface of the body), are stimulated for a time into an increased and more vigorous action. In the external application of water, generally or partially, heated or cold, it might be observed, that such as contain the muriate of soda, or sea salt, are confessedly preferable to that which proves so truly valuable for domestic purposes, the elementary fluid: I know not that the purely sulphurous, or chalybeate waters, when applied in the form of a bath, fomentation, or pediluvium, possess any superior efficacy over the saline ones; on the contrary, I am induced to believe, from practical observations and experience, that the former, especially in a tepid state, have a tendency to irritate the surface of the body, and occasionally to produce hæmorrhages from the nose or lungs; together with troublesome eruptive affections, for the cure of which, strange as it may

appear, the sulphurous waters had been long celebrated. But, I have before remarked, that sulphur, as an external application, is only specific in itch, or its species; and with respect to iron, it must be confessed, I am not prepared to speak of its efficacy under this form. For the sake of brevity, I shall here introduce a classification, relating chiefly to the external application of the Pitcathly and Dumbarny mineral waters; it should be observed, first of all, in a tepid or hot state; and which may be applied to mineral or elementary waters generally: The arrangement is less complete than I could have wished it; but I hope to be able, at some future opportunity, to investigate the subject more fully, and to illustrate such points as appear doubtful, as not having been sufficiently sanctioned by experience.

CL. I. Diseases in which warm bathing proves efficacious.

In most Fevers, during diminished, rather than increased vascular action:

Inflammation of the Stomach

Bowels

Inflammation of the Liver  
 Kidneys  
 Bladder.

In Measles, during the sudden translation of  
 eruption internally :

Chronic Rheumatism  
 Palsy  
 Asthma  
 Colic  
 Jaundice  
 Gravel  
 Stone.

Suspended animation, from  
 Drowning  
 Suffocation  
 Strangulation.

CL. II. Diseases under which the partial appli-  
 cation of tepid, or hot water, becomes an useful  
 auxiliary :

Fevers, with local inflammation,  
 Inflammation of the Brain  
 Throat  
 Stomach

## Inflammation of the Bowels

Liver

Kidneys

Bladder.

Acute Rheumatism

Mumps

Gout

Palsy

Chlorosis

Cramp of the Stomach

Colic

Jaundice

Phlegmon

Whitlow

Boil.

CL. III. Diseases, in which the application of  
tepid, or hot water, proves of ambiguous effect :

Croup

Inflammation of the Lungs

Small-pox

Measles

Scarlet Fever

Erysipelas

Gastrodynia

Tetanus  
 Epilepsy  
 Hooping-cough  
 Diabetes  
 Consumption  
 Dropsy  
 Piles  
 Ophthalmia  
 Chilblains  
 Carbuncle  
 White-swelling

The reader will perceive, that the above classification is not divested of repetition ; an evil the author has endeavoured, as far as prudence would admit, to guard against, however unsuccessful he may have proved in the attempt.

Heat, at times, proves stimulant, independent of sensation ; it being no absolute measure of heat, our feelings being by no means good thermometers.

Upon the temperature of the bath, it is important to observe, depends the body's emitting out its heat, or receiving of it : thus they stand as follows—temperate 80 to 90—tepid 90 to 98—hot 98 to 112—the whole of Fahrenheit's scale.

The hot bath is a forced state, not to be supported for any length of time, and only calculated to relieve any considerable internal inflammation; and ought but to be employed in the most doubtful and apparently fatal cases.

The others afford rather an abstraction of heat; hence they prove more restorative than debilitative, provided the patient exposes himself to a cool temperature afterwards. The practice of going to bed, except after the hot bath, is much to be deprecated. We find the temperate bath most beneficial in palsy of long standing, and in aged habits; also rheumatisms, eruptive affections, calculous complaints, colics, cramp in the stomach, &c. The vapour bath is but a modification of the hot, and partial in its effects. The same may be said of fomentations, the pediluvium, and semicupium:—The patient ought never to go into the bath with a full stomach; nor remain at rest afterwards, especially in the open air: It is recommended that he should bathe between breakfast and dinner, or a couple of hours before bedtime, and rub himself perfectly dry afterwards.

Regarding the application of cold water, of which I am now to treat, permit me, prima-

rily, to subjoin also a classification, imperfect, as it must be acknowledged, which has brevity for its aim, and may serve at least to give the reader some scattered idea of the plan.

CL. I. General cold bathing found to be beneficial,

During infancy and early youth, especially in scrofulous habits, and in rickets.

CL. II. General cold bathing manifestly injurious,

In manhood and old age.

CL. III. The partial application of cold water extremely efficacious :

Faintings

Hysterics

Headachs

Ophthalmia

CL. IV. The partial application of cold water of ambiguous effect :

Fevers  
 Gout  
 Tetanus  
 Colic  
 Dropsy  
 Superficial Inflammations.

The direct tonic powers of cold, internally or externally applied, I regret to say, must be disputed: The application of cold, is but the abstraction of heat, not measureable by the thermometer. By the power of suspension, it may be said, perhaps, to prove a sedative; yet its effects, in temperate climes, are, under certain modifications, to give vital energy: In cold climates, it acts directly opposite, and has frequently been known to destroy life, under even the most alluring secondary operations—of a nature almost irresistible, and such as we should feel but little disposed to credit, if not sanctioned by the best authorities.

The abuse of cold bathing has long been a subject worthy of public attention; yet, notwithstanding, its importance hitherto disregarded: In this country, I perceive, its practice is carried to an excess; and, as the general cold bath proves rare-

ly of much, if any, efficacy in the northern, or even other climes, it would be well to abandon a remedy of such ambiguous effect, except in the few cases practically recommended by the physician. From the review I have promised myself to take of the animal economy, it must appear evident, that the general cold bath is inadmissible in manhood and old age, from obvious and important reasons.

During infancy, when excess of fluidity, and especially a scrofulous predisposition prevails, characterized by rickets, sores, indurations and enlargements of the joints, I mean not to contend for its inefficacy, on the contrary I feel disposed for the most part, to recommend it. Its use, however, in such cases, should be directed by judgment, and the patient's strength supported so that he may be able to bear the shock, by medicines calculated to excite permanent vigour and strength, aided with a somewhat cordial and strengthening diet. It might reasonably be asked, and the question becomes a natural one, in what does the efficacy of cold bathing consist?—for, as a tonic, or strengthening remedy, little, I fear, can be said in favour of it.

Debility, an expression greatly abused by the

ignorant and inexperienced; or rather, I should term it, exhaustion, from inanition or repletion, unconnected with disease—is of two-fold origin; arising, in the first instance, from the causes (*viz.* inanition and repletion) above enumerated; and in the second, from disease, or its consequences. To the public, and especially the invalid, such distinctions are of the utmost importance; I shall, therefore, proceed to make a few short comments on each. The debility, as it is commonly called, in the first case, is wholly under our controul, being temporary, and consequent upon the excess of food, or drinks: on the other hand, though it is not generally supposed, seldom arising from the want of sufficient nourishment; the human body requiring little for its sustenance, except under excessive bodily exertions, or powerful evacuants, after having fully attained its growth. To this common error, I mean with respect to the abuse of food and drinks, may be attributed the many fashionable diseases which prevail chiefly amongst the higher ranks, the sedentary and studious, termed nervous, bilious, or spasmodic—no less with a regard to fashion in their classical distinctions, so defective in physiology, and founded, truly, but upon hypothesis.

Here, no great sagacity is required to discover, that general cold bathing, the hitherto-supposed specific, especially under the nervous and spasmodic affections, can possibly avail nothing. With respect to the second point, viz. debility, partial or general, from disease or its consequences, much might be said in opposition to cold bathing, even in those of the chronic class: I have, therefore, but briefly to observe, that very few diseases, if any, admit of general cold bathing in manhood and old age. I am disposed, however, to acknowledge that it has not been wanting in efficacy under some states of exhausted convalescence from fevers, especially of the endemic or contagious tribe, where the patient's age does not exceed forty, and no visceral affection exists.

Regarding the shower-bath, I have, it is true, fewer apprehensions, the efficacy of which must be universally acknowledged. From the increased quantum of blood sent to the brain, together with the admirable nervous communication, and sympathy, which exists between it and the more distant parts, we are at no great loss to account for fevers, cramps in the stomach, sick headaches &c. Suffice it, then, to say that of all human (simple) inventions, not any one, hitherto disco-

vered, claims so large a share of the public attention and confidence, as the shower-bath. Its efficacy in headaches, from pure vascular determination, consequent upon plethora or sedentary pursuits, exceeds any encomiums, however high, that I am able to pass upon it. Of late years I have had reason to believe it somewhat specific against toothachs, sore throats, gum-boils, hæmorrhages from the nose, and rheumatisms in the head, to which many are subject.

To conclude, the shower-bath may be employed with safety at any season of the year, and the shock proportioned to the severity, or rather duration of the malady : The head should be rubbed dry afterwards, and the patient exposed to a cool temperature.

Thus have I endeavoured to illustrate the general and partial effects of water, heated or cold, whether of the river, sea, or mineral tribe, so far as is warranted by much practical observation and experience, in both England and Scotland, for a series of years. The application of cold water in gout, recommended some years ago by that bold experimentalist, Dr Kinglake, had (like many other innovations in the practice of physic), its few partisans for a time, notwithstand-

ing its efficacy, nay, even fatality, was both physiologically and practically established from the first. With every due deference to the Doctor, it would, I confess, be difficult to discover upon what law of the animal economy he had founded such practice, so replete with disappointments—I might add, with the utmost danger, to the community. The unexpected death of a person in high life, however, added to the hazardous exposure of others, under this new discovery, excited without doubt, pretty general alarm amidst the intemperate and luxurious, who are peculiarly predisposed to gout; and of late years, I think I might affirm, that few put much confidence in cold ablution, under the paroxysms of so enervating and truly fashionable disease.

The eau medicinale, if I am not mistaken, will share the same fate, when the eyes of the credulous become opened, and the public confidence strengthened more in belief of the physician's power than the truly lamentable, wretched, mercenary, and delusive aids of quackery.

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### CHAP. III.

THE AUXILIARIES TO A COURSE OF THE WATERS,  
AND VITAL IMPORTANCE OF A WELL-REGU-  
LATED MODE OF LIVING.

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AMONGST the truly important auxiliaries to a course of the waters, we may, here, rank first, tranquillity of mind; the importance of which to the valetudinarian is by no means beneath the notice both of the philosopher and physician. Of the influence of the human passions and affections, no man of feeling is ignorant; they mix in every action of life, and determine, neither more nor less, than our enjoyments in every station we occupy: hence the importance of cultivating an acquaintance with the anatomy of the brain as well as the body. But if frail man be thus subject to the influence of the passions in a state of health, how great must be their influence when

vigour of health no longer sustains his frame? It is doubtful, I am aware, whether the most successful candidate in the search of pleasures, be more happy, and consequently more healthful, than he who labours all his life, for that which is never, never! to be obtained.

Projects and expectations, even when attainable, are the source of much disquietude; they frequently impair the health, and weaken that confidence we were wont to place in our fellow-creatures. The naturally timid and desponding, are ever disposed to be fearful; whilst such as are inspired at all times by hope, feel that it proves more than equal to the very enjoyment. It might with great justice be asked, why become we so easily satiated, so soon dissatisfied, with our present enjoyment? The reason to me appears plain:—The idea of the past, in the retrospective eye of fancy, is believed much better than it had really been; and with respect to the future, our expectations are higher than probably it ever will be. But it must be remembered, that thoughts regarding the future, are always productive of inquietude, and, to the valetudinarian, or nervous, prove the origin of lingering, and no less complicated maladies. To such, mental happiness is

not attainable, whether amidst the mineral water productions of nature, or of art ; the air, however salubrious ; the society, and picturesque scenery, however engaging,—are but calculated to afford present relief ; and without other aids they relapse into a state of the utmost disquietude, terminating, not unfrequently, in a settled melancholy, dread insanity, or death.

Under the but imaginary hopes of that relief not attainable solely by medicine, they fly at length to the use of strong liquors, whereby the malady becomes confirmed, and the patient's dissolution hastened, if not speedily produced. Such the influence of the passions\* over valetudinarians, whether naturally or constitutionally so, or the offspring of their own intemperance. The diseases which depend considerably on mental influence, and are but curable through that medium, principally rank thus :—Madness, melancholy, hypochondriasm, hysterics, epilepsy, cramps,

\* Hufeland has remarked—" that if the passions are given way to, they have a tendency to exhaust the finest of the vital powers,—to destroy, in particular, digestion and assimilation—to weaken the vigour of the heart ;—and, by these means, to impede the important business of restoration "

spasms, faintings, apoplexy, abortions, gout, scurvy, ague, typhus, toothach, and certain hæmorrhages;—amongst not the least might be ranked the nostalgia (so prevalent amongst the Swiss), or desire of revisiting their own country, when estranged from it. Hence appears the importance of an agreeable society to the invalid; of a freedom from excessive mental pursuits, and of that tranquillity of mind, alone to be purchased by sobriety and temperance, and the consequent acquirement of health.

But the human race, regardless, it would appear, either of present or future happiness, goes on erring, at one time from inclination, at another from necessity, until the aids of medicine, of mineral waters, and their auxiliaries, are called in to correct the abuses of which we have been guilty; abuses, too often the lamentable source of intoxication and intemperance. It has long been a matter of dispute, whether gluttony or intoxication be the more productive of chronic disease; but for my own part, I am inclined to suspect the former, for many and obvious reasons.

Digestion is a function of no mean importance to the animal economy, and is materially influenced by quality, but, above all, quantity of our

food. Whilst at home, or engaged in sedentary pursuits, we neglect to take proper exercise, and this, from day to day, without diminishing our food, and adapting it to the powers of the stomach, which, by a determined effort of nature, as in the acts of vomiting or purging, rejects it: on the other hand, gives rise to numerous and complicated ailments; some of which prove suddenly fatal—as apoplexy, palsy, spasms and convulsions, cramps, colics, &c. And others, becoming constitutional, perplex the patient at irregular periods, with greater or less severity, probably during life. It was an observation worthy of the once-celebrated Dr Fothergill,—“ That the vigour of body, strength of mind, present health, and a foundation for the future, with the sweetness of life unmolested by disease, depend, in a great measure, on the state of the stomach. We daily observe that gout, dropsy, scurvy, consumption, insanity, and the worst of fevers, seldom happen when the stomach is not first affected.”—We see, then, the importance of an attention to the state of the stomach, especially under chronic disease: in acute, the appetite is impaired, if not wholly destroyed; consequently, our inclinations rarely lead us to transgress, at least with respect

to solids: indeed the state of the stomach would not admit of it; the consequences, in all human probability, terminating the life of the patient; as must ever be the case, in proportion to the constitutional derangement, which, in the latter state, is febrile, more or less inflammatory, and what Dr Cullen very improperly has termed universal. But universal, or general disease, in my humble opinion, must inevitably terminate life; and has nothing whatever to do with fever, which has been most clearly and physiologically demonstrated by that scientific physiologist and physician (who has done much for his country), Dr Clutterbuck of London \*; and since abundantly exemplified by morbid dissections, and a correspondent mode of treatment in those diseases †.

Another object which the invalid has in visiting watering-places, especially those who reside in crowded cities or large towns, is the change of air. The temperature of the atmosphere at Pitcathly, a country neither mountainous, nor exposed (as far as

\* Vide General Doctrine of Fever, by Henry Clutterbuck, M. D.

† On Blood-Letting, &c. in Fever, by Dr Mills of Dublin.

I know), to any peculiar changes of weather or epidemic disease, by far exceeds the Highlands of Scotland; and is certainly as settled, regular and temperate, as most parts of that country. The situation, I confess, is somewhat low, and much upon a level; yet by no means inundated with waters, either from rivulets, or the Tay, on the one hand; nor productive of agues and marshy diseases, on the other. The scenery, though contracted, is nevertheless somewhat picturesque; the accommodations rather more limited than could be wished—in general very good; and the walks around, extending for many miles, afford, without doubt, much recreation, and healthful exercise for the invalid. There are two spacious inns upon the spot, calculated to accommodate with board and lodgings, upon reasonable terms, upwards of twenty each: The situation of both, for the convenience of such as drink the waters, so as to enable them at all times to have them fresh from the wells, is extremely good; a circumstance of not the least importance to those who wish to take them early in the morning, or labouring under diseases, which forbids much bodily exertion: Another circumstance of some interest and importance to invalids, Pitcathly is little more than four

miles from Perth, a neat and considerable market town, furnished with most delicacies of the season. It is garrisoned by between one and two thousand troops for the defence of the depot, an elegant and magnificent building of stone, lately erected there, containing from six to seven thousand prisoners. The ride from the Bridge of Earn to Perth is one of the finest pieces of scenery, the most romantic and picturesque, I ever beheld, either in England or Scotland. On the approach to the latter place, the depot, and river Tay, with all its windings, together with the grand and lofty hill of Kinnoul, far exceed, I confess, any encomiums or description of my pen. There is a sort of carriage conveyance daily between Perth and Pitcathly, which leaves the former place so as to arrive time enough for dinner. This proves a great accommodation either to those residing at Pitcathly or in its vicinity; enables them to visit the depot during the early part of the day, when it is open for the inspection of strangers, and affords a pleasant morning's lounge, or at any other time, to such as are fond of exercise, and provided with their own carriages or horses. This post carriage conveyance, of the truly great convenience of which I have spo-

ken, is conducted by a Mr Stewart, of the Salutation Inn, Perth, where every accommodation may be had upon the most reasonable terms, added to the most pointed attention and civility; the provisions and wines are remarkably good; his beds and apartments extremely comfortable: in short, it is one of the best inns I have seen in Scotland, not excepting Edinburgh itself, said to surpass, in those respects, even the capital of England.

But to proceed,—claiming the reader's indulgence for this digression,—the atmosphere affords a subject of interesting and curious inquiry, especially to the invalid, which being so frequently more or less dense and impregnated with peculiar substances, beyond the research of human intellect, even in the present improved state of chemistry, materially and necessarily influences our health, though short of the degree that might be expected, from the very sudden and great changes in the weather, common even to the most temperate climes. I shall cursorily pass over, as foreign to my subject, the chemical compositions of the atmosphere, said to consist of 27 parts of oxygen, or pure respirable air, about 72 of azote, or irrespirable air, not miscible with wa-

ter, which readily promotes the growth of plants, and proving so valuable, notwithstanding, in the vegetable creation; and of carbonic acid gas, termed fixed air, but one single part, equally irrespirable as the azote, deriving its origin from various sources, as the combination, artificially or naturally, of acids with salts and earths, exemplified in the mineral and other waters; from the vinous process of fermentation, &c.—the whole calculated in the hundred. Much has been said on the subject of seasons; of a cold, hot, dry, and damp atmosphere, and of their influence respectively over the animal economy. But it might be observed, that the imagination, and modes of living amidst the human race, has had much to do with our varied and inconsistent speculative theories in this way; and, no doubt, tended to establish the most vague and unphysiological (as well as no less unfounded) opinions of the influence of the two former, I mean cold and heat, in civilized life, and over the human body. The transitions from cold to heat, especially when great and sudden, in sanguine temperaments, as is too often apt to be the case, without doubt, are productive of disease. To this may be attributed our many winter catarrhs and coughs, which, in

constitutions of the above description, aided at the same time by predisposition, frequently terminate in that truly lamentable endemic of Great Britain—consumption,—the scourge of youth and manhood, and the dread of old age. But why should this excite our wonder? Hot-bed plants, if I may be allowed the expression, are soon and no less severely chilled, by the changes of the atmosphere.—The female, of a delicate frame, confined daily to a room, the temperature of which blasts every possible means of health, exposes herself fearfully to a bracing atmosphere, from which (I would, nevertheless, impress upon the reader's mind), she receives at no time any positive injury; on her return home, however, healthfully chilled and much benefited by the change, she flies, and without loss of time, to her hot-bed apartment, further heated by an improvident increase of fire, against her return home: At this period, it must never be forgotten, that the sensibility, from no inconsiderable diminution, proportioned to the severity and length of recent exposure to cold, to which might be added, accustomed habits of heat, is ill adapted at such times for the proper discrimination regarding the application of this highly increased temperature; and such are the revolu-

tions produced in the system—such the effects of sudden and considerable heat on the human fabric, that the lungs and passages thereto, being excited into a state of morbid vascular action, cannot fail to lay the foundation of chronic catarrhs and coughs,—I might add, invariably the forerunners of consumption, and without which it never appears, except as an hereditary disease, depending upon previous organic derangement.

These hints, I trust, will be sufficient to guard at least the invalids of Pitcaithly, who expect to derive any benefit from the mineral waters, against such practices, truly but destined for the destruction (lamentable as it may appear) of that part of the human race, so admirably calculated, and no doubt designed, to be the sweet soothers of all our cares—the more domesticated companions of our lives,—in short, the very exaltation of our earthly happiness. Regarding the seasons of the year, I would observe, that generally speaking, the summer is the least healthful, even to the aged, who may for the most part be provided in winter with a sufficiency of artificial heat. On this account, and with the view of exercising in the open air, the former is undoubtedly the most proper season for the frequenting of watering-

places, and for guarding, at the same time, against those contagious febrile maladies and bilious affections, which, if not actually generated, are without doubt considerably aggravated, by heat. It will be sufficient for me to shew the necessity, at all times, of a pure and open air, night or day, however contrary to general opinion, and above all, its vital importance to the invalid, who may rest assured, will never attain the re-establishment of his health without it. Reasoning from analogy, we judge of its effects over the human body, by its somewhat chemical operations on inanimate matter. The wisdom and fatherly care of Providence over both the human and animal race, is manifest in all his works, notwithstanding the self-sufficiency of men in general, and the ingratitude of many towards their Omniscient Creator.

During summer, when heat, as I have before said, has so peculiar a tendency to vitiate the atmosphere, and to produce diseases from putrefaction, I might observe, through the medium of the stomach, the luxuriant vegetable creation furnishes us with abundant correctives, by the very great consumption of azote, and the disposition to generate oxygen, or pure dephlogisticated air,

throughout the day; thereby counteracting the noxious tendency of putrefaction, respiration, and combustion. In winter, when the various plants cease to produce such salutary influence, the very change of season and the production of cold, most powerfully tend to check the advancement of corruption and putrefaction, and to impart to the human body that elasticity and vigour so characteristic of health, and conducive towards the attainment of a no less honourable than happy old age.

I may venture to affirm, that with the exception of air and regimen, of all aids to a course of the mineral waters, not any proves so salutary or beneficial (particularly to the invalid) as moderate and regular exercise: it is one of the most powerful instruments of digestion, and seldom fails to lay the foundation for a healthful and happy old age. In moderation, it proves essential to the preservation, but above all, restoration of health; more especially when the powers of the mind are excited and diverted by surrounding objects; and that it no less becomes essential to secure the efficacy of the Pitcathly mineral waters. I would also impress upon the reader's mind, that the human body thrives best under alternate changes of ex-

ercise and rest ; so that it may not be exhausted by the one, nor enervated, nay, satiated, by the other : Nor can our frail fabric endure, for any length of time, the uninterrupted exertion of the mental faculties, without the most serious and manifest injury to the bodily ones, and the ultimate production of hypochondriasm, melancholy, if not madness itself. This we have admirably illustrated by the contemplation of but one object in the primary stages of mental derangement, when the bodily powers become no longer able to resist the enervating influence of the morbid mind. To the neglect of proper exercise may be attributed the many complaints of indigestion, so truly complicated and afflicting to the sufferer, who acquires (strange as it may seem) an almost insupportable indolence, bordering upon lethargy ; the secretions and excretions becoming superfluous or defective, from the relaxed, increased, or diminished growth of the body, productive of disease in the abdominal viscera, and of local sanguineous determinations, or serous accumulations, the forerunners of apoplexy, palsy, gout, dropsy, &c. The studious and sedentary mechanic, not unfrequently experiences these changes, unless they become, for a time, interrupted by the ope-

rations and truly wonderful influence of the mind, productive of its various species of derangement, bordering upon insanity, as fatuity, melancholy, hypochondriasm, and no less religious fanaticism, together with some of the more active passions of the mind.

Exercise, then, for the sake of brevity and perspicuity, may be divided into two classes:—I. The active, as riding, walking, fencing, &c. II. The passive, as swinging, sailing, friction, and other less active pursuits.

The first class is what I should particularly recommend to the invalid, under a course of the Pitcaithly waters; nay, and to valetudinarians in general, however contrary to the opinion of many respectable writers, of the present day, who affirm, that the passive exercises are better adapted to the constitutions of the nervous and debilitated, as they have unphysiologically been termed. Exercise on horseback is superior to most, whether active or passive, and proves truly invaluable to the free liver and dyspeptic: It should not, however, be violent, or taken so as to fatigue immediately after a full meal, especially of animal food and strong drinks. The most proper time for riding or walking, is before breakfast, or at the

least between it and dinner. In the after part of the day, free livers, without their accustomed libations, are wont to be oppressed; especially such as dine fashionably late, a practice, probably, of all others, the most detrimental to invalids, who at all times ought to make an early dinner, and go supperless to bed. Here, perhaps, an hour or so of exercise before bedtime might be conducive to that rest, during the silent watchings of the night, which an early dinner, moderate exertion, and tranquillity of mind, rarely fail to promote. Walking is peculiarly beneficial to the human race; it is the most natural and salutary of all exercises, and under a course of the Pithy mineral waters, cannot be too strongly recommended to the attention of my readers. In moderation, it promotes the appetite and digestion—excites the peristaltic motion of the intestines—facilitates respiration, and adds not a little to the tranquillity of the mind;—all of which are considerations of the first importance, towards the preservation of health. On the other hand, excessive exertion in this way, manifestly produces an opposite tendency, retards rather than quickens digestion, especially when early after a full meal, and gives rise, in the plethoric, to hæmor-

rhages, inflammations, apoplexies, &c.; and in the studious, sedentary, and relaxed, to headach, particularly sick headach, indigestion, with its numerous train of visceral affections, &c. To such exercises, added to unguarded exposures and heating liquors, may be attributed the many irregularities of the menstrua in females, productive of hæmorrhages from the lungs, consequent upon the inflammation of such vital parts—of severe catarrhs and coughs—and ultimately, of that truly lamentable endemic of Great Britain, pulmonary consumption. Dancing, therefore, and the gymnastic exercises, once in such high repute amongst the Greeks, an athletic and healthy race of people, who abstained much from animal foods, and strong drinks, are less suited to the present age, on account of the deplorable degeneracy of the human race, the fears concerning the very balm of health, ventilation, and the too frequent excesses which prevail amidst all ages, ranks, and degrees in life. As dancing, however, would seem to be an exercise admirably adapted, in many respects, to preserve both the mental and bodily powers in a sound state of health, it behoves me here to take a review of such of its concomitants as have a manifest tendency to impair the

health, and destroy its beneficial influence over human kind. For the destruction of the chief of them, I should recommend (absurd as it may appear) its being taken in the open air. Dancing, in crowded apartments, together with the want of proper ventilation, is by far more injurious, especially to females, than many are apt to imagine. The certain ideal advantages to be derived from a copious, sensible perspiration, has given rise to the most fatal consequences; and better for the human race, had the humoral pathology, or doctrine of the fluids, never been expounded to the world. I am consequently disposed to maintain, that sensible perspiration, commonly called sweat, in relaxed habits, and such as labour under chronic disease, is at all times prejudicial: hence the sipping, nay, even copious draughts of warm drinks, at such times, are highly to be condemned; added to the partial exposure of parts, too much defended at other times, from the external atmosphere. Another practice during dancing I would also condemn, that of taking strong drinks, with a view (as I have been told) of keeping out the cold; the absurdity of which is by far too great to need any animadversions from my pen.

The lateness of the hour, also, under which dancing is commonly taken, is a just cause of complaint, from the lesser purity of the atmosphere during the midnight hour, the burning of candles, not to say frequent large fires, and above all, the deprivation of sleep, so truly essential to the general health, if not to life itself. Thus much have I said regarding an exercise, which, when taken in moderation, and under the most favourable circumstances, is calculated not only to add to the vigour of the body, but also purity of the mind; to refine the manners of the present and future age; to improve the carriage, and familiarize us to that sex, by nature diffident and engaging, and by custom and prudence restricted from a too frequent intercourse with man; at the least, during their probation, as unconnected with the matrimonial state. The gymnastic exercises, as crickets, horsemanship, fencing, leaping, running, &c. are by no means adapted to the invalid, and suit such only as are vigorous, without being plethoric, and a good deal accustomed to them from early life.

Under the passive exercises, we have some of peculiarly beneficial influence, as swinging, sailing, and friction. With respect to swinging,

It is admirably calculated to promote the general health, when taken under circumstances free from danger. Sailing is adapted to all ranks, especially invalids, having a peculiar influence over the digestive powers, whilst, at the same time, the body is exercised without fatigue, and the mind kept in a constant state of amusement and repose. As to the nausea and actual vomitings excited in some, they are rarely, if ever, productive of ill; but on the other hand, for the most part, restore the proper tone of the stomach, vitiated by mental inquietude, irregularities, or disease. Of friction, I would say, as was once observed by the celebrated Boerhaave, in his aphorisms, when speaking of the digestive powers, and of the abdominal viscera, that frictions to these parts (I mean the stomach and bowels) admirably tend to the regularity and consequent health of such functions as are destined for the performance of great and important services in the animal economy. Notwithstanding the almost inestimable value of exercise to invalids, its regulation, it would appear, as to quantity and quality, becomes an object of our concern. People leading sedentary lives, who visit watering-places but for a short time annually, are very

apt to indulge in it at such times to excess; others, under the idea of exciting a copious, sensible perspiration, or, as it is termed, sweat—the effects of which never fails to injure the health—imagine, that, provided they live freely, they never can have enough of it. But the simple fact is, its excess to the invalid, is productive of almost irreparable injury;—the tone of the stomach is destroyed, digestion consequently impaired, the appetite for food either fails him altogether, or becomes depraved, and, should he indulge much in eating at this time, headach, and not unfrequently sick headach—a most excruciating and insupportable malady—ensues, to the excitement of universal distress, acetous and bilious vomitings; the latter arising from the regurgitation of the bile into the stomach, most probably under the frequent and severe efforts to vomit; and the former from an acetous fermentation having taken place, by no means uncommon to relaxed stomachs. It is this said disposition of the contents in the stomach, which for the most part gives rise to gastrodynia, or pain about that organ, and I might add, always, independent of poisons, or organic disease, the never-failing precursors of it. During the progress of acetous

fermentation in the stomach, we experience heart-  
 burn, eructations, extreme lassitude, and, for the  
 most part, though not always, a loss of appetite.  
 What has been termed cramp in the stomach,  
 arises either from poison directly applied to that  
 organ, or this same unnatural process going on  
 in the stomach, to the destruction of the digestive  
 powers, above all, consequent upon excessive  
 mental or bodily pursuits. Hence it appears, that  
 a somewhat sedentary, yet by no means indolent  
 life, is less hurtful to the valetudinarian than re-  
 peated excessive mental or bodily exertions; that  
 the former, though it may not re-establish the  
 general health, or produce a very athletic or har-  
 dy race of the human species, certainly tends to  
 the prolongation of life, and seldom actually gives  
 rise to those severe affections of the stomach, so  
 truly insupportable, and oftentimes the production  
 of sudden death. With respect to the latter, such  
 exertions, I am disposed to admit, are calculated  
 to benefit the husbandman, rather than the citizen,  
 bred up to them from early life, and accustomed, at  
 the same time, to endure many privations, which to  
 the invalid, the sedentary, or the studious, would  
 prove the source of much mental and bodily dis-  
 tress. He acquires that vigour of the digestive

organs and force of muscular power, to which the other is a stranger; and at eve, after an active and well-spent day, with a freedom from cares, lays himself down on his humble bed, and feels that renovation of strength, and refreshment from sleep, which the valetudinarian or citizen rarely, I might add, if ever, experiences.

Sleep, another of the requisites to health, the very support of life itself, is truly of the most vital importance to the invalid. One of the pathognomonic symptoms of, above all, acute diseases, is the want of sleep; or, on the other hand, as in many chronic ones, a morbid disposition to it, the latter of which is also manifestly characteristic of approaching disease. Without, at least the regular efforts, of sleep, the valetudinarian would be a truly pitiable object indeed; and so sensible is he of the benefits to be derived from it, that when it is lost, he becomes hypochondriacal, melancholy, nay, even at times insane, and would give his whole substance for the recovery of it. But, alas! it is not to be sought for in the regions of fancy and luxurious gaiety: these but perplex and disturb him, rendering his condition more lamentable than ever, which he frequently has found to his sorrow. Opiates and smoking, his

once favoured companions, avail not; they dispose but to relaxation, stupor, and nocturnal disquietude; leaving him, on the subsequent day, more wretched than ever. The restoration of health, therefore, alone becomes our object, under such calamities, and we must abstain from the bottle, and the but nominal friend who would dare to persuade us of the efficacy of those viands, spirits and opium, the highly approved remedies of the once learned, and scientific Dr Brown, who certainly did much towards the improvement of physic, notwithstanding his strong recommendations of brandy and opium, articles which, it was to be feared, he was over fond of himself, and consequently prejudiced in their favour. The practice of taking spirits, laudanum, or a pipe at bedtime, with a view of procuring sleep, is by no means unfrequent, but is most highly to be condemned. Regarding spirits at such times, little, I think, need be said, as I am not disposed to dispute their soporific properties, however highly I might condemn their effects: Experience confirms that they powerfully excite to sleep, or rather I would term it, stupor; and that, independent of the injury which the stomach and abdominal viscera sustains from the excess, or even daily moderate use of

them, they have a manifest tendency to injure most materially the brain, and ultimately to produce diseases dependent upon its inflammation, and consequent disorganization. Of opium, much might be said in favour of it, as a remedy for the relief of the most severe and insupportable pains ; but certainly not as the procurer of that balmy sleep, that restorative to the exhausted traveller, which never fails to remind us of the sweet and invaluable blessings of health. There is not, perhaps, in the whole *materia medica* a medicine requiring more caution in its use, nor that has been productive of more injury and good (however inconsistent it may appear) than opium. It is “esteemed,” says a profound anatomist, “of the most sovereign virtue for relieving all manner of pains ; whence it may be esteemed a divine remedy, and is deservedly called *Nepenthe*. And indeed we cannot sufficiently admire how this wonderful medicine, operating like enchantment, eases the most acute pains of the bowels, or torment of the limbs, and that often without producing sleep, or before sleep comes on.”

From the remarks of this celebrated anatomist and physiologist, and our own observations and experience of its effects, we cannot wonder at its

extensive use in quackery, nor yet the mortality it has so frequently and lamentably occasioned amongst the human race; the infant, unable to detail its own sufferings, or describe its effects, is lulled into a state of mournful disquietude, by this narcotic drug, forsooth because it has been alleged it would not sleep without it: But I would ask the anxious mother why?—The reason appears to me sufficiently obvious: The child, wanting in the faculties of sense and speech, knows not its situation, but endures the calamities of disease, until they terminate its sufferings; opium in such cases proving only a palliative, and moreover, having a tendency to aggravate every symptom, and impair the powers of digestion, upon which the well-being, I might add, very vitality, of the infant depends. With respect to tobacco, another of the narcotic tribe, the practice of smoking or chewing\*, I have no hesitation in saying, however much the former may tend to procure sleep, without producing those after lamentable effects of opium, is at the least re-

\* Dr Waterhouse remarks—"that smoking and chewing injure ultimately the hearing, smell, taste, and teeth."—And further—"in their primary effects, they either waste or vitiate the saliva."

plete with many and serious disadvantages, which are severally illustrated in our review and experiments on the powers of digestion, and the nature and properties of the saliva and gastric juice.

But to proceed—health, under such circumstances, is only to be acquired by temperance, by regular exercise, and the judicious application of the mineral waters; during which, sleep becomes attainable by retiring, supperless, early to bed—by sleeping on a mattress, in a well ventilated apartment, with few bed-clothes, and in summer without any blankets, and by rising betimes in the morning.

Much has been said on the subject of dreams, and of their tendency to weaken, if not to destroy, the restorative powers of sleep; and Hippocrates, in his aphorisms, has observed, that dreams are symptomatic of approaching disease. For my own part I am decidedly of opinion, that with respect to the function of the stomach, nothing whatever proves more characteristic of its primary derangement than dreams. It must be recollected, that, during sleep, the functions of the brain, the heart and arteries, together with the stomach and bowels, are regularly and duly performed: the same might be said of respiration, which is liable

to be considerably influenced at such times, consequently to affect the blood's circulation to and from the brain, and thereby, occasionally, independent of the stomach, gives rise to dreams, generally, I have been led to suspect, of the terrific description. We are told that sleep admirably quickens digestion; but I am inclined to think only nutrition. In support of this, I could adduce many physiological and experimental facts—had I not already exhausted the reader's patience—and promised myself to take a review of digestion in a subsequent chapter; which, together with what has already been said, will illustrate sufficiently the improbability, and very great inconsistency of a doctrine founded upon any other laws than those of the animal economy.

With respect to clothing, as beneficial to the invalid, suffice it to say,—wretched truly must be the being whose time is chiefly spent in the ornament and defence of his person, fearful of every change in the atmosphere, or of place. The female, who, at the same time, has become a slave to fashion, is still more wretchedly situated: at balls, routes, and other public resorts, or even by simple exposure, on an extremely damp or rainy day, she rarely indeed fails to catch cold,

from the varied and injudicious modes of dress, adapted on trivial occasions, with a view, no less, we are told, of guarding against such exposure. But, I would ask, are not those misjudged precautions replete with disappointments : heated always to a degree of fever, within doors ; clothed at one time in flannels, at another in silks, how is it possible that the equable temperature of the human body can be preserved ! if I might be allowed the expression, amidst such vascular excesses, productive of frequent local determinations, and consequent disease, characterised in the head by fevers, in the lungs by coughs and its fatal consequences, consumption, and the fauces and external surface of the body by inflammations, the offspring of the generality of our loathsome and much aggravated cutaneous affections.

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## CHAP. IV.

PREDISPOSITION OF THE HUMAN BODY TO CERTAIN  
DISEASES—CLASSIFICATION OF SUCH AS ARE  
LIKELY TO BE BENEFITED, OR NOT,  
BY THE WATERS.

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**H**ITHERTO have I endeavoured to impress upon the reader's mind, the advantages which mineral waters possess over the common, or drastic purgatives: I mean such as contain much of the neutral salt; and, especially, without sulphur or iron. The Cheltenham, however, may probably afford an exception to this rule; from its containing an excess of the salt, and, thereby, not restrained in its action upon the bowels.

In respect to the sulphurous ones, if we except the Harrowgate, largely supplied with neutral

salt, they very rarely contain much, if any of it ; consequently, prove heating and disagreeable when taken internally. With respect to the auxiliaries, as to a course of the mineral waters, much also has been said. I now propose, preliminary to a classification of the diseases wherein the Pitcathly and Dumbarny mineral waters will be found efficacious, or not, to speak of the human body, and its predispositions to disease ; in order to shew, that in habits where such predispositions exists, a lengthened course of the waters, together with suitable medicines, and an appropriate regimen, should not, on any account whatever, be neglected. The immortal Hippocrates, it is evident from his aphorisms, paid particular attention to this subject, and, at no time during an active and well-spent life, ever lost sight of it ;—such was considered to be its importance, before even anatomy or physiology had become an essential branch of physic.

In the uncultivated and savage state of man, we behold probably the most perfect contentment, notwithstanding, as remarked by Montaigne—  
 “ that man is the only outcast and forsaken creature upon earth, having nothing to cover or arm himself with, but what he despoils from others,

who can neither feed, speak, nor shift for himself, unless taught by others.”—But is this the natural state of man?—In justice to the omnipotent and all-wise Creator, we must conclude, not; and at least suppose that the Deity has created us no less perfect in our kind, than other animated beings of the vast creation. It is not the refinements of a more perfect civilization, the acquirement of arts and sciences, and the toiling for money, that must add to the completion of man’s happiness; these frequently, on the other hand, are productive of the utmost anxiety, if not unfit us for the more social and generous feelings of life: Hence has it been wisely remarked by Linnæus, in his observations on the barbarous states of humanity—

“ O, happy Laplander! who, on the utmost verge of habitable earth, thus livest obscure in rest, content, and innocence. Thou fearest not the scanty crop, nor ravages of war; and those calamities which waste whole provinces and towns, can never reach thy peaceful shores. Wrapt in thy covering of fur, thou canst securely sleep; a stranger to each tumultuous care;—unenvying and unenvied. Thou fearest no danger, but from the thunder of heaven. Thy harmless days slide on in innocence, beyond the period of a century.

'Thy health is firm, and thy declining age is tranquil. Millions of diseases which ravage the rest of the world, never infected thy happy clime. Thou livest as the birds of the wood; thou carest not to sow or reap, for bounteous Providence has supplied thee in all thy wants."

It is the intellect that so eminently, 'tis true, distinguishes the human from the brute creation; that gives man, added to the upright posture, an ascendancy over the animal tribe, and which renders him so capable of the more social feelings to which it is supposed brutes are strangers.—

" Thus while the brute creation downward bend

" Their sight, and to their earthly mother tend,

" Man looks aloft, and, with erected eyes,

" Beholds his own hereditary skies."

Hence has it been wisely observed by Monboddo, that—" brutes are incapable of mental abstractions or of science."

From the early developement and superior talents of man, it has been contended, that from his very origin he has had language; but what that language is, we are ignorant of: to which might have been added, and ever shall be. But here I would observe, that in man thus distin-

guished from brutes, how astonishing the memory!—the recollection of the present, and the remembrance of the past!—all of which we perceive developed in the earliest stages of infancy, before the ideas can possibly keep pace with the sensations. In more advanced life, however, and in the plenitude of his enjoyments, when the intellect becomes impaired, nay, positively deranged, what must be said for the lords of the creation (as they have been termed), viz. aspiring man!—is he not, then, comparatively, inferior to the lowest animal that creepeth upon the face of the earth!

I have lately been much gratified by the perusal of a consistent and intelligent little work, descriptive of the medical and moral treatment of the melancholic, the hypochondriacal, and the insane, at the Retreat near York, instituted by that most respectable body of the community, the Quakers; distinguished not only for their intelligence, but uprightness of principles, and peaceable order in society. The doctrines it will be found to contain, respecting at least the moral treatment, are practical, highly judicious and satisfactory; most perfectly corresponding with my own, and tend to establish a fact of the utmost interest and importance in a civilised state, viz. that coercive

measures, for the most part, are not only productive of bad effect, but at the same time tend to confirm the very malady which they have been erroneously and unphilosophically considered to mitigate or remove. In justice to the writer, I cannot refrain noticing his concise classification of cases, and the success of the mode of treatment adopted since its institution in 1796 to 1811.—It will be perceived, out of the total of recent cases of the maniacal class, that two died; 21 were discharged recovered; two improved; and six remained—of the melancholic of the same description, that five died; 19 were discharged recovered; two improved; and four remained; making a grand total of 61.—Of the old, or incurable cases, as denominated—out of the maniacal class, 11 died; 10 were discharged recovered; nine improved; and 31 remained—of the melancholic belonging thereto, six died; six recovered; three improved; and six remained—and of the cases termed dementia, defined by the author, “in which the mental powers appear materially weakened, attended with a general irritability, or subject to occasional maniacal paroxysms, rendering them dangerous to themselves or others,” (page 215), two died; two were discharged as unsuit-

able objects, and two remained. The admission of males was 67, of females, 82—making a total of 149.—The cases of melancholy and mania, in the recent class, seem to balance nearly each other; though it appears, that in this class, more have died of melancholy than mania: on the contrary, however, in the old, the maniacal considerably prevails over the melancholy; and the deaths of the former far exceed those of the latter, even including the dementia. These practical facts, together with the illustration of apparent causes, or excitement, throw considerable light on the nature of both respectively, whether originating from predisposition, or mental disquietude, from whatever cause, and must necessarily, in a great measure, establish (I am sorry to say) the inefficacy of medicine, regular or empirical; and the advantages to be derived in general, from a mild, yet firm mode of treatment, adapted to circumstance and case, together with an appropriate and regular regimen.

In conclusion, I would shortly observe, what observation and experience, added to some small knowledge of the laws of the animal economy, teaches me, that maniacal, nay, even melancholic patients, should at all times eat sparingly of animal

food, and never fail to go supperless to bed : abstinence from wine or spirits, I need scarcely observe, is still more important ; and with regard to medicine, little for the most part is required in that way : management respecting the regularity of their meals, the sufficiency of their food, and their moral treatment, being above all the most essential, and likely to subdue that perverted state of mind, which unfits man for the society of his family or friends, and renders him so truly small in the scale of existence.

Directing still further our attention towards man, Tully has remarked, “ The care and attention of man is likewise employed for the preservation of certain classes of both living creatures and vegetable productions. For there are many animals and many plants which could not be safe without the attention of man.” This abundantly shews the care and wisdom of the Creator in having endowed him with reason ; so that he might at the same time employ it for his own preservation, added to his earthly succour and support, that he might not be left destitute in the boundless creation, at the mercy of the world, and no less exposed to the inclemency of seasons, and natural savage dispositions of some animals.

Naked as man came into the world, he is not destitute of aids for his own safety ; wanting, as he may be, in many of those instinctive powers which irrational creatures so very eminently possess, his hands and arms fit him for the arts and manufactures, by which means he can clothe himself, when necessary, in almost impenetrable materials, assuming to himself at the same time an armour of stone : “ for,” says, Galen, “ houses, walls, and towers become his defence.”—This same animated writer, viewing the most admirable structure of the fingers, exclaims, “ considera igitur etiam hic mirabilem creatoris sapientiam :” Reasonably calling our attention to the admirable wisdom of the Creator, who is, and must be acknowledged to be, all perfection. In times of imminent danger, the swiftness man is capable of, from the admirable structure and formation of his legs and feet, enables him to fly for his own security and protection, both against men and animals\* ; and the latter, on the other hand, be-

\* “ Quod si omnia que ipsarum sunt partium mente immutaverimus, neque invenerimus positionem aliam meliorem ea quam nunc sortita sunt, neque figuram, neque magnitudinem, neque connexionem, neque (ut paucis omnia complectar) aliud quidquam eorum, que corporibus

ing provided with various, indeed curious, means of escape and defence, thereby secure a sort of equality amidst the animal tribe and themselves, from destruction. With respect to their exterior, neither have animals been neglected, "for," observes the great physiologist, Aristotle, "such animals have hair as go on feet, being viviparous, and such covered with a shell as go on feet, are oviparous."—Not any animal, with which we are acquainted, has been endowed with more than five external senses; nor do we know of a single one in the mighty scale of existence, that is destitute of the whole; notwithstanding its imperfections and apparent insignificance in the creation. To proceed:—if we reason from analogy, and compare man with the vegetable creation; the mineral obeying the laws of combination and attraction, from being inorganized bodies, it will be found, without doubt, that he is not only of more complicated, but elegant organization: Hence may be said to be of the first order of terrestrial existences. In confirmation of this, it

*necessario insunt, perfectissimam pronunciare oportet, et undique recte constitutam præsentem ejus constructionem.*"—GALEN.

has well been observed by the immortal Haller, that “man is an animated automaton, or a most complex natural engine of the hydrauic kind, including all the powers of nature, mineral, vegetable, animal, and intellectual; employed in the offices of nutrition, sensation, muscular motion, and propagation.”

The senses of many animals, it is true, are much more acute than those of man; yet the vigour of intellect of the latter far exceeds that of the most perfectly organized of the animal tribe. The once-celebrated and profound anatomist Willis, speaking of the brain, both in man and animals, beautifully observes, “Since God hath given to man a lofty countenance, to behold the heavens, and hath also seated an immortal soul in the brain, capable of the contemplation of heavenly things; therefore, as his face is erect, so the brain is set in a higher place, viz. above the cerebellum, and all the sensories. But in brutes, whose face is prone towards the earth, and whose brain is incapable of speculation, the cerebellum (whose business it is to minister to the actions and functions of the præcordia, the principal office in those creatures), in them is situated in the higher place, and the cerebrum lower. Some of the

organs also of sense, as the ears and eyes, are placed, if not above the cerebrum, yet at least equal thereto\*.”

We find the stomachs of animals adapted peculiarly to their several kinds of food: the menstruum of the stomach dissolving every description of aliment, yet (how truly wonderful the wisdom of the Deity!) remaining itself insoluble, whilst possessing its vitality and consequent freedom from disease. Speaking of the situation and structure of the several muscles and tendons, connected with the digestive powers, an enlightened observer judiciously remarks, “I cannot believe it should ever enter into the conception of men, in their sober senses, that all this contrivance should owe its origin to chance. If so, what is there which we can attribute to foresight and art!—Most certainly the productions of the latter should be altogether contrary to those of the former †.”

This, surely, added to the testimony of other able and scientific philosophers and physicians‡,

\* Anat. Cereb. chap. 6.

† De Usus Part. Lib. II. chap. 7.—GALEN.

‡ The bore of the gullet is not in all creatures alike answerable to the body and stomach. As in the fox,

abundantly establishes the fact of the being of a God, infinitely intelligent, all powerful, and benevolent, which none, save the most illiterate, nay, mad, can possibly deny: thus saith the Psalmist, “the fool hath said in his heart, there is no God.”

Viewing, then, man as standing at the head of animals in the creation, it might be alleged, where no sentient being, possessed of superior mental capacity could possibly both live and be happy,—“Let him,” says the ingenious Mr Smellie, in his *Philosophy of Natural History*, “be contented: His station in the universal scale of nature is fixed by wisdom. Let him contemplate

which both feeds on bones, and swallows whole, or with little chewing; add next in a dog, and other ossivorous quadrupeds, it is very large, fit to prevent a contusion therein. Next in a horse, which, though he feeds on grass, yet swallows much at once, and so requires a more open passage. But in a sheep, rabbit, or ox, which bite short, and swallow less at once, it is smaller. And in a squirrel, still lesser, both because he eats fine, and to keep him from disgorging his meat upon his descending leaps. And so in rats and mice, which often run along walls with their heads downwards.”—*Anat. Comp.* chap. 5. Dr GREW.

and admire the works of his Creator : Let him fill up his rank with dignity ; and consider every partial evil as a cause or an effect of general good."

Having established the truly great wisdom and goodness of Providence, both towards man and animals, in all states and conditions of life, suffice it to say, that to take a more extended review of the physiology or functions of the whole of animated nature in further confirmation of this, and to explain the varied processes of circulation, respiration, digestion, nutrition, secretion, sensibility, irritability, and generation, would far exceed the limits of my design ; I shall, therefore, proceed cursorily to remark on the several predispositions of the human body to disease.

The growth, perfection, and decay of the human body, afford more or less predisposition to disease. What has been termed hereditary, is but the predisposition of certain organs of the human body to peculiar disease ; which, of course, cannot appear before such parts are elicited, hence rarely antecedent to puberty.

During the first twenty years, the human body is acquiring a state of perfection : the longitudinal followed by its lateral growth ; the former of

which, when premature, becomes productive of dangerous, if not fatal diseases, especially when confined to the trunk of the body. The diseases at this period, must necessarily be numerous and complicated, arising as the several organs develop themselves; hence, in the fluid state of organization, viz. infancy, we behold rickets, thrushes, sores, &c. followed by teething and its consequences, by distortions, tumours, worms, &c.

In manhood, extending beyond the fortieth year, diseases arise mostly consequent upon plethora, and morbid corpulency: thus we account for inflammations, schirrosities, and mental affections, the frequent companions of this epoch. The danger from excesses at this period is obviously very great: hence we behold premature deaths, fatal hæmorrhages, epilepsies, apoplexies, palsies; inflammation of the throat, chest, stomach, bowels, liver, &c.; dropsies, indigestion and its concomitants; and mental affections, especially of the active kind, consequent upon the anxieties and disappointments of this mortal state. Suicide, a species of insanity, also ranks here; a malady which has increased much of late years.

The excesses into which we are led by the

warmth of our passions, particularly love and anger, add greatly to both mental and bodily sufferings; much as the former occasionally may tend to sweeten the bitter cup of life; nay, prove the very completion of our happiness. It has justly been observed by Hufeland, that “modern times are distinguished by a spirit of restless enterprise, and propensity to new undertakings, which deprives many of the most valuable part of their life. The great increase of luxury, by still multiplying its wants, makes new schemes and new exertions of the faculties always more necessary,—hence arises that endless uneasiness, which destroys all sensations of internal tranquillity, &c. Thus Armstrong beautifully remarks:—

“ ’Tis the great art of life, to manage well

“ The restless mind.”

Whilst engaged on the subject of the passions, I should be guilty of an almost unpardonable omission, were I to withhold from the reader the subsequent passage, delivered by Dr Waterhouse in a public lecture concerning health and the doctrine of chronic diseases:—“ It is a melancholy reflection,” says he, “ that there as many pressed

down to the grave by chronic disorders, brought on by a troubled mind, as are cut off by acute ones. Envy, jealousy, concealed resentment, and the corroding discontents of a life of penury and neglect, have slow but destructive effects on the delicate mind and fine-spun frame. A man is often cheerful under the loss of a limb, and long habit may render a deranged state of health tolerable, but “a wounded spirit who can bear.”

It must be admitted by all, that the passions have been given us for the most wise and useful purposes, and are assuredly to be regulated, if not kept under the most complete subjection, by early and unwearied personal restraint, and by a proper education, founded on the firm conviction of its necessity. That they should form the primary cause of all disorders incident to the human body, agreeably to the doctrines of Stahl, is perhaps to be disputed; and, on the other hand, it may no less be contended in favour of them, that the doctrines of Hoffman and his followers, stating the primitive cause of all disorders to be in the structure of the body, and the mechanism of its organs—or, in other words, that the diseases both of body and mind are occasioned by the disorders of the body, are equally void of foundation.

But to proceed, be it then remembered, at this period of our existence, that temperance and sobriety become of the utmost importance, as safeguards against the more fatal diseases to which we are exposed; and securities towards the attainment of an healthful, honourable and happy old age.

When the climacteric and vigour of manhood is past, we become exposed to various maladies, arising from an imperfect organization. Predisposition to morbid action is now excited by rigidity, not fluidity, as in infantile life. Diseases of the urinary and pulmonary organs are prevalent, together with deafness and defective vision, chronic rheumatisms, dropsies, and mortifications, chiefly of the extremities. Should the intemperance of manhood have been productive of direct or indirect debility, especially in full habits, a gouty, paralytic, or apoplectic paroxysm, frequently closes the scene.

It was originally my intention to have taken a review of the opinions of both ancient and modern writers on this subject, from its truly great interest and importance to the public; but having already, I doubt not, exhausted the readers' pa-

tience, and exceeded the limits of my design, I shall proceed to the classification.

CL. I. Diseases wherein the waters will be found to prove eminently efficacious:

Phlegmonous and other inflammations, except in the cavity of the chest.

Eruptive affections

Diseases of the Liver, or Biliary Ducts

Indigestion

Ulcers

Tumours

White Swellings

Scrofulous and Scorbutic Affections

St Vitus's Dance

Piles

Headachs

Rickets

Debilities from Fever

In constitutions under evident predisposition to certain diseases,—especially

Calculous complaints

Gout

Palsy  
Apoplexy  
Epilepsy  
Hysterics  
Dropsy  
Asthma  
Insanity

CL. II. Diseases wherein the waters prove less  
efficacious :

Incipient (or early) Consumption  
Hooping-cough  
Dysentery  
Diarrhoea  
Colics  
Mumps  
Menorrhagia

CL. III. Diseases wherein the waters prove of  
ambiguous effect :

Chronic Rheumatisms  
Cholera  
Diabetes.

CL. IV. Diseases under which the waters would prove manifestly injurious :

Inflammations within the cavity of the chest.

Catarrhs

Pulmonic Consumption

Direct Debility

Mucous discharge from Seminal Vessels.

The arrangement of diseases connected with the subject of these waters, I am sensible, is far from being complete; but the reader must bear in mind the difficulty of method in physic, from our various maladies being so complicated with each other, not to say influenced by predisposition, and the many irregularities of our lives.

Notwithstanding I have thought proper to specify, at one view, the indications and contra-indications, of the Pitcathly and Dumbarny mineral waters, I must enter somewhat into detail on the subject of each disease, wherein the waters are found to be efficacious, in order that my readers may become acquainted with the several applications of them. I profess, here, to treat but of chronic affections; consequently, the inflammations to which I now call the reader's attention, must be of that

description, I would observe, not characterised by fever.

The class of diseases wherein the waters are found to be more eminently efficacious, is very numerous, more so, probably, than the same of any other mineral waters in the kingdom; for reasons which I have not failed to explain to the reader, in my two first chapters on the composition and medicinal properties of them, and mineral waters in general.

We find many, from early life to the conclusion of manhood, subject to phlegmon, boils, whitlows, and the variety of inflammation belonging to the cellular, or connecting medium. To such constitutions, a course of the mineral waters would prove extremely beneficial, when taken so as to act sufficiently on the bowels, and continued for at least a couple of months, during the spring or summer. Such patients must exercise daily, keep the surface of the body as cool as possible, live upon a simple (yet plentiful) regimen, and abstain especially from strong drinks, spices, salted or smoke-dried provisions, &c.

From the very great number of soldiers afflicted with phlegmon some years ago, in the Durham regiment, whilst laying at Portsmouth, I felt

anxious, if possible, to discover its remote cause; seeing that remedies the most powerful had been employed, I confess, with little effect. The result of my discoveries, from accurate returns of the character and dispositions of each, added to the age, predisposition, and duration of their diseases respectively,—proved to be full living, occasional indulgence in strong drinks, though rarely (in justice to the officers, non-commissioned officers, and privates of the Durham regiment), to excess, and a want of sufficient exercise to counteract the consequent disposition to plethora. It must be recollected, at that time, many of them were confined for months, doing duty on board the prison ships, and allowed a plentiful additional rate of diet to their pay; and that others on shore, who felt disposed to work during the intervals of active duty, had at all times sufficient employment, and for which they were, in general, well requited.

Arguments, unless supported by facts, specious as they may appear, claim not (it must be admitted) our implicit confidence. But when the former, founded upon physiological laws, has the latter for its support, we may surely venture, at the least, to affirm—that the disposition to plethora in manhood, aided by remote causes, must fre-

quently be productive of both cellular and cuticular inflammation. I shall, in the next chapter, proceed to illustrate the latter, now that I have, it is presumed, established, and practically, the former.

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## CHAP. V.

### THE SAME SUBJECT CONTINUED.

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SINCE the days of Hippocrates, and particularly in the present age, physic has undergone considerable improvements, and arrived at a state of perfection irreconcilable with ancient times, attributable to the very great improvements in chemistry; but above all, our more perfect knowledge of the admirable, nay, divine laws of the animal economy. Must quackery, then, be suffered to disgrace our comparatively happy country, without being pronounced amenable to its laws, and amidst such very great improvements in medical science, in an enlightened age, and through civilized life, where, at the least, it is to be hoped, superstition and bigotry no longer pre-

vails? Let us bury in oblivion the impositions of that occult science, astrology,—the metallic tractors—and the wonder-working powers of animal magnetism! Let us no less forget the once-celebrated German fanatic, Count Thun—the imposition of his sacred hands, and the numerous unchemical compositions dispensed in ancient times for the prolongation of life; and at this moment (to the disgrace of the legislature, and others high in rank, be it said), the many nostrums advertised as specific in diseases, truly may it be asserted, at variance with each other, and but destined for the destruction of the human race.

Sometime previous to the father of physic, Hippocrates, the art of physic, in combination with philosophy, was practised by Pythagoras; but this great man opened a new era in physic, and separated it from systematic philosophy, trusting much to observation and experience. His writings have been chiefly regarding aliment and atmospheric influence. Celsus, who followed Hippocrates, rather improved than added to his doctrines, which afterwards became ably elucidated, as applicable to medicine, by the superior knowledge and writings of Galen, who flourished after the 130th year of the Christian era. The studi-

ed growth of the human body, variety of temperaments, and application of the non-naturals, (viz. air, meat, drink, sleep and watching, motion and rest, retention and excretion, and the passions of the mind,) originated with Galen; and in addition, he might be considered as the commentator on Hippocrates. From this time to the revival of literature, nothing extraordinary appeared; but, from the revival of letters, to the period of Sanctorius, much erudition, sound judgment, and refined doctrines, distinguished the present from the preceding ages: in illustration of this, need only be mentioned the names of a Cornaro and Bacon. Sanctorius—who immortalized his name, by experiments on insensible perspiration, added to original ideas, not to say invention, concerning the thermometer—next made his appearance, and discovered much patience and ingenuity in the application of this instrument, in order to ascertain, if possible, the degree of febrile heat. His numerous and many curious experiments have not been published in detail, but he has accurately, and without doubt, faithfully recorded the results thereof. Jealousy, however, inimical to all sciences, robbed him of his justly merited fame, and undermined his reputa-

tion ; but, it is needless to observe, that posterity have not been unmindful of his labours ; and, as remarked by Halle, “ his name has been preserved to posterity, by that of Sanctorius, as the fame of Homer has transmitted to us the name of Zoilus.”

About the fifteenth century, we have to record the revival of physical sciences, the classics having re-established true principles—the result of observation.

In the sixteenth century, anatomy, chemistry, and the circulation of the blood, remained somewhat a mystery ; notwithstanding the labours of a Paracelsus, a Fallopius, Botalus, Vesalius, &c.

The career of the succeeding century, however, became more brilliant ; anatomy no longer contemplated on the study of the lifeless organs : the immortal Harvey discovered the circulation of the blood—the course of the lacteal veins was successfully traced by Asellius, thereby establishing a principle of motion—to the discovery of a lymphatic system, we became indebted to a Bartholine and Rudbeck ; and for its further improvement, about the middle of that century, to a Hunter, a Hewson, and a Sheldon. The anatomy of the organs of sense, the muscles and vis-

cera, added to their organical derangement, and varied states of disease, was about this time explained with much precision, by Winslow, Cooper, Albinus, Morgagni, and others. It should be observed, that profound anatomist, Willis, had previously studied the brain and nervous system, though less successfully than in later times. For the study of that truly important science (especially to the physician), physiology, we have been the most indebted to a Haller; and for that of comparative anatomy, also of much interest, to Blumenback, Malphigi, De Graaf, Grew, Vicq d'Azyr and Cuvier.

Regarding chemistry, Vanhelmont shook off its yoke of antiquity, and without doubt hastened the birth of chemical science.

Here have we to record (however, imaginary this theory, founded on the principles of phlogiston), the great names of a Stahl, a Boerhaave, and a Hoffman, followed by a Geoffrey, Bergman, Scheele, Black, Macbride and Pringle; and, subsequently, by others still more intelligent, it is presumed, than their predecessors, who have added to this science many brilliant discoveries, more curious, it must be confessed, than beneficial to physic.

At these times, medicine, founded on the traditions of past ages, made but little progress; from the anxiety, no doubt, to establish the doctrines of the ancients, built chiefly upon the theory of concoction; which, practically speaking, might be considered as vague and chimerical. When the yoke of prejudice was shook off, and systems became subjected to the test of experience, a Mead, Friend, Sydenham, Huxham, De Haen and Stoll, distinguished themselves by their writings.

In more modern times, efforts have been made to connect the phenomena of diseases with as few principles as possible, considered to be incomplete as a whole; the most of them, without doubt, true in some of their parts: In illustration of this, we behold the theories of a Boerhaave, a Stahl, a Hoffman, a Brown, and a Cullen—the latter, the present theory of the schools. Attempts have since been made, I regret to say, with little success, to found the practice of physic upon more incontrovertible laws, I mean those of the animal economy; and Dr Clutterbuck of London, my once revered teacher, formed a system of practical nosology, for the purpose of his lectures—strange to relate! not graciously receiv-

ed in this Cullenian age, being at variance with the hypothetical doctrine of the schools, which ought to have exalted his (truly deserving) name to posterity.

But it is not the mere celebrity of the man, his interest, titles, and fashionable acquirements, that we are bound in reason, or in duty, to admire;—these, for the most part, are but fleeting and inconstant, somewhat, perhaps, essentials in the scale; it is the well-founded physiological doctrines which he lays down, established upon irrefutable laws, and the ever pleasing heartfelt energy with which he endeavours, at the least, to inculcate them.

To resume our subject, regarding the diseases wherein the Pitcaithly and Dumbarny mineral waters will be found to be so eminently efficacious, I first turn my attention towards cutaneous or eruptive affections, so prevalent amidst all ranks, and for the cure of which the sulphureous waters have long been celebrated; an error which I have endeavoured to correct throughout the preceding part of my observations. The whole of them may, with justice, I presume, be said to depend upon febrile affection—cuticular inflammation—or contagion. Of the first class I would

rank symptomatic rashes, and occasional phlegmonous and pustular inflammation. Of the second,—the variety of pimples, and cuticular defædations; and, of the third—scabbed head, itch, and the specific eruptive inflammations, as small-pox, cow-pox, &c. To employ the mineral waters here, with success, regard must be had to the nature and duration of the malady: For example, in the first class, they would require to be used with some caution under all rashes symptomatic of febrile irritation; or, in other words, when fever has primarily characterised the disease. The same might be said in the specific ones, as small-pox, cow-pox, measles, &c. when there exists marked affections of the lungs. In, however, the phlegmonous and simple pustular inflammations, pimples, cuticular defædations, herpes, scabbed head, &c. they will be found eminently useful; and are to be employed under such circumstances, to their full extent, both internally and externally, occasionally in a tepid or otherwise state; aided by an appropriate regimen, and above all, abstinence from condiments and strong drinks.

Affections of the liver, or biliary ducts, except in their states of acute inflammation, characterised

by fever, are so immediately connected with the functions of the stomach, that we might here consider them under the subsequent affection in the classification—indigestion. The liver, I shall hereafter have occasion to remark in my observations on the digestive powers, is a function of considerable importance to the animal economy, and, fortunately for the human race (another instance of the wisdom of Providence), somewhat insusceptible of inflammation. Not so with the membranous coverings of those more vital parts, the brain and lungs. It is, however, peculiarly disposed to enter into that state, from the excess of condiments and strong drinks, especially in the warmer climates; and such as have been addicted to frequent intoxication, rarely die without some organic affection of it. In its diseased state, early attention is requisite to the use of the mineral waters; indicated so as to occasion a daily and sufficient action of the bowels, added to abstinence from the darling vice, moderate exercise in the open air, regularity with respect to sleep, and an appropriate regimen, consisting chiefly of vegetables and fruits, which will be found much to improve, if not to fully re-establish the health of the patient.

Dyspepsia, or indigestion, we are to consider as the symptom of disease; but whether actually seated in the stomach, or amidst some of the chylopoietic viscera (situated in the abdomen, and subservient to the purposes of chyliification), it is at all times difficult to determine, from the intimate connection of these functions with each other; nay, with the animal economy at large. Its inflammation, or organic disease, however, may for the most part be discovered by symptomatic fever, pain, and vomiting, in the one case; and by durable, and deep-seated pain, with inability to retain even the most simple food on the stomach, in the other.

The diseases consequent upon a morbid state of the stomach and chylopoietic viscera, are truly numerous, complicated, and, for the most part, of difficult cure, from our comparative small influence, probably, over the patient's appetites and passions:—Illustrative of this, and as an useful companion to the invalid during a course of the Piteathly, or other mineral waters, I subjoin a classification. I might further observe, that it will, at the same time, prove an useful auxiliary to the subsequent chapter, on

the relative digestibility of both animal and vegetable productions.

CL. I. Such diseases as frequently depend upon an immediate derangement of the function of digestion :

*Fevers of certain kinds*, termed Gastric, Bilious, Nervous, &c.

Periodical or continued pain at the pit of the stomach, not unfrequently affecting the respiratory organs

Hiccups

Night Mare

Cramp of the Stomach

Spasms

Convulsions

Croup

Heartburn

Waterbrash

Nausea and Vomiting

Headachs

Sick Headach

Cholera Morbus

Abortions

Cynanche

Gastritis

Red Gum, and other infantile diseases.

CL. II. Diseases more consequent upon its chronic state of derangement :

Gout

Apoplexy

Palsy

Epilepsy

Hysterics

St Vitus's Dance

Hypochondriasis

Melancholy

Insanity

Amenorrhœa

Menorrhagia

Impaired Vision

Cutaneous affections

Scrofula

Thrush

Worms, especially the Tape-worm, for the most part productive of severe pain, and cramp in the stomach.

Asthma

Spasmodic and Nervous affections

Chronic Inflammation of Liver

Jaundice  
 Simple periodical obstructions in  
 the Biliary Ducts  
 Diabetes  
 Vomiting of Blood  
 Periodical Headachs  
 Green Sickness  
 Dropsy  
 Nervous Consumption, or Atrophy.

CL. III. Diseases arising from acute, or chronic  
 Inflammation of the Stomach :

Partial Dissolution of the Stomach  
 Suppuration  
 Ulceration  
 Scirrhus  
 Contraction  
 Cancer.

Thus have I endeavoured to shew the importance which must, at all times, be attached to the admirable functions of digestion, whether we consider it as depending more particularly on the properties of the saliva—the gastric or pancreatic juices—or the bile; or even, agreeably to ancient doctrines, to mechanical impulse—chemical affinity—or inexplicable laws.

Suffice it, then, to say, that under all, or most of its chronic states of derangement, the Pithy waters will be found to tend not a little to the restoration of its tone; without which the general health cannot possibly be re-established.

Regarding the use of the mineral waters in ulcers, tumours, and white swellings, I would shortly observe, that all ulcers depending on a scrofulous or scorbutic taint (and not a few surely there are), will be most materially benefited by them, taken internally, and daily, in sufficient doses. In tumours and white swellings, chiefly incident to the scrofulous or dyspeptic, the waters ought to be applied externally at the same time, persevered in without interruption, and, where the parts will admit of it, they should not fail to be bandaged. The disease scrofula is involved in much obscurity; and I believe it to be connected primarily with some imperfection in the digestive function—at the least, when not derived from our parents.

Saint Vitus's dance has been long known to depend on such derangement, I mean of the digestive powers, referable chiefly to the chylopoietic viscera. The same might be said of piles, rickets, and most of our headaches, that are not

characterized by fever. Here, the Pitcathly waters prove eminently efficacious, and rarely fail to re-establish the health—provided they are taken so as to produce a sufficient effect, and at the same time accompanied with regular exercise, and a correspondent regimen. After most fevers we discover considerable disposition to plethora, notwithstanding the patient's debility, and occasionally want of appetite. At such times, much caution is required, not only to prevent a relapse, but also to restore the tone of the digestive powers, manifestly injured by the duration and severity of the disease. In such cases, viz. debilities from fever, the Pitcathly waters, with their auxiliaries, may be recommended, with advantage, to the patient.

I am next to speak of their virtues, under evident predisposition to certain diseases: And here I must primarily remark, that when the patient has derived it from his parents (so far as hereditary disease can be said to exist), the efficacy of these mineral waters can prove, at the best, but palliative, if not aided by the utmost sobriety and temperance.

Complaints of the urinary organs originate, frequently, in debauchery and intemperance.

Gout, palsy, apoplexy and epilepsy, take their rise from full stimulant living and insufficient exercise; and with respect to hysterics and insanity, they depend much upon mental influence, or in other words, on the passions, and consequent affections of the mind, added to repeated excesses in strong drinks. Dropsy and asthma, are diseases more of advanced life; an attack of the former, and severe fit of the latter, mostly terminating the patient's sufferings. They may, in addition, be considered, for the most part, as the offspring of intoxication and intemperance.

From this lamentable catalogue, and cursory view of our several diseases of predisposition, as I have thought proper to term them, the following conclusions must be drawn; viz. that they are, in *toto*, diseases of plethora or repletion, consequent upon intoxication and intemperance, together with their concomitants—giving rise to serious derangement, if not disorganization of the more vital parts; instance the brain, heart and lungs, terminating not unoften (as in epilepsy and apoplexy) in sudden death.

The reflection, I confess, is a painful one; seeing that they both prove so truly destructive

to our health, our morals, and our earthly happiness.

Why the wonder, then, that quackery has met with such sanction in the present age ; professing, as it does, to cure diseases without either abstinence, or even temperance in the use of strong drinks—it is not needful that the passions should be bridled, nor yet the age or temperament known !—The imposition is too absurd to merit further animadversions from my pen ; and I would but observe (perhaps, not altogether for the reader's consolation), that, the greater part of them are remediable, most assuredly, through no other medium : causes must be removed before effects can possibly cease !

The object I had in view, by the recommendation of the Pitcaithly mineral waters in these diseases, was the reduction of morbid vascular action, consequent upon the established and increased action of the bowels, for the most part torpid or inactive, and with difficulty moved (at times) by the most drastic purgatives.

They, here, are required to be taken so as to produce their full effect ; and persisted in for a couple of months annually, so that the disposition to diseased action may be cut short, and the

patient's health re-established (in addition, it must be remembered), by exercise, sobriety and temperance.

I proceed next to the class wherein the Pithy mineral waters are found to prove less efficacious. Notwithstanding, I have admitted this as a fact, they are even here far from being wanting in virtue. Dysentery or bloody flux, is a disease of approaching organic derangement in the abdominal viscera, and moreover of a contagious nature. The colon is the seat of disease, and the ravages occasioned therein from its duration, demands that more powerful remedies should be employed: the waters, therefore, might assist, yet not in aggravated cases, cure the disease. Diarrhoea or looseness, and colics, are ultimately connected with each other; and from frequently being attended with inflammation, especially the latter, thereby productive of symptomatic fever, the use of the lancet, added to the warm bath and tepid fomentations, proves a valuable acquisition to the purgative operation of the mineral waters. Similar observations might be made with respect to mumps—a painful inflammation, and swelling of the parotid and maxillary glands. Regarding menorrhagia, a disease mostly depen-

dent upon plethora, little more need be said, except that few remedies prove more efficacious in its primary stages, than mild aperients or purgatives, especially of the neutral salts, in such doses as to procure, at least, a couple of easy motions daily.

The operation of mineral waters, containing the neutral salts, uncombined with sulphur or iron, and moreover, not deficient in quantity with respect to these salts, must necessarily prove beneficial in the diseases respectively of this class; though, perhaps, not to the extent intimated of the former, the maladies of which being more of a chronic nature, consequently less connected with fever, and requiring, upon the whole, fewer adjuncts for their extermination. I need scarcely observe, here, in conclusion—that colic is a disease of frequent (and at times fatal), occurrence;—the practice of taking spirits during its violence, is replete with danger, and liable to convert a simple obstruction into a confirmed constipation, if not destructive inflammation, of the bowels. I now proceed to remark on the diseases of the third classification—wherein the Piteathly and Dumbarny mineral waters are found to be of ambiguous effect.

Under the title of ambiguous remedies in the cure of diseases, I might venture to rank all compositions of quackery, and not a few articles of the *materia medica*; which might, with great advantage to the auxiliary science of physic, be expunged from it. But the evil does not rest here, for, independent of the delay under the application of them, they are found, not unfrequently, to act with such violence as to endanger the life of the patient; or, at the least, to convert a mild into an obstinate malady.

Of the former description of remedies, we may instance the *Eau Medicinale d'Husson*, supposed to be a composition of the tincture of hellebore-root, corrected with laubdanum;—Ching's famous worm lozenges, noticed in a former chapter;—Norton's drops, a disguised solution of the sublimate of mercury, &c.—and of the latter, the very numerous compounds, sold under the respective names of a Solomon, a Brodum, a Spilsbury, a Velnos, a Godfrey, a Godbold, Lignum, and indeed many others; compositions chiefly of mercury, opium (the quack's sheet anchor), and the more active vegetable stimulants, or condiments.

But to proceed, entreating the reader's indulgence for this digression, it becomes a proper

subject of enquiry, why those waters are of doubtful efficacy in rheumatism; seeing that they have been recommended, as far as I can learn, for a series of years, in that painful and complicated malady.

The nature or seat of rheumatism, seems not very clearly to have been understood, either in ancient or modern times; and it has been supposed to depend on inflammation of the membranous and tendinous expansions of the muscles: at all events, however, we may conclude it to be an inflammatory disease (and of this, we have frequently ocular demonstration), notwithstanding in its advanced stages, a stimulant, rather than cooling regimen, has appeared in some cases of manifest utility to the patient.

To the neglect and maltreatment of acute rheumatism, may be attributed the prevalence of our many chronic affections of that disease—most lamentably characterised, in some cases, by enlargements of the joints—occasional severe and protracted pains—and by a sort of paralytic debility, or defect of voluntary power; rendering the patient, if not incapable altogether of motion, extremely averse to it; hence, the stomach sympathizes with the original disease, the function of

digestion becomes impaired, and he drags out a truly miserable existence, until cut off by a severe paralytic stroke, a fit of apoplexy, or of fever.

I shall not further encroach upon the reader's patience, by the useless detail of the various, and inconsistent remedies, employed almost from time immemorial, in the cure of this disease; they are truly so much at variance with each other, whether considered in its acute or chronic stages, that, as remarked by the immortal Sydenham,—“the less said about remedies, which establish no positive facts, and consequently, but tend to mislead the practitioner, the better both for the profession and the patient.” From these and other considerations, I feel anxious to impress upon the reader's mind, the apparent insufficiency of the Pitcaithly or other mineral waters, in the cure of rheumatism—whether acute or chronic, scrofulous or scorbutic, as it has severally been termed. I am, however, disposed to admit, that in protracted cases, where the derangement of the stomach, and chylopoietic viscera, seems a prominent feature of the disease, in conjunction with other remedies, they may prove, at the least, of some small benefit to the patient: with respect to

their external application here, they may, with safety, nay, advantage, be recommended; though, it must be observed, alone, in their tepid state.

Cholera, is a disease, without doubt, arising from an imperfect secretion, acrimony, or preternatural accumulation of the bile, which, on being regurgitated into the stomach, excites intolerable nausea, and vomiting, attended with purging and symptomatic fever. In the warmer climates, and at particular seasons of the year in Great Britain, it not unfrequently originates from the disposition of the contents of the stomach to run into a state of acetous fermentation, proving, at least, the immediate cause of the disease. In such cases, it would be absurd to depend alone on the efficacy of the Pitcaithly and Dumbarny mineral waters; more adapted, afterwards, to re-establish the patient's health. In diabetes, which, by the bye, I should primarily observe, is an increased secretion of urine, arising from a diseased action of the kidneys; and, moreover, attended with considerable emaciation, and derangement of the general health—neither am I disposed to be sanguine in the use of the Pitcaithly mineral waters; notwithstanding, I feel inclined to contend, that, for the most part, it is a disease intimately

connected with the morbid state of the stomach, and chylopoietic viscera, on which the freedom from disease, and consequent health of the urinary organs, so much depends.

In conclusion of this chapter, I have briefly to remark on the diseases under which the Pitcaithly and Dumbarny mineral waters would prove manifestly injurious.

Inflammation, within the cavity of the chest, it must be confessed, is of dangerous and alarming tendency, and never fails to impress upon our mind, the fatality of pulmonary consumption; not to say the many sudden (and much to be lamented) deaths thereby occasioned.

As it is of the most active kind, from the extreme vascularity of the heart and lungs, both seated in that cavity, added to the important offices of these functions; the application of our remedies, should be no less speedy than powerful (so as to avert disorganization), adapted to circumstances and case; whereby, we may reasonably hope to check the approaches towards that truly lamentable endemic of Great Britain, pulmonary consumption.

To trifle, then, with mineral waters under such affections, would indicate an imperfect know-

ledge of the divine laws of the animal economy, added to an alarming ignorance, regarding the operation of her several remedies; and would seem but to lessen the opinions entertained generally of such natural productions, if not to establish (and perhaps, undeservedly), their inefficacy.

In direct debility, if such a thing there be, we have little to expect, I confess, from the Pitcathly mineral waters; and, with respect to the mucous discharges from the seminal vessels, I would briefly observe, that for the most part, they require somewhat more specific remedies.

Thus, I have endeavoured to detail, and sever from obscurity, the component parts, and medicinal properties of the Pitcathly and Dumbarny mineral waters. In the execution of my design, (amidst numerous professional avocations), I have been guided, as much as possible, by facts and experiments, founded either on chemistry, therapeutics, or the laws of the animal economy. Should I, nevertheless, have failed in the attempt, or expressed myself at any time, in terms of warmth or disapprobation of the conduct of others, I claim the reader's indulgence, and must hope for his forgiveness, under the most perfect assurance,

that my sole object has been to benefit mankind. Under these circumstances, surely, I am entitled to the compassion, and impartial disquisition of a generous public.

I now, finally, proceed to make good my promise, with respect to classification, and remarks on the relative digestibility of both animal and vegetable productions, belonging properly to the subsequent chapter; and to which I beg leave to refer my reader.

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## CHAP. VI.

### CLASSIFICATION, AND RELATIVE DIGESTIBILITY OF BOTH ANIMAL AND VEGETABLE PRODUCTIONS.

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HAVING been as perspicuous as possible on the several subjects throughout, and shewn (I humbly presume), at one view, the advantages or disadvantages to be derived from a course of the Piteathly and Dumbarny mineral waters, I shall conclude with the application of dietetics, or relative digestibility of both animal and vegetable productions to practice.

For the sake of brevity, and at the same time perspicuity, the arrangement of each class will be absolute, and the relative digestibility of the whole

exemplified by numbers: for example, as in class the first, No. 1. the more easy, and No. 19. the most difficult of digestion. My object throughout will be to apply this much neglected subject to chronic diseases, especially such as belong to the classification in a former part of the work. Respecting the acute ones, more strictly speaking, or fevers, we have little, it is true, to do with regimen, and the less, be assured, the better for the patient, except in states of convalescence, where the absorption of cellular membrane, or fat, from the peculiar nature of the disease, the several evacuations employed, added to the patient's extreme abstinence, has reduced him to the utmost degree of weakness, and necessarily called for the repeated, yet prudent administration of the most nutritious, and at times, somewhat stimulant substances. But be it remembered, that such indulgencies under these diseases, contagious or not, would, for the most part, be speedily productive of death; and hence has the infinite wisdom of Providence been admirably and most profitably displayed, by the total annihilation of appetite, so truly characteristic of fever, it may be said, when the powers of digestion no longer assume their natural and wonted vigour. It is therefore in the chronic

alone that we behold the canine, morbid, irregular, or unnatural appetites to prevail; and consequently, in such cases, I wish to call the particular attention of the reader, without which their cure, under even a most judicious course of the mineral waters, would be doubtful, if not impracticable, or at the least, the greater part of them imperfect, and consequently subjected to relapse. This I shall endeavour to illustrate in my application of the different maladies, and comments upon each classification, agreeably to the subsequent arrangement.

Class.	Order.	Genera.					Relative digestibility.
I.	-	-	ANIMAL FOODS.				
			TERRENE.				
	I	-	THE CHIEFLY WILD.				
		i	Suet	-	-	-	xix
		ii	Oil	-	-	-	xviii
		iii	Marrow	-	-	-	xvii
		iv	Goose	-	-	-	xvi
		v	Tame Duck	-	-	-	xv
		vi	Wild Duck	-	-	-	xiii
		vii	Pork of Wild Hog	-	-	-	xiii
		viii	Pigeons	-	-	-	xii
		ix	Black Game	-	-	-	xi
		x	Plover	-	-	-	x
		xi	Teal	-	-	-	ix
		xii	Quail	-	-	-	viii
		xiii	Partridge	-	-	-	vii
		xiv	Pheasant	-	-	-	vi
		xv	Snipe	-	-	-	v
		xvi	Wood-cock	-	-	-	iv
		xvii	Red Game	-	-	-	iii
		xviii	Hare	-	-	-	ii
		xix	Venison	-	-	-	i

I. Class.	Order.	Genera.					Relative digestibility.
	2	—	THE CHIEFLY TAME.				
		i	Cock	-	-	-	ix
		ii	Hen	-	-	-	viii
		iii	Capon	-	-	-	vii
		iv	Gallina		-	-	vi
		v	Turkey		-	-	v
		vi	Goat	-	-	-	iv
		vii	Rabbit		-	-	iii
		viii	Beef	-	-	-	ii
		ix	Mutton	-	-	-	i
	3	—	THE YOUNG.				
		i	Brawn	-	-	-	ix
		ii	Jellies	-		-	viii
		iii	Eggs	-	-	-	vii
		iv	Pig	-	-	-	vi
		v	Tripe	-	-	-	v
		vi	Veal	-	-	-	iv
		vii	Lamb	-	-	-	iii
		viii	Chicken	-	-	-	ii
		ix	Kid	-	-	-	i

Viewing the stomach as a function on which our very vitality, not to say health, depends, as an organ subjected to such inconceivable varied states of repletion and inanition; and moreover,

destined to receive substances, next to incapable of simple solution out of it, so as scarcely ever to be at rest; how can we wonder (notwithstanding its transcendency of structure, added to its admirable connection with more remote parts, and no less the peculiar solvent powers of the gastric juice), that it should frequently, very frequently, prove the source of the most grievous and complicated diseases. For the elucidation of these affections, which I have long suspected as being more or less connected with derangement of the stomach, or chylopoietic viscera, I beg leave to refer the reader to Chap. V., wherein I have given a classification, with ample comments, under the important head, Dyspepsia or Indigestion. Its introduction here must at once appear obvious, as a companion to the dietetics, seeing that they ought never to be separated from each other.

The reader will perceive, that I have given two distinct classifications of animal foods; viz. terrene and aquatic (that is, such as inhabit the earth, and such the waters), whether river or sea, which require to be noticed under separate heads; the terrene in the present age being alone admitted under the designation of animal food; and it

must therefore be clearly understood that I do not mean fish, except when so expressed.

In a state of health, it would appear that the digestive powers of man, are adapted to the solution of an almost incalculable variety of foods, as well from the vegetable as the animal creation; animals, on the contrary, however, are pretty much confined to one or the other, and rarely, it is true, indulge in variety without manifest injury to their health. In the tropical climes, animal food cannot be indulged in with impunity, and vegetables and fruits would seem to be the most salubrious; but in temperate climes, to which I shall chiefly confine my observations, its moderate indulgence, except under actual disease, whether acute or chronic, let me impress upon the reader's mind, with sufficient exercise, is rather to be approved than condemned. We rarely find that animal food, under the conditions above stated, has any direct tendency towards the production of disease; and the occurrence of apoplexy or gout, under such indulgence, for the most part, is not to be attributed to the quality, but quantity of this food, most powerfully assisted, at the same time, by indolent habits of life, and by the too free use of condiments, and strong drinks. Thus

the epicure and the glutton become exposed to the one disease or the other, and drag out a truly wretched and painful existence; or on the other hand, expire after a debauch, it is to be feared, unprepared and unfitted for a future blessed state.

The longevity, health, and vigour of the primeval race may be attributed, without doubt, much to the salubrity of their food. The absurdity of resorting to supernatural means for the preservation of health, and prolongation of life, is shewn by the example of the great, and no less good, Cornaro, that once professed epicure and libertine, who, after his fortieth year, was pronounced by his physicians incapable of surviving for more than a couple of months, and who afterwards lived in good health for the space of sixty years, upon 12 ounces of food, and 13 ounces of beverage per day, during which time he avoided extremes of all kinds, and endured, with trifling derangement to his health, the anxieties and injustice of a law-suit, which without doubt was instrumental to the death of two of his brothers, and the calamitous event of being overturned in his carriage, and having both legs and arms fractured and dislocated.

The golden precepts of Plutarch, bordering

upon the Boerhaavian, recommending for the preservation of health, that "the head should be kept cool, and the feet warm," is by no means unworthy our consideration, added to the recommendation, at the same time, of fast days instead of physic, and of attention to the state of the mind, seeing its true intimate connection with the body : These valuable precepts are, be assured, of themselves a perfect treasure to the valetudinarian, who need not, in the time of Libarius, the celebrated professor of medicine and chemistry, have gone to the University of Halle, for the transfusion of blood from the calf, the stag or the lamb, in order to preserve health, and at the same time prolong his life ; nor yet need he have resorted to the practice and fashion of the Egyptians, who, on every slight indisposition, had recourse to emetics and sudorifics, with a view, I should presume, of correcting their excesses, and guarding against repletion, which the gymnastic exercises of the Greeks would have prevented.

It is lamentably true, that in the present age we eat, drink, and sleep a great deal more than nature requires ; and probably no less a matter of fact, that the excess of animal food and strong

drinks, without much bodily exertion, are productive of very frequent and fatal diseases.

But to proceed, I shall endeavour to shew that, as primarily observed, in a state of health, animal food is rarely of itself productive of disease, when taken in moderation, judiciously selected, and fitly prepared. Its nutritive and digestive properties must ever depend on a variety of circumstances; to illustrate which, I shall take a cursory review of digestion—of cookery—and of each order belonging to this class.

With respect to digestion, it is a function of the utmost importance to the well-being of the animal economy, and claims the attention of all ranks, especially the sedentary and studious, who suffer, not unoften, materially under that complicated malady, indigestion.

I shall pass over the chemical and mechanical theories of digestion, as unworthy of notice in a practical point of view; and taught at a period, when neither physiology, nor chemistry, had attained any degree of perfection, consequently grounded not a little upon hypothesis. The balsamic essences and elixirs of the alchemists, for promoting longevity, Count Cagliostro's stomachic elixir, and St Germain's tea, both for the

prolonging of life, need but to be quoted in illustration.

The change which the food undergoes in the stomach, may be attributed to the action of the gastric juice upon it; a fluid secreted by the glands of its internal coat, primarily assisted by mastication and the saliva; hence the utility of the teeth, or a succedaneum for them, in the process of cookery, and the injurious effects of any improvident expenditure of the saliva by smoking, chewing of tobacco, &c. It must also appear evident, that the gastric juice, a fluid secreted purely for the purposes of digestion, must suffer from excessive dilution; unless it can be proved that the sum total of our secreted fluids (nay, even wines and spirits), acquire strength by the addition of water.

The nature and properties of the gastric juice, it is true, cannot be satisfactorily ascertained, from its non-purity in the stomach; though it is said to coagulate full six thousand times its weight of milk. The chyme formed in the stomach, undergoes further changes in its passage through the intestines, which is effected chiefly by the bile, a secretion of the liver.

The formation of the chyle, a fluid resembling

milk both in colour and consistence, and its separation from the excrementitious parts, for the purposes of nutrition, appears a process somewhat chemical, and one of considerable interest to mankind, nay, animals.

Its absorption by the lacteals, and consequent circulation through the blood-vessels, followed by an expulsion of the fæces, finishes the healthy operations of digestion.

From this brief view of digestion, it must appear obvious, that many of our complaints of indigestion, with its consequences and most serious obstructions, arise from eating large quantities of various kinds of food, difficult of solution in the stomach; such, for example, being of a dense, fibrous, or glutinous nature: The first (*viz.* dense), applying to animal foods in a state of preservation, to be spoken of under the head of condiment animal foods; the second (fibrous), to animal foods generally, the subject of our present remarks; and the third (glutinous), to farinaceous grains, of inestimable utility to the human race, and belonging to the vegetable creation.

Since the days of Hippocrates, cookery has assumed a most formidable aspect, become quite a trade, and employed the pen both of the philo-

sopher and the physician. The eye and the palate have been chiefly studied, in the generality of instances, without proper regard being had to either digestion or nutrition; and the abuse in this branch of luxury, I need scarcely add, has been productive of the most lamentable consequences to the human race.

In the process of cookery, three objects present themselves to our view; viz. digestion—nutrition—and taste: Animal foods are not rendered more easy of digestion in the stomach (however contrary to the general opinion), by the addition of condiments, or the truly absurd and operose processes of cookery; the former of which we have exemplified in the salted, smoke-dried, and highly seasoned meats; and the latter amongst the luxurious soups, jellies, &c.

The most wholesome culinary preparations of animal food, are roasting, boiling, and stewing; frying or baking proving extremely pernicious; and broths, soups, and jellies are but adapted to strong and healthy stomachs.

These observations apply equally, in a comparative sense, to nutrition; and with regard to the palate, it ought never to be consulted (especially by the valetudinarian) at the expence of

the digestive powers. The first order of the classification termed—"chiefly wild"—contains animals principally of the oviparous tribe, in general not the most easy of digestion, particularly the goose, duck, and hog, the flesh of which is highly gross, viscid, and almost indigestible to weak stomachs. With the exception of the oils in a solid, fluid, or semi-fluid state, they are found to rank as such in this order; none of which, under a course of the Pitcaithly, or other mineral waters, should be eaten, nor indeed ever by invalids.

Venison, however, for the most part, if not too highly flavoured, will be found nutritious, and light and easy of digestion, when corrected, it must be observed, sufficiently with vegetables.

This confirms the necessity of all animal foods being kept for a sufficient length of time, before cookery, particularly the flesh of aged animals, and of such as are fibrous from imperfect growth: the latter we have exemplified by much of the veal, sold in many parts of Scotland. The hare is by no means an objectionable article of food; when young, stewed instead of roasted, or made into soup, and eaten without condiments or wine, and with a little fresh current jelly. The rest are of comparative trifling utility, more adapted to

the epicure than the husbandman or invalid, by their texture and stimulant mode of cookery.

The second order—"tame"—a continuation of the oviparous species of animals, presents also to view three of the viviparous (Gen. vii. viii. and ix.) which are to be esteemed the most valuable articles of food amongst the animal tribe.

Of quadrupeds, generally speaking, we may remark that they are the most nutritious of all alimentary substances, which possess at the same time a stimulant property—and that such of them as contain much of the sanguine oleaginous fibrin (for example beef), with little of the gelatin, or gummy mucilaginous juice, ought to be eat sparingly both in manhood and old age.

The white meats, as they have been termed, containing much of the gelatin with the simply fibrin, when young, and the produce of animals that have been suffered to range, instead of being cooped up, and fed into disease—afford a light, nourishing, and easily digested aliment, and are peculiarly adapted to invalids, and convalescents from acute diseases, who cannot bear the highly nutritious and stimulant properties of the red meats (as I shall term them, for the sake of distinction), from a disposition to repletion in the

one case, and to relapse in the other. The rabbit may be considered as a medium sort of animal food, and is no less suited to the invalid, it should be observed, in its wild and youthful state.

In ancient times the domesticated goat was highly esteemed, both for its flavour and nutritious properties; but in modern ones, I would remark, it is to be condemned in its dried and salted states, from its indigestibility in the stomach. The beef of oxen, at a fit age, and properly fed, is highly nutritious, stimulant, and by no means difficult of digestion; though, I confess, not adapted to the invalid, the sedentary, nor the studious.

With respect to mutton, it is upon the whole not so objectionable as beef; being less stimulant, containing somewhat more of the gelatin, and, moreover, easier of digestion—I should observe, however, when young, produced by animals fed in proper pastures, and sufficiently exercised.

The third order of animals (young) which next claims my attention, exhibits to our view a dissimilarity of articles, at the least, as far as the powers of digestion are concerned. Of brawn, I would shortly remark, that it is a species of food but calculated for the robust and vigorous, who

take much exercise, and are at no time addicted to indigestion. Animal jellies are by no means adapted to all stomachs, and for my own part, I feel inclined to doubt their salubrity: whether this arises from the addition of condiments, or a refined mode of preparation in high life, I shall leave the reader to determine. Eggs, another of the invalid's restoratives, and which have undergone various combinations in cookery, are here considered somewhat of difficult digestion, at least when compared with some of the subsequent articles of the class; in illustration, however, of this, it would be proper for me to enter into some explanations regarding their properties, seeing that they are an aliment of such general utility, and, further, considered by most as light and easy of digestion. It manifestly appears that the yolk, and albumen, or white of the egg, differ materially from each other; that the former consists of oil, gelatin, water, and a coagulable matter; and the latter of materials resembling the curd of milk, and the coagulable part of the blood.

The yolk, therefore, must be considered as innocent in all its states of solution, more especially without the application of heat: But with respect

to the albumen, its extreme coagulable, nay, almost insoluble tendency, above all, when exposed for any length of time to the fire, renders it hurtful to weak stomachs, and consequently establishes the fact, that cakes, puddings, and custards, which contain much of the albumen, are of very difficult solution in the stomach. Of the tripe and pig I would briefly remark, that neither of them are suitable articles of food for the invalid, notwithstanding the latter is so highly esteemed by the epicure and glutton.

The article veal, contrary to general opinion, I consider to be unfriendly to weak stomachs; which arises from its fibrous texture, its viscidness, and, moreover, disposition to enter into an acetous state in the stomach; a good deal attributable to the age, and improvident bleedings of the animal.

With respect to lamb, I refer the reader to the article mutton, which it resembles in its dietetic and digestive properties, except when treated, as is said to be the abominable custom with veal. The chicken and the kid are not the least valuable of the white meats, and may with much propriety be recommended to the invalid, the sedentary, or the studious.

I shall next proceed to the aquatic animal foods,  
and present the reader with a classification.

Cl.	Or.	Gen.	ANIMAL FOODS.			Rel.
II.	-	-	<i>AQUATIC.</i>			Di-
	1	-	THE SCALED.			gest.
	i	Eel	-	-		xxiii
	ii	Skate	-	-		xxii
	iii	Sturgeon	-	-		xxi
	iv	Turtle	-	-		xx
	v	Salmon	-	-		xix
	vi	Turbot	-	-		xviii
	vii	Brill	-	-		xvii
	viii	Herring	-	-		xvi
	ix	Trout	-	-		xv
	x	Gudgeon	-	-		xiv
	xi	Mullet	-	-		xiii
	xii	Tench	-	-		xii
	xiii	Carp	-	-		xi
	xiv	Doy	-	-		x
	xv	Pike	-	-		ix
	xvi	Cod	-	-		viii
	xvii	Plaice	-	-		vii
	xviii	Flounder	-	-		vi
	xix	Sole	-	-		v
	xx	Mackarel	-	-		iv
	xxi	Perch	-	-		iii
	xxii	Haddock	-	-		ii
	xxiii	Whiting	-	-		i

Cl.	Or.	Gen.	THE SHELLY.			Rel. Dig.
II.	2	—				
		i	Oysters	-	-	v
		ii	Muscle	-	-	iv
		iii	Lobster	-	-	iii
		iv	Crab	-	-	ii
		v	Shrimp	-	-	i

The nutrimental properties, and relative digestibility of both quadrupeds and birds having been fully considered, I now propose to contrast those of fishes with them, in order to shew—1st, that they are inferior in point of nutriment, to animals—2d, that with respect to digestibility most of them are dubious—and, 3d, that in general they are rarely suited to the invalid, the sedentary, or the studious. Much as I differ in opinion with the celebrated Cullen, whose memory I am bound to respect, I must agree with the immortal Haller and others, regarding the deficient nutrimental qualities of this class, when compared with the preceding one of animals.

The ancients were great admirers of fish, nay, esteemed them as a luxury—hence their physicians (some of whom in all ages have had regard to fashion) prescribed them both under states of convalescence and disease. It must be admitted, the flesh of the whole of them is less stimulant,

fibrous and oleaginous than that of animals;—and with respect to some of them, that the latter, viz. oil, nevertheless prevails to such a degree, as to prove extremely oppressive to the digestive powers. This leads me in the next place to remark on their digestibility generally speaking, so far as regards texture, quality, or form. The texture of fish, it is true, for the most part, is less firm than that of animals—from being divested of the fibrous structure—from inhabiting the watery element—and, from subsisting upon a very different kind of aliment. Its quality, however, becomes viscid or oily, or both (examples which we have of the latter in eels, herring, and salmon), whereby from excess, or in weak stomachs, they disorder the chylification, morbidly diminish or increase the action of the bowels, and ultimately give rise to the most loathsome and obstinate eruptive affections. Its accustomed form, or mode of exhibition, adds neither to its nutritive nor digestive properties—hence our condiments and acids, our pickling and drying of fish, of whatever quality or age, are to be condemned as destructive of its nutritive principle, without adding in the smallest degree to its digestive properties.

From all these circumstances, we are led to conclude, that fish should be abstained from as much as possible by the invalid—the sedentary—and the studious; and especially, I would observe, under a course of the mineral waters.

The general view which I have taken of this class of animals, leads me to say little indeed of them respectively—having embraced every point (at all interesting) connected with their alimentary or digestive properties. Of the river or sea fish, it may be briefly remarked—that the former are less palatable, nutritive, and digestive than the latter; containing for the most part, an oil remarkable for its acrid and viscid qualities, and peculiarly hurtful to the stomach.

Of the “shelly tribe”—Oysters have been esteemed, and various opinions have prevailed with respect to their digestibility: The nutrition which they afford is by no means inconsiderable, and probably, if taken in moderation, without condiments or fats, the stomach will not suffer from the use of them. I would not say as much for the crab, the lobster, or the muscle; all of which, for the most part, will be found to disagree with those of sedentary pursuits and addicted to indigestion.

I subjoin a classification of condiment and liquid animal foods, which concludes my remarks on animal foods generally.

Cl.	Or.	Gen.	CONDIMENT ANIMAL FOODS.		Relative digestibility.
III.	-	-			
	1	-	SUCH AS POSSESS SOLIDITY.		
		i	Salt Fish	- -	vii
		ii	Pork Ham	- -	vi
		iii	Bear Ham	- -	v
		iv	Tongue	- -	iv
		v	Beef Ham	- -	iii
		vi	Mutton Ham	- -	ii
		vii	Salt Beef	- -	i
IV.	-	-	LIQUID ANIMAL FOODS.		
	1	-	THE COMPOUND.		
		i	Jellies	- -	vi
		ii	Pease Soup	- -	v
		iii	Turtle Soup	- -	iv
		iv	Common Soup	- -	iii
		v	Mutton Broth	- -	ii
		vi	Beef Tea	- -	i
	-	-	THE LACTESCENT OR MILKY.		
		i	Cheese, New	- -	xii
		ii	Cheese, Old	- -	xi
		iii	Butter	- -	x
		iv	Cream	- -	ix

Gl.	Or.	Gen.				Rel. Di- gest.
IV.	1	v	Goats Milk	-	-	viii
		vi	Sheeps Milk	-	-	vii
		vii	Butter Milk	-	-	vi
		viii	Cows Milk	-	-	v
		ix	Mares Milk	-	-	iv
		x	Asses Milk	-	-	iii
		xi	Human Milk	-	-	ii
		xii	Rennet Whey	-	-	i

I pass over the condiment animal foods, already pronounced as detrimental to the valetudinarian. Of the liquid, I would briefly remark, that soups in general, especially the high seasoned, excite much disorder in the stomachs of invalids, weakened by intemperance or disease, together with feverish indisposition; and prove the source of many maladies by no means suspected to originate from them: This the asthmatic, the gouty, and the apoplectic doth amply justify.

I have now to perform a task of some importance to mankind at large—by taking a review of the component parts, the nutrimental qualities, and the relative digestibility of milk. It is known to be an animal secretion of almost inestimable value; yet not purely animal in its nature, being disposed to run into the acetous, rather than pu-

treferable fermentation; hence may it be said truly to be a vegeto-animal food. In illustration of this, the scientific Linnæus has wisely observed—that the reason why infants are seldom reared on cows milk, is owing to its greater tendency to acidity, added to an increased quantity of coagulable matter, when compared with the mother's—which especially characterises the milk of all herbivorous animals.

Milk has been found, on chemical analysis, to contain—1st, an oil—2d, a coagulable matter—and 3d, a watery saccharine serum; differing materially in their properties, and relative digestibility, from each other.

The first, viz. oil, the produce of our cream, from which butter is made, appears somewhat abundant in cows milk, and the least of all in asses. The second (coagulable) is still more abundant in that of cows, less in asses, and comparatively trifling in womens. With respect to the third, watery serum or whey, containing much of the saccharine principle, it exists in proportion to the relative quantities of the other.

From this brief and somewhat chemical review of milk, it follows, I presume, that its nutrimental, and above all, digestive properties, must de-

pend, not upon its diminished quantity of cream, or whey, but that of coagulable matter, found to be extremely abundant in cows milk.

Seeing then, that its coagulable matter, or curd in a state of solution, is so apt to derange, and seriously at times, the alimentary canal, and to be rejected from the stomach in a solid form, it is by no means unreasonable to conclude, that any thing heterogeneous added to it whilst performing its offices in so important a function as that of the stomach—or that even when deprived of its cream, or unfitly prepared, must render it either purgative on the one hand, or constipating on the other, and consequently inimical to the stomach.

The tendency, therefore, of acids to separate its several parts—of spirits to render more firm its coagulum, without adding to the digestion of its oil, not soluble in these liquors, and of condiments to excite rather than check the acetous fermentation, to which milk is lamentably disposed in weak stomachs—forbid, I need scarcely observe, their admixture with this fluid, at any time, during its operations in the stomach.

When skim milk has been found to agree, and without the excitement of apparent derangement,

to pass from the stomach, it has rarely failed (comparatively like unto old milk cheese), in weak and dyspeptic habits, and those of sedentary pursuits, by the very firm separation of its coagulum or curd, most obstinately to constipate the bowels, and ultimately to excite inflammation therein, with its much to be dreaded concomitants.

Thus am I led to suspect that the digestibility of milk is in part, if not wholly, under the influence of its coagulable matter—that its separation, otherwise than chemically effected, would facilitate its digestion throughout the alimentary canal—and, finally, that when it prevails in the smallest quantity (exemplified in human milk, so congenial to the infant—has it not likewise been said to the aged?—whose digestive powers must necessarily be very limited, and consequently subject to derangement,) we possess the most invaluable aliment with which nature has provided us, adapted to the capacity of our several digestive powers, and calculated not only to support, but to prolong life, nay, sooth the very avenues of death.

I hasten to the vegetable creation, containing the most natural food of man and animals; and, as hitherto, present the reader with a classifica-

tion, no less remarkable for its brevity than alimentary properties.

Class.	Order.	Genera.		Relative digestibility.
V.	-	-	VEGETABLE FOODS.	
	1	-	ESCULENT HERBS.	
		i	Cabbage	xiv
		ii	Colewort	xiii
		iii	Jerusalem Artichoke	xii
		iv	Cauliflower	xi
		v	Brocoli	x
		vi	French Bean	ix
		vii	Spinach	viii
		viii	Pumpkin	vii
		ix	Parsnip	vi
		x	Carrot	v
		xi	Artichoke	iv
		xii	Turnip	iii
		xiii	Potatoe	ii
		xiv	Asparagus	i
	2	-	POT HERBS.	
		i	Garlic	vi
		ii	Shalot	v
		iii	Onion	iv
		iv	Leek	iii
		v	Thyme	ii
		vi	Parsley	i

Class.	Order.	Genera.				Relative digestibility.
V.	3	—	SALADS.			
		i	Cucumber	-	-	vi
		ii	Morell	-	-	v
		iii	Endive	-	-	iv
		iv	Lettuce	-	-	iii
		v	Celery	-	-	ii
		vi	Cresses	-	-	i
	4	—	NUTS.			
		i	Hazle Nut	-	-	iv
		ii	Chestnut	-	-	iii
		iii	Walnut	-	-	ii
		iv	Almond	-	-	i
	5	—	PULSE.			
		i	Beans	-	-	ii
		ii	Pease	-	-	i
	6	—	FARINACEOUS GRAINS.			
		i	Pastry	-	-	xvi
		ii	Chocolate	-	-	xv
		iii	Tapioca	-	-	xiv
		iv	Sago	-	-	xiii
		v	Vermicelli	-	-	xii
		vi	New Bread	-	-	xi
		vii	Old Bread	-	-	x
		viii	Wheaten White Bread	-	-	ix

Cl.	Or.	Gen.		Rel. Dig.
V.	6	ix	Wheaten Brown Bread -	viii
		x	Biscuit - -	vii
		xi	Millet - -	vi
		xii	Wheat - -	v
		xiii	Rye - -	iv
		xiv	Oats - -	iii
		xv	Barley - -	ii
		xvi	Rice - -	i

As the alimentary or nutritious properties of animal foods are confined to their gelatinous, mucous, albugineous and oleaginous matters; so are the vegetable ones to their glutinous, mucilaginous, saccharineous, and oleaginous; which compared with the former, may be said not to differ very materially from each other, if we except the modification of their principles, and the stimulant quality of animal foods.

These are important considerations, and such as I feel extremely anxious to impress upon the reader's mind. The objections made to a purely vegetable diet have been numerous, and, I confess, in general, plausible enough; but are they founded upon incontrovertible laws—have we divested ourselves of prejudice, consulted neither the palate nor fashion of the age, and chemically and impartially considered their relative digestibi-

lity and nutrimental properties? If I am called upon to give my opinion, I should without hesitation affirm, most certainly not!—It has been confidently asserted, in the first place, that vegetables, generally speaking, are of difficult assimilation, when compared with animal foods; this I deny: in the next, that they are extremely prone to acidity, and excite much flatulency in the stomach; this I also in part deny:—and, lastly, that they afford an insufficient nutriment, especially for the debilitated—I might here add, this I equally deny!

Regarding the first point—that vegetables are difficult of assimilation—I am not disposed, remember, to deny it in their crude state; but it is not in this form that we are to judge either of their nutrimental or digestive properties. I would take for example the farinaceous grains, affording the most substantial aliment of the vegetable tribe; which, when boiled or baked, leavened or fermented, are readily assimilated, for the most part, by the powers of the stomach, into a mild, bland, and sufficiently nutritious aliment. What is there in fruits—in esculent herbs—in salads—or in pulse, to render them difficult of assimilation? They contain nothing heterogeneous

in general, so far as regards their qualities respectively. The reason is plain : fruits are eat unripe, or if ripe, at unseasonable times, and in immoderate quantities : esculent herbs, if boiled, are insufficiently so, and their age not unoften disregarded : the form in which salads are fashionably consumed militates, also, against their digestibility : and with respect to pulse, the eye and palate must be gratified, whatever may prove the consequences of it.—Thus are the most important considerations, as far as respects vegetables, disregarded ; notwithstanding the sum total of them are considered of difficult assimilation : But how inconsistent this appears ! In short, man is an automaton of inconsistencies.

Regarding the second point—that vegetables are prone to acidity, and excite considerable flatulency in the stomach, nay, alimentary canal—I would briefly remark, that experience proving in part, does not fully justify the assertion : I am confidently of opinion that they have not had a fair trial, sentence having been pronounced when taken in conjunction with other foods, and at the same time a little of something cordial, by way of preparing the stomach for them, or at the least, averting their flatulent tendency. Thus the

quantity, admixture, and, moreover, disposition of the person's stomach to acidity, has given rise to an ill-founded opinion of vegetables being more flatulent than other foods ; forsooth, because they contain somewhat of the acid principle.

Regarding the third and last point,—viz. that they contain an insufficient nutriment—we need but refer to ancient times—nay, behold the animal creation in contradistinction of this. What is there in man which makes him so very different from animals?—It is true, he is more exalted ; but is he, comparatively, capable of greater bodily exertion than even the least of them ? Behold but that noble animal the horse, how considerable his muscular powers—how extraordinary and durable his action!—yet all this without cordials—without animal food—without any thing, save the elementary fluid, grass, and a few of the farinaceous grains or pulse.

But we need not range amidst animals to establish these facts, look at the peasant, the labourer, and the husbandman, many of whom, especially in Scotland and Ireland, never scarcely taste animal food, and yet remain capable of the very utmost bodily exertion : Does this, I would ask, or does it not, prove beyond the possibility of a

doubt, the nutrimental properties of a vegetable and farinaceous regimen. Why then any longer talk about the debilitated, or in other words, the invalid, requiring a more nutritious aliment than vegetables?—what exercise doth he undergo, what strength of digestive powers hath he acquired, to demand it?—if stimulants are to afford him his required strength, believe me I do not envy him in the possession of it: But man must look forward to something more durable in its effects; or, be assured, his life becomes precarious, and his existence more painful than profitable, either to himself or others.

In the consumption of the articles of the first order (esculent herbs) of this class, the invalid must take care that the whole of them are young, and very sufficiently boiled; from a neglect of the latter is it that the potatoe, the most innocent, I might add nutritious food, that we possess, and a perfect treasure to the valetudinarian, has suffered in its reputation, and even been considered to retard rather than assist the digestion of animal food in the stomach; which is truly to be lamented, seeing that it has ever proved so admirably corrective of the putrefactive tendency and stimulant qualities of that aliment.

The salads, belonging to the third order of the same class, are by no means adapted to the dyspeptic, and require powerful organs of digestion to subdue them in the stomach. The cucumber is almost poison to the invalid, and cannot be recommended, in short, to any one.

The articles of the fourth order of this class, are to be especially avoided by the invalid, the sedentary, and the studious, above all, under a course of the mineral waters. Almonds are no less hurtful than nuts, arising in both from their extreme insolubility, and the oil (particularly in the aged ones), which they are found to contain, so truly inimical to the stomach. It is alone their extreme age, and want of being sufficiently boiled, that contra-indicates the articles pulse of the fifth order for the valetudinarian. In the sixth, and last order of this class (farinaceous grains), we possess some valuable articles of food: for example, I would select wheat, oats, and rice, the several preparations from which I shall proceed cursorily to remark on: With respect to wheat, three important considerations present themselves to our view, viz. its alimentary properties—its several preparations—and its digestibility in the stomach. Regarding its alimentary properties, little need be

said, experience having set these beyond the possibility of a doubt. On chemical analysis, wheat is found to contain a gluten, a mucilaginous saccharine principle, and an amylous matter or starch. The first (strange as it may appear), is somewhat of an animal nature, for when separated from the rest, it is liable to run into the putrescent fermentation, and moreover, to yield volatile alkali; and the two last are purely vegetable.

From a pound of the flour of wheaten grain, which was carefully examined, I obtained four ounces and five drams of this same gluten; but five drams of the saccharine mucilage matter; and full ten ounces and six drams of the amylous or starch. The strictly nutritive principle of wheat is said to reside in the starch, which here is extremely abundant; but enough of this subject. I shall proceed to the second point, regarding its several preparations. The ancients, it would seem, had an eye to the nutritious properties of bread, whilst at the same time they neglected not its several preparations: these, for the sake of brevity, I shall consider, as unfermented—as fermented, or as leavened.

The unfermented preparations of the flour of wheat, are, it must be admitted, very diffi-

cult of solution in the stomach, notwithstanding Dr Cullen has considered them as by no means unsalutary, and the practice of rendering them less so by the addition of butter, eggs, &c. is much to be condemned—consequently, not any of them adapted to the invalid, the sedentary, or the studious.

Fermentation, on the other hand, has a decided tendency to lessen the viscosity of wheaten bread, to lighten its effects upon the stomach, and necessarily to assist its digestion. It should, however, be carried to a sufficient extent, and not retarded by any superfluous admixture : the baking of the bread in an oven of a fit temperature, and its proper age, are also very important considerations, especially to the invalid.

That which is leavened, from its acetous tendency, added to its more glutinous property, when compared with the fermented, is extremely apt to disagree with the dyspeptic, and to derange the stomach, in short, the whole alimentary canal ; especially when the bread is made of meal instead of flour. This kind of bread, therefore, is but adapted to the labourer, and husbandman, who requires at the same time a due solidity combined

with nutriment, without an insufficiency of the latter.

Regarding its digestibility in the stomach, it may be sufficient to observe, that the medium brown or household bread is the easiest of digestion—that the stale is preferable to the new—the crust to the soft—the simple to the compound—and the dry toasted to the buttered. In allusion to the unfermented—rich, sweet cakes, or puddings, pastry, and the like, are sure enemies to the invalid, however agreeable they may prove to the palate.

With respect to oatmeal, made either into a light pudding, or biscuit, it seems in general more favourable to the bowels than stomachs of invalids, and consequently, with such people, should be taken in combination with wheaten flour, or at the least, seldom and in small quantities. As to rice, it is a very different kind of aliment, and remarkably congenial both to the stomach and bowels, being less disposed to astringency than most of the grains, and moreover, light and easily digested. The ideas with regard to its astringency, on the other hand, are more imaginary than real, and the mistake has originated from the addition of eggs and condiments, which puddings made from this grain are erroneously sup-

posed to require. Sago affords a suitable aliment for the invalid; but chocolate, said to be so wholesome and nutritious, will rarely be found to agree with him.

It is high time that I should proceed to our next classification, of the vegetable kingdom, viz. of fruits.

Cl.	Or.	Gen.	THE SEVERAL FRUITS.			Rel.
VI.	—	—				Dig.
	1	—	DOMESTIC.			
	i	Quince	-	-		xiv
	ii	Plumb	-	-		xiii
	iii	Melon	-	-		xii
	iv	Cherry	-	-		xi
	v	Medlar	-	-		x
	vi	Apple	-	-		ix
	vii	Pear	-	-		viii
	viii	Pine	-	-		vii
	ix	Apricot	-	-		vi
	x	Peach	-	-		v
	xi	Gooseberry	-	-		iv
	xii	Currant	-	-		iii
	xiii	Raspberry	-	-		ii
	xiv	Strawberry	-	-		i
	2	—	FOREIGN.			
	i	Fig	-	-		vi
	ii	Raisin	-	-		v
	iii	Currant	-	-		iv
	iv	Prune	-	-		iii
	v	Grape	-	-		ii
	vi	China Orange.	-	-		i

I have now to review that class of vegetables abounding in sugar, acid, and mucilage, more calculated (it must be confessed) for medicinal purposes, or the dessert, than the food of man; yet not destitute, be it remembered, of nutriment, nor insufficient for the support of the human race.

Their alimentary properties, it is manifest, must be in proportion to the sugar and mucilage which they contain; and with respect to their digestibility, this must depend much upon their growth, quality, and the person's constitution, added to the circumstances under which they are consumed. I shall consider more at large these three points, as essential to the illustration of our subject. The growth of fruits adds much to their digestibility, though contrary to this principle in most other vegetables, nay, even animals. To be eaten, therefore, in perfection, they must be fully ripe, or, on the other hand, kept for a length of time, and submitted to culinary processes. The more saccharine ones are found to agree best with invalids, and such as are drinking the mineral waters; the most approved of which are the foreign dried ones, but little disposed, in general, to excite any considerable irritation throughout the alimentary canal, a property by no means

exemplified under the acidulous fruits: In a word, the valetudinarian, in his selection of fruits, must be guided by the following circumstances:—he must take care that they are sufficiently ripe—that they contain much of the muco-saccharine principle with little of the acetous—and, that he eats them, not as an adjunct to a meal, but rather as a meal themselves, with a little well fermented bread, or biscuit; or at the least, full four hours after an hearty meal. The stoned ones, as plumbs, containing the malic acid, and cherries, the citric and malic combined, are readily disposed to ferment in weak stomachs—to prove indigestible on account of their pulp, and above all, stones being swallowed, and ultimately to produce the disease termed cholera morbus, if not fatal obstructions in the bowels.

The gooseberry, currant, raspberry and strawberry, containing both these acids in a more refined degree, when perfectly ripe, are wholesome, nutritive, easy of digestion and peculiarly adapted to the invalid. With respect to the apple and pear containing but the malic acid in their crude state, little, for the most part, can be said in favour of them. The very firm or acid ones should be roasted or baked, and the latter ten-

dency corrected with sugar. The melon and pine, of a malic citric property, are deceitful fruits, and ill suited to the dyspeptic.

The China orange, of a subacid quality, when fully ripe, is perfectly wholesome, either under health or disease.

I am next to speak of the compound vegetable drinks, very few of which require to be noticed: I shall, therefore, confine my observations to tea and coffee, from the various and no less inconsistent opinions entertained of them: I primarily subjoin a classification.

Class.	Order.	Genera.		Relative digestibility.
VII.	—	—	COMPOUND VEGETABLE DRINKS.	
	1	—	FROM FARINACEOUS GRAINS.	
	i		Barley Water - - -	ii
	ii		Oatmeal Gruel - - -	i
	2	—	FROM STIMULANT VEGETABLES.	
	i		Baum Tea - - -	iii
	ii		Mint Tea - - -	ii
	iii		Lavender Tea - - -	i
	3	—	FROM FOREIGN VEGETABLES.	
	i		Chocolate - - -	iv
	ii		Cocoa - - -	iii
	iii		Coffee - - -	ii
	iv		Tea - - -	i

With respect to tea we are to enquire,—what its alimentary properties—what virtues it can reasonably be supposed to possess—and, what its influence over the digestive powers?

We are indebted to Bontekoe, a Dutch physician, for the introduction of tea into general use, sometime during the seventeenth century, who wrote a tract highly in favour of it.

Since that period, however, many severe attacks have been made upon it; and in its original state, it has been said by Kæmpfer, and others, to possess a poisonous quality, yet admitted to be somewhat corrected by age, and the process it undergoes before sent to Great Britain. Some have held it to be acrid, nay, even narcotic; others stimulant; and others again astringent: and in support of this host of malignities it has been adduced—1st, that tea is dried upon copper vessels—2d, that on its passage to England, it is liable to suffer from its lead and tin packages—3d, that the Chinese are enervated, both mentally and bodily, from the use of it—and, 4th, that in our own country, independent of its being totally destitute of nutrimental properties, it has tended most lamentably to produce hysterical and hypochondriacal affections, palsy, fevers, such as have unphysiologically been

termed nervous, and dropsy, together with a numerous train of debilities and stomach complaints.

I shall endeavour to repel, as briefly as possible, these unfounded charges against tea. Regarding the first point, I have sufficient authority to deny its being dried upon copper vessels: the green, which has given rise to this supposition, is but the more recent plant, or early plucked leaves, dried; which, comparatively like unto fruits in a state of imperfection, possess somewhat of an astringency added to a greenish hue. On the second point, I would remark, that it is as unfounded as far-fetched; for, admitting the salt water to have access to it (a very improbable thing, by the bye), which might possibly extract a few grains of the lead or tin, or even both, what man in his senses could believe it to injure the tea, at least in its properties or effects upon the human body? With respect to the third position, it reasonably may be asked—are the habits of the Chinese, or is the climate favourable to the strength of their muscular powers; and have they ever been remarkable for extraordinary intellectual endowments?—To the whole of these I should answer, most certainly not. Regarding the fourth and last

point, I contend not for its nutrimental properties; I labour but to establish its innocency, further to be demonstrated through the medium of a simple tepid fluid.

The diseases it has been said to produce in Europe, I have already (and I trust to the reader's full conviction), stated to arise from a very different source, viz. debauchery, intoxication, and intemperance, the three mortal enemies to our constitutions, and no less destructive to the morals of the human race. That nervous complaints, spasmodic affections, palsy, dropsy, &c. should originate from the use of tea, is truly absurd, and unworthy, I confess, the notice either of the philosopher or the physician.

With respect to the virtues of tea, it forms an agreeable beverage, perfectly innocent in its effects, and cooling, yet sufficiently stimulating in its properties. This leads me, lastly, to speak of its influence over the digestive powers. It is a fact, yet not generally believed, that simple warm water remarkably facilitates digestion—why then not tea?—and produces this effect without impairing the after powers of the stomach. But what is there extraordinary in this? Most animal and vegetable substances are capable of the most

perfect solution in water. It is then absurd, and no less childish, to talk of the relaxing properties of warm water of a moderate temperature, such as tea at least ought to be drank, as it will be found on the other hand to give tone to the stomach, which has been comparatively demonstrated in the use of the warm bath, once erroneously supposed to impair rather than afford strength.

To conclude, I maintain that tea, of whatever quality or strength, drank moderately warm, without much sugar, cream, or milk, and moreover accompanied with good plain, fermented, stale wheaten bread, or biscuit, and fresh butter, forms a repast most perfectly congenial to the stomach, and in short, suited either to the young or old—the active or the sedentary—the invalid or the robust. Under diseases, especially of the acute kind, tea is remarkable, even at these times, for its innocency; and, I have repeatedly found, when the stomach rejected every thing else, that this salutary fluid was retained upon it.

Thus have I endeavoured to rescue from the reproaches of high life, an invaluable substitute for the bottle, adapted, at the same time, to improve the morals, as well as the health, of the present generation; without which, in vain are we

to expect that more perfect unanimity amongst each other, so eminently calculated to enlarge our minds, to soften our obduracy, to inspire us with confidence, and consequently to exalt our earthly happiness.

With respect to coffee, I am less sanguine in my expectations, but it is nevertheless worthy our notice. The properties and effects of coffee, are very different from those of tea; it is volatile and stimulant in its nature; powerfully corrective of the narcotic effects of opium, consequently disposed to produce watchfulness, rather than procure sleep. What is much to be regretted, however, in weak stomachs it acquires a disposition to acidity, and in this state, is not unfrequently rejected or productive of serious disorder in the alimentary canal. It has been confidently said to prove prejudicial to the health and beauty of the Parisian females, but the authority is of insufficient weight to condemn it. For my own part, I am disposed to consider it a beverage that may be taken in moderation (under similar circumstances to tea), by all ranks, except the dyspeptic, and such as are extremely prone to constipated bowels; and further, that its preparation, insufficient strength, or improper combination, has

given rise for the most part, to the bad effects experienced from the use of it.

I next proceed to the elementary fluid, with its classification.

Cl.	Or.	Gen.	SIMPLE DILUENTS.		Rel. Dig.
VIII.	-	-			
	1	-	THE AQUEOUS.		
		i	Distilled Water	- -	vi
		ii	Stagnant Water	- -	v
		iii	Spring Water	- -	iv
		iv	River Water	- -	iii
		v	Rain Water	- -	ii
		vi	Ice Water	- -	i

The virtues of water, both warm and cold, as an external application, have been considered at large in a preceding chapter; and with respect to its internal use in either states (dietetically or medicinally), it must, without doubt, be acknowledged the most perfect, innocent, and universal diluent of the creation; capable of resolving the most obstinate and complicated obstructions in the animal economy, and indirectly contributing to the support of man. I should have rested here, and dwelt no longer on the subject of water, from its manifest utility to mankind, had not some contended for its frequent non-purity, nay, even condemned it as deleterious both to men and animals.

Ingratitude, truly, sorry am I to say it, is characteristic of the human race; and prejudice, the bane of human knowledge, and fell disturber of our earthly repose, is ever upon the wing to discover new properties, and things, which exist but in the brains of the so prejudiced. I will not—from a due reverence and respect for the Deity, of whom it may truly be said, has made nothing in vain, added to the credit of human kind—canvass these chimerical opinions, confidently assured the result would be—that they prevailed but amidst the inebriated and intemperate, who at no period should be suffered to decide on the properties or effects of simples, whether solid or fluid, much less the pure elementary fluid.

Thus has this preserver of health and prolonger of life, if I may be allowed the expression, been tortured in all shapes and forms, and the result manifestly declared—that we require something more nutritious, whilst, at the same time, we correct its limited use, by the addition of wine, of spirits, or of condiments.

This leads me to say something respectively on these articles, which I shall have no difficulty in establishing as mortally destructive to the human race.

In the prosecution of this inquiry, I shall be guided by the laws of the animal economy, added to experiments and facts, and the utmost impartiality.

The first evidently alludes to our next classification, viz. fermented diluents, to which I shall proceed.

Cl.	Or.	Gen.	FERMENTED DILUENTS.			Rel.
IX.	—	—				Di- gest.
	1	—	FROM GRAINS.			
		i	Beers	-	-	ii
		ii	Ales	-	-	i
	2	—	FROM FRUITS.			
		i	Domestic Wines	-	-	iii
		ii	Perry	-	-	ii
		iii	Cyder	-	-	i
	3	—	FROM SWEETS.			
		i	Metheglin	-	-	ii
		ii	Mead	-	-	i

My investigation here, does not amount to a denial of the nutrimental properties of malt liquors, they are manifest even to a proverb; and it belongs us now to enquire in what they consist.

It has been said that water contributes indirectly to the support of life, added to which, in malt

liquors, by the process of fermentation, we have the mucilaginous, saccharine, and amyloous principles of grains.

With respect to the hop, and similar vegetable bitters, they are but calculated to correct the viscosity, and improve the flavour of beers and ales, as well as porter; so far do they render them more pleasing to the eye and palate—but it must be observed, less nutritive and wholesome. The very narcotic tendency of some of these, with other additions; and the effects of bitters upon the stomach, however much may have been said in favour of them, alone, impresses upon my mind doubts with respect to the salubrity of malt liquors generally. But, on the other hand, let us for a moment suppose them to be made without these, and to contain as much as possible of the nutritive principle of grains, in what does their wholesomeness consist; are they not liable to ferment upon the stomach—if new, to acquire an acetous property both in and out of it—and if old, to excite considerable irritation throughout the alimentary canal? Respecting their nutritive properties, Dr Franklin wisely remarks, the bodily strength which they communicate can but be in proportion to the solid matter in their com-

position: In a penny loaf we have a larger portion of flour than in a pint of strong beer; consequently, more strength must be derived from that loaf, with a pint of water, than a pint of beer: The argument I confess to be very forcible; and the Doctor proceeds practically to illustrate it, by saying, that when a printer himself, in London, and drank nothing but water, he was the strongest of 50 workmen who drank beer, and one of them to the extent of six pints in the day. I have but to observe, in conclusion, that malt-liquors, of whatever description, are ill indeed adapted to the invalid, the sedentary, or the studious; and that, in convalescence from fevers, by some recommended instead of wine, they have a manifest tendency to derange the alimentary canal, if not to produce relapse.

Mead, and metheglin, are fermented preparations of honey, with or without condiments; extremely improper for the dyspeptic, from the article honey being rarely found to agree with them, and their uncommon disposition to enter into the vinous fermentation.

As to cyder, perry, and our home-made wines, the quality of the two former must depend much upon the fruit, and the degree of fermentation

which they have undergone, as corrective of their disposition to acidity and flatulency in the stomach;—under any circumstances, however, the invalid should abstain from them: The home-made wines are at this time much used, as a substitute for the more extravagant foreign ones, to which, probably, may be attributed many of our dyspeptic complaints. They are imperfectly fermented, and consequently finish that process in the stomach, in spite of their condimentous or spiritous additions, calculated, in an otherwise point of view, to impart to them obnoxious qualities. Neither are they, then, it is evident, suited to the invalid, the sedentary, or the studious.

But what shall I say of the foreign wines, the classification of which appears to be,

Cl. X.	Or.	Gen.	FOREIGN WINES.				Rel. Dig.
	1	—	CHIEFLY SWEET.				
		i	Mountain	—	—	—	v
		ii	Lisbon	—	—	—	iv
		iii	Sherry	—	—	—	iii
		iv	Teneriffe	—	—	—	ii
		v	Madeira, &c.	—	—	—	i
	2	—	CHIEFLY ACIDULOUS.				
		i	Port	—	—	—	iii
		ii	Hock	—	—	—	ii
		iii	Claret	—	—	—	i
			p				

Under this head I have now to perform a painful, nay, degrading task, viz. to speak of that much-to-be-lamented vice, intoxication.

Such is the depravity of human nature, that in justification of it we are told—that it is excited very frequently from necessity—that society and good fellowship cannot exist without it—that it is often productive of the best effects—and that, provided we do not exceed a certain quantity of wine or spirits daily, it cannot possibly do harm ! But these are the stratagems of vice and immorality, and only serve to call forth our utmost indignation, whilst, at the same time, we cannot but feel for the extreme weakness and degeneracy of the human race. It has been remarked, and I fear with much truth, by Dr Falconer, that “ If we go from the equator to the north pole, we shall find this vice increasing together with the degree of latitude. If we go from the equator to the south pole, we shall find drunkenness travelling south, exactly in the same proportion to the decrease of heat.”

The sober drunkard, described by Dr Trotter, can have no plea on the score of society, his quantity is not to be diminished (but I should presume, rather increased) without company ; and

though he may never appear to be intoxicated, yet are his faculties as perfect as they ought to be? Certainly not. His intellectual and bodily powers are impaired: and if he already is not, soon indeed must he be, a martyr to disease. Lamentable infatuation! what a truly miserable existence he supports, with the painful reflection of its being the offspring of his own intemperance. A short life and a merry one, is the language of the drunkard and debauchee; he concerns not himself about the present, the past, or the future, except during the intervals of inebriation, when perhaps for a moment he reflects, yet reconciles himself with the hopes of a long life, seeing that drunkards have at times lived to an old age. But here likewise are his hopes blasted; and a sensible writer has well remarked—"If, however, we admit that one drunkard now and then may exceed threescore years and ten, the balance is much on the other side, since many thousands fall victims to the accursed draught before they arrive at thirty."

It is absurd to talk of the difficulty of renouncing this darling vice, or to apprehend any ill consequences from its banishment at once; for, as Dr Trotter, in his chemical and philosophical

Essay on Drunkenness, judiciously remarks, "I conceive the frame of the habitual drunkard to have been so much exhausted by inordinate and unnatural stimuli, that it has been long my practice to commit him to the regimen of children, such as a diet of milk, and other kinds of nourishment of the mildest quality. In short, instead of withdrawing the bottle by those slow degrees which have been long recommended by physicians, my plan of cure is, at once to take from him every thing that is highly stimulating; to put him on food in direct opposition to his former modes of living, and consign him to the lap of nature, as if his existence were to pass through a second infancy."

An opposite system to this has been recommended by Dr Garnet, in his *Zoonomia*, and, in short, by most other physicians; but, for my own part, I most perfectly agree with Dr Trotter, in his treatment of the drunkard.

Speaking generally of foreign wines, some of them are highly stimulant and cordial; and in proportion to the sugar which they contain, become more nutritious. It is very doubtful, however, whether they ought to be taken, except with a medicinal intention, when wine manifestly, at

times, has been known to produce the most happy effects. But even here the utmost skill and caution is required, thousands having been destroyed by its injudicious administration in fevers.

The infant at the breast, nay, all ages and constitutions, when extremely ill, must have wine:—at the least it soothes the avenues of death, by its narcotic effects upon the brain, or, more properly speaking, I might add, hastens their dissolution. With respect to infants or children, it is little short of poison to them, from the disposition (as I have before remarked) of their food to enter into the acetous fermentation in the stomach, and moreover, the extreme debility of that function, added to the irritability of the whole alimentary canal.

The use of stimulants, whether vinous, spiritous, or condimentous, under such circumstances, would manifestly prove injurious, and seldom fail to produce that fatal endemic of Great Britain, amongst infants, convulsions, of which so many thousands die annually, to the disgrace of their parents, and somewhat of the profession. We have heard much of their arising from teething, or the mother's milk; but such arguments are too frivolous to merit any attention. As to their

being hereditary, the absurdity is truly great indeed, and I shall not waste the reader's time in the exposition of it. What is there extraordinary, I would ask, in one child after another in the same family being attacked with them, seeing that they experience one and all the same method of treatment? Predisposition here has little to do with remote causes; why then are we so weak as to be astonished at effects? With respect to teething, I am of opinion, for the most part, that it excites but inconsiderable derangement in the system of infants; and that adults, especially of intemperate habits, suffer most from their teeth. The sufferance in either, however, is to be attributed to inflammation—we cannot suppose of the tooth itself,—but of the surrounding cellular membrane, which is extremely vascular, and highly susceptible of inflammation. Admitting this to be a fact, which no physiologist or physician can deny, it is not unreasonable to ask,—are wines, spirits, and condiments calculated to relieve pain consequent upon acute inflammation? Certainly not, but rather to hasten the patient's dissolution.

Whilst on the subject of inflammation, so far as regards infantile life, I would allude to another

fatal malady to which they are subjected, viz. hydrocephalus, or water in the head, erroneously said to be, also, hereditary amongst infants. It is another of the consequences of inflammation; though I admit that at times it may be the companion of disorganization, probably, from injuries sustained in the womb, or the unskilful delivery of the patient. In general, however, it arises from neglected disease, from improper food, the use of stimulants, and that bane of infantile life, opium.

That human milk should excite convulsions in infants, is derogatory both to its composition, as I have before demonstrated, and the adorable wisdom and goodness of the Deity, who, without doubt, destined it for the support of man in his most helpless state. But to proceed—to speak of wines individually—a division has been made into the chiefly sweet, and acidulous; from which it may be concluded, that the former are somewhat nutritious and stimulant, and the latter somewhat cooling and stimulant also. But it might here be observed, that the strictly nutrimental properties of both vegetable and animal, liquid, and solid matters, are considerably diminished, if not in many instances destroyed, by the addi-

tion of stimulants; consequently, we are not to look upon those articles as affording any permanent support, but rather as contributing to our destruction.

We may reasonably consider Madeira as a medium wine, containing neither an excess of the acid nor saccharine principle: In sherry and Teneriffe, for the most part, the former prevails; and in the Lisbon and mountain, mostly the latter. To correct the excess of acid, I should observe, consequent upon their acetous fermentation, recourse has been had to spirits—rarely brandy, from its high price—as well as a mineral production, still cheaper than the whole, no less inimical to the constitution, especially the function of the stomach.

When no such additions became required in this way, the spirit which they contained was barely sufficient to keep the acetous fermentation under in the bottle; and when taken into the stomach, they either oppressed that divine function, or, on the other hand, created such disorder as to derange the whole alimentary canal. What has been said of the former wines, if we except probably the claret, applies somewhat to the acidulous class, with this difference—that the latter

having undergone a more perfect fermentation, and moreover, had a larger addition of spirit, are more stimulant, yet less disposed to enter into the acetous fermentation in the stomach : I must here be understood to speak of genuine wines, and particularly Port, which at times has been found so valuable for medicinal purposes, and consequently beneficial to the human race. But I regret to say, its consumption, together with its price, has imposed on the public an article under that name, which, from its newness, austerity, and astringency, added to its extreme disposition to acescency in the stomach, must necessarily be liable to derange, and very considerably, the general health.

Thus have I, with as much brevity as possible, attempted to shew the general disposition and tendency of wines, whether foreign or home-made, new or old, acidulous or sweet ; without particular regard to their stimulant properties, belonging more properly to the subsequent class, viz. ardent wines, with which I primarily present the reader.

Cl.	Or.	Gen.	ARDENT WINES.				Relative dige- stibili- ty.
XI.	-	-					
	1	-	SIMPLE.				
		i	Arrack	-	-	-	v
		ii	Rum	-	-	-	iv
		iii	Brandy	-	-	-	iii
		iv	Whisky	-	-	-	ii
		v	Hollands	-	-	-	i
			COMPOUND.				
		i	Rum Shrub	-	-	-	ii
		ii	Brandy Shrub, &c.	-	-	-	i

I might almost venture to term these a classification of poisons, occasionally slow, it must be admitted, in their effects, but not the less certain in their operation. It has justly been said, that animals, also, materially suffer from the use of them, and Dr Beddoes, in his *Hygeia*, remarks: "The pernicious effects of spirits upon horses have been very accurately ascertained, by the experiments of Pelger; and, indeed, they proved to be as injurious as various poisons tried at the same time."

The discovery of the distillation of ardent spirits, attributed to the Arabian chemists, has proved a truly fatal one to Great Britain, having been

productive of much licentiousness and immorality amongst all ranks, and of almost innumerable both mental and bodily maladies.

' The practice of dram drinking is pernicious (nay detestable) in the extreme; and on this subject the immortal Haller has remarked: "It is a custom, which if persevered in, contracts the stomach itself, and the passage from the stomach into the intestines. It also renders the fibres of the stomach callous and fragile, and insensible to every stimulus, even that of hunger. It contracts the diameter of the vascular system in general. It narrows the air vessels of the lungs, even to a third of their former size. It tends to coagulate all the humours of the body, the aqueous excepted. It produces ossifications of the tendons and arteries, and, in some instances, of the pleura itself, and often brings on schirrhous of the whole viscera and glandular system. It induces also tumours, convulsions, and palsy."

We are told, and in fact, it is boldly asserted as a cloak for the vices of mankind, that spirits are required for the dyspeptic, the sedentary, the studious, and the invalid commonly called debilitated and nervous; and in all of these it is modestly said, with a view of guarding against cold, contagion,

and the like, to which they are peculiarly disposed,—to support their strength and spirits,—to assist their digestion; and in short, to render life at all supportable by them. That spirits should prove the smallest security against the bad effects of extreme heat, cold, damp, or contagion, I positively deny. Have we not the most lamentable instances of their destructive tendency in the warmer climates? Behold the European for a while resident in the West Indies, under the influence of them, who shortly becomes emaciated and eat up with visceral affections, and who returns to his native country but to die. The celebrated Dr Rush considers the effects of ardent spirits, as they appear in a fit of drunkenness; the chronic effects of their habitual use upon the body, and their effects upon the mind, and their effects upon the property of those who are addicted to the use of them—forming altogether a combination of calamity, which would stagger the most habitual drunkard.

If the strength and spirits are to depend upon them for their support, the human fabric must indeed be less perfect than we possibly could have suspected it: but the assertion is too much at va-

riance with the admirable laws of the animal economy to need refutation.

With respect to digestion, it is manifest they must retard it, however plausible may have been the arguments in support of them. Let us, then, forget this acetous tendency in the stomach of invalids, and regard it only as an effect productive of ultimate good: Let us not attempt to check it by ardent spirits, in whatever form; thereby destroying the solvent powers of the gastric juice, and the muscular action of the stomach: but this is not all that we have to dread, the alimentary canal, at the same time, suffers throughout; and serious obstructions, if not fatal inflammations, ensue, to put a period to the sufferer's existence. After what has been said, I can have little to remark with respect to spirits individually, further, than that the compound ones, though less stimulating, are the most destructive of the class, inasmuch, so says Dr Cheyne, in his *Essay on Health*, "that, next to drams, no liquor deserves to be more stigmatized, and banished the repasts of the tender, valetudinary, and studious, than punch. It is a composition of such parts, as not one of them is salutary or kindly to such constitutions, except the pure element in it." It has been said

of the late Dr Fothergill, that he recommended this liquor (I mean a combination of spirits, acid, sugar and water) to invalids; but sometime previous to his death, confessed, that he repented of having done so, from the unfortunate habit many had acquired from it.

For medicinal purposes, brandy has been justly approved, nor has Hollands been disregarded in calculous affections, which it will be found much to increase, notwithstanding its powerful operation on the urinary organs.

I shall conclude my observations on stimulants, by a few short comments on the class of condiments, with which I present my readers.

Cl.	Or.	Gen.		Rel. Di- gest.
XII.		-	CONDIMENTS.	
	1		THE SWEET.	
		i	Fruits preserved with Brandy	iii
		ii	<hr/> Sugar	ii
		iii	Sugar impure and crystallised	i
	2	-	THE ACIDULOUS.	
		i	Pickles - - -	iii
		ii	Lemon Juice - - -	ii
		iii	Vinegar - - -	i

Cl.	Or.	Gen.		Rel. Dig.
XII.	3	-	THE ACRID.	
		i	Horse Radish -	iv
		ii	Olives - - -	iii
		iii	Mustard - -	ii
		iv	Salt - - -	i
	4	-	THE AROMATIC.	
		i	White Pepper - -	viii
		ii	Black Pepper - -	vii
		iii	Cayenne Pepper - -	vi
		iv	Nutmeg - -	v
		v	Ginger - -	iv
		vi	Cloves - -	iii
		vii	Cinnamon - -	ii
		viii	Pimento - -	i

Having on a former occasion expressed my firm conviction of the insalubrity of condiments, I now proceed somewhat more in detail to illustrate it, before concluding my remarks on the relative digestibility of both animal and vegetable productions.

The opinions entertained with respect to those articles have been pretty generally in favour of them, and gained ground in proportion to the increased consumption of wine and spirits. A combination of causes, or rather, I might have said effects, intimately connected with, and inseparable

from these, would seem to have demanded their employ, with the view of creating an appetite, and aiding the powers of digestion, most lamentably impaired by intoxication and intemperance.

But it may reasonably be asked, Are condiments calculated to effect these without injury to the constitution?

This is certainly an inquiry paramount to every other consideration. I am disposed to admit that they gratify the palate, by correcting the insipidity of some few articles of our food, and at the same time occasionally excite the appetite; yet, are those desirable objects—why the necessity for them?—merely nothing short of disease, the very nature of which must be inflammatory, and consequently contra-indicate the use of condiments.

If we look forward but to relief in dyspeptic complaints, their effects must necessarily be limited and short-lived indeed, whilst we forget the more dreadful consequences resulting from the use of them, which form a catalogue of incurable maladies, seated in the alimentary canal, the liver, or the kidneys, terminating in apoplexy, epilepsy, palsy, or universal dropsy.

With respect to condiments individually, the first order of this class (sweet) is manifestly the

least injurious. Fruits, however, preserved in this way, though palatable, are not altogether free from danger, should they have imbibed much of the spirit.

As to sugar, I consider it perfectly innocent, in moderation, and according to the celebrated Boerhaave, "forming a bond of union between aqueous and oily substances." It ought never, however, to be combined with unfermented farina, as in some of our cakes and puddings, to be taken with wine or spirits, or added to malt liquors. Of acids, comprising the second order, little need be said; innocent as vinegar, pickles, or lemon juice may appear, they suit not the invalid, the sedentary, or the studious; and experience has convinced us of the injury which the digestive powers sustain from the frequent use of them.

Mustard and salt, of the acrid order, are the least objectionable of all condiments, and probably, in moderation with fresh meats, or viscid foods, may assist digestion without much injury to the stomach. The former was highly approved by the immortal Hippocrates, and the latter by the once celebrated Boerhaave. I must condemn universally the peppers, especially the Cayenne, destructive

both to the æsophagus and stomach, nay, the whole alimentary canal.

Pimento, cinnamon, and ginger may be used in moderation, and without any bad effects, provided they are combined with suitable articles of food, solid rather than liquid, and in small quantities. Ginger-beer is by no means so proper for the dyspeptic as many are apt to imagine, from its tendency to ferment in the stomach. On the subject of condiments, I have now said every thing that is necessary, and must draw to a conclusion. Should but one solitary individual benefit by these instructions, I shall consider myself as amply compensated for my labours.

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BEFORE, however, taking leave of my readers, I have to express the obligations I am under from the kindness of some, added to the attentions of others towards me, during the few short years I have resided in North Britain, which failed not to call forth, on many occasions, my utmost gratitude and esteem.

To such as did me the honour of subscribing for one or more copies of my Tract on the Pitheathly Mineral Waters, &c. and at a period when

it was my intention to have published it by subscription, I feel extremely grateful, and most sincerely hope that they will not be disappointed in their expectations of it,—placing whatever may appear defective in the style, to my inexperience in literary composition, the subjects treated of, and, from my situation in life, the want of that leisure necessary to enable me to study elegance in language,—or even harmony in arrangement: And the more so, when I again repeat, that my motive for thus intruding the results of my experiments on the public notice, was dictated by a wish to contribute my humble endeavours toward the happiness of the human race.

FINIS.

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