

A chemical analysis of the Lemington waters : with a practical dissertation on their medical effects and instructions for cold and warm bathing.

Contributors

Middleton, Amos.
University of Glasgow. Library

Publication/Creation

Warwick, 1814.

Persistent URL

<https://wellcomecollection.org/works/va3znjxn>

Provider

University of Glasgow

License and attribution

This material has been provided by This material has been provided by The University of Glasgow Library. The original may be consulted at The University of Glasgow Library. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>



Glasgow
University Library



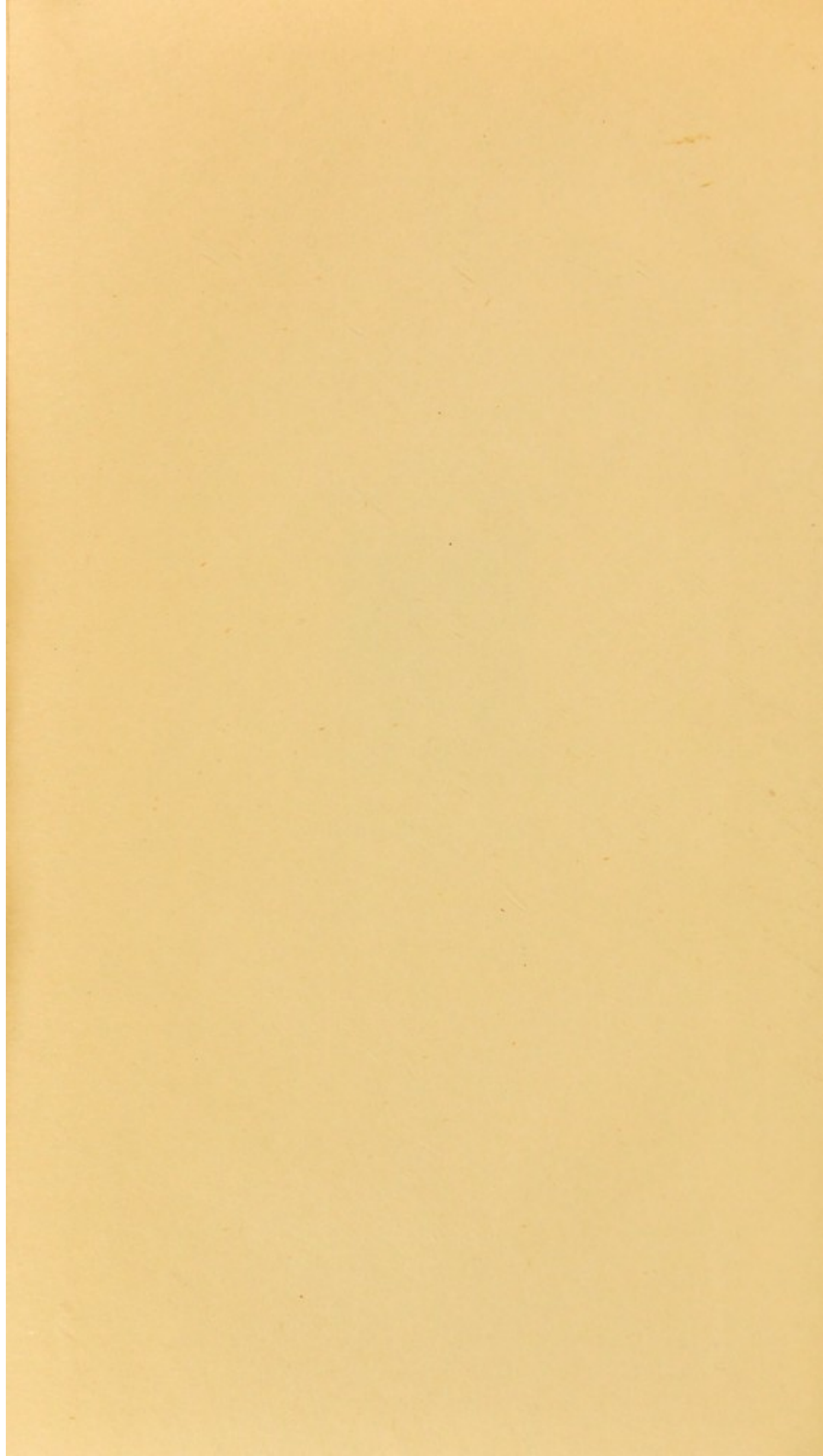
Ferguson Collection
1920

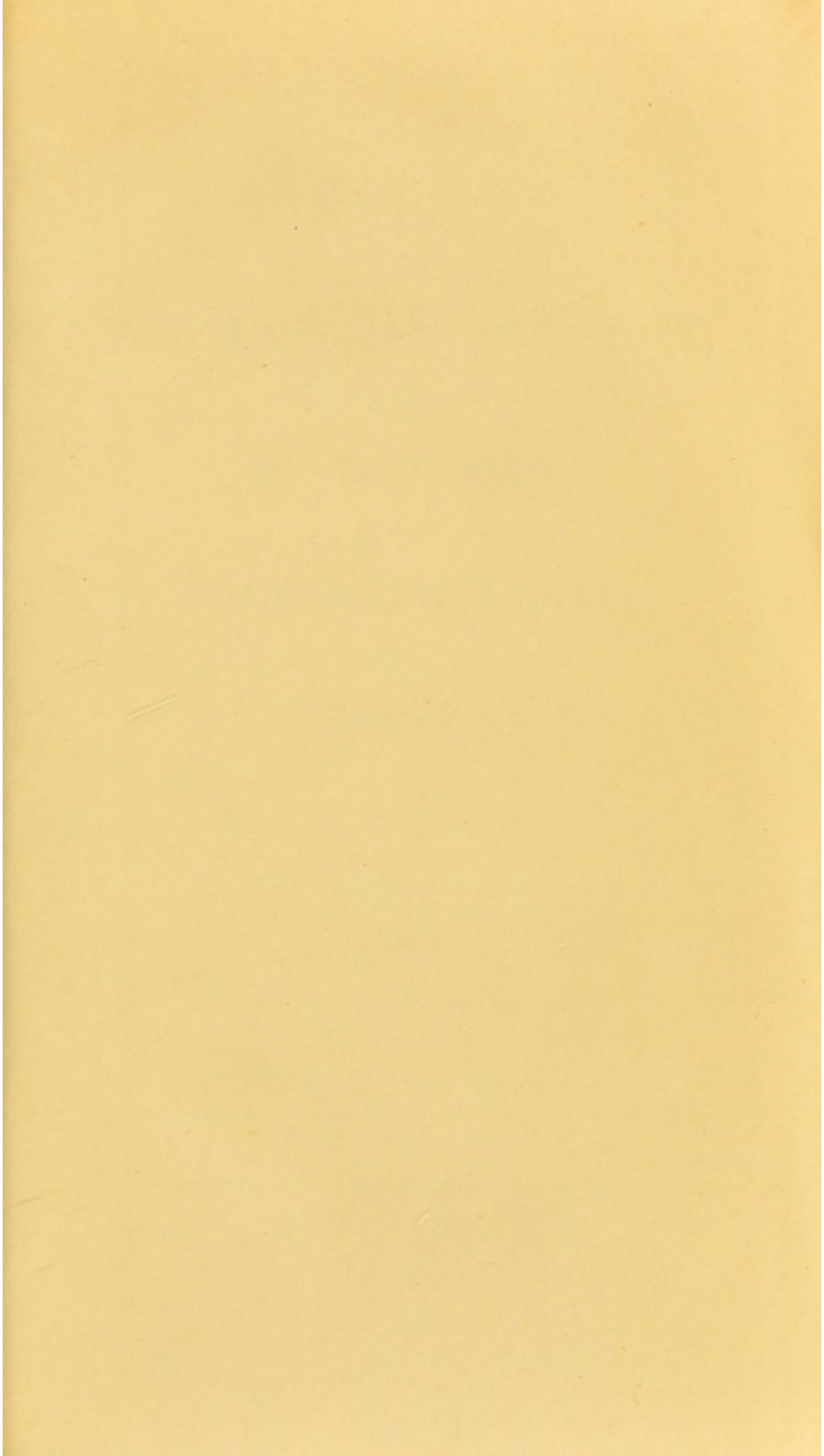
Ai - c. 47.



Digitized by the Internet Archive
in 2016

<https://archive.org/details/b24927326>





A
CHEMICAL ANALYSIS
OF THE
LEMINGTON WATERS,
WITH A
Practical Dissertation
ON THEIR
MEDICAL EFFECTS:
AND
Instructions
FOR
Cold and Warm Bathing.

By AMOS MIDDLETON, M. D.

NON EST VIVERE SED VALERE VITA.

The THIRD EDITION, revised & enlarged.

WARWICK:
PRINTED AND SOLD BY HENRY SHARPE,
Advertiser-Office, High-street.

1814.

CHEMICAL ANALYSIS
OF THE
LEMMINGTON WATERS,
WITH A
Special Disquisition
ON THEIR
MEDICAL EFFECTS:

AND
Instructions
FOR
Cold and Warm Bathing.
BY AMOS MIDDLETON, M.D.

FROM THE PRESS OF THE
THE THIRD EDITION, revised and enlarged.
LONDON:
PRINTED AND SOLD BY HENRY SAWYER,
St. Paul's Church-yard, 1792.



TO

DR. WILLIAM KERR,

PHYSICIAN

To the General Infirmary,

AT NORTHAMPTON.

DEAR SIR,

I feel great pleasure in laying before you these few practical pages; as, from long experience, and extensive opportunities of observation, you must thoroughly know how to appreciate the futility of hypothesis, and the infinite importance of practical information.

I have also a strong wish to offer you something, as a small tribute of gratitude for your professional kindness and assistance; as a slight remembrance of old family friendship; and as a general token of respect for your acknowledged medical talents, your eminence as a Physician, and your strenuous exertions in the investigation, in the support, and in the recommendation of these particular WATERS.

I have the honor to be,

DEAR SIR,

Your humble,

And most obedient Servant,

AMOS MIDDLETON.

DR. WILLIAM KEIR.

PHYSICIAN

To the General Infirmary,

AT NORTHAMPTON.

Dear Sir,

I feel great pleasure in laying before you these few practical pages; as, from long experience, and extensive opportunities of observation, you will thoroughly know how to appreciate the utility of hypothesis, and the infinite importance of practical information.

I have also a strong wish to offer you something as a small tribute of gratitude for your professional kindness and assistance; as a slight remembrance of old family friendship; and as a general token of respect for your acknowledged medical talents, your civilities as a Physician, and your strenuous exertions in the investigation, in the report, and in the recommendation of these particular Writings.

I have the honor to be,

Dear Sir,

I am, humble,

And most obedient servant,

AMOS MIDDLETON.

PREFACE.

AFTER the lapse of so many ages, since Medicine first began to be cultivated in Greece, as a distinct and lucrative profession; and after all the innumerable succession of plausible dogmatists, who, by the fertile magic of creative hypothesis, and fanciful conjecture, have worked up a few slight materials into spacious and magnificent edifices; the real foundations of this important Science seem as yet but imperfectly laid; and consequently, even to the present hour, the splendid superstructure of the Moderns, is scarcely less tottering and unstable than was the evanescent greatness of its departed predecessors. In reply to this, I know it will be vehemently urged by the orthodox upholders of the present system, that their doctrines have received

the most unqualified assent; that their practice has been most universally adopted; and that their fundamental principles have been established by incontrovertible facts, on a solid and immoveable basis; while, by the most irresistible arguments, they have totally overthrown and trampled into the dust, the fragile and illusive opinions of their visionary and defeated opponents. But whilst we listen, with proper deference, to these assertions, let us also recollect that assertion is not proof; and that such, precisely, has been the cry raised in favour of every prevalent system of Physic, since the venerable days of HIPPOCRATES. Besides, whoever will spare but a few short moments, to reflect on the rapid and incessant vicissitudes, which both the most favourite principles, and most approved practice have undergone within these *very few* years, will be but little disposed to place a blind, and implicit confidence in any hypothetical reasoning, however varnished over with the syren gloss of ingenious supposition, or sanctioned by reverend custom, and the authority of mighty names. For, as far as custom, and the authority of names are concerned, which may indeed stamp error with dignity, but cannot convert it into truth; where shall we find a case more exactly in point than the now totally exploded, and ridiculous opinion, of

the concoction of the blood by the liver; of its nocturnal and diurnal revolution through the veins; and of the animating *Vital Spirits*, which it was the sole business of the arteries to convey? Yet this same doctrine, this jumble of falsehood and confusion, with its whole dependent mass of high sounding nonsense, and pompous absurdity; was the firm, general, and unblushing creed of all the whole tribe of Physicians and Philosophers, from the first dawning of Physic, to the days of our truly great, and scientific HERVEY. What then could possess the sanction of greater authority, than a doctrine like this? A doctrine, which had existed for so many ages, and had ranked among its implicit believers, and strenuous defenders, many of those men, most deservedly celebrated in all antiquity, for their profound learning, their acute penetration, or dazzling and exalted genius.

If, however, this example be rejected, as inapplicable to the present times, and if it be urged, that the ancient opinions were unsupported even by a shadow of proof, while the moderns rest solely for support on the basis of actual experiment; let the objector be pleased to remember the numerous, and diametrically opposite opinions of these same moderns, to

whom he so confidently appeals; where one army of *real facts* is drawn up in battle array against another, and every "*New System*" is as regularly attended by a new set of accommodating experiments, as a *Quack Bill* is prefaced by a list of "*wonderful and miraculous cures*;" and all for what? To give a colour to the imposition; to bear witness to the virtues of the nostrum. Besides, what will the present pretenders to medical infallibility make of the portentous examples of these recent System-Builders? What is the warning held out by the once famous *Globules of the Continental Professors? Each regular series of larger globules, made up of six smaller globules, and these again, of six others smaller still; descending in a uniform and invariable gradation, exactly proportionate to the corresponding diameters of their respective arteries.

OR, in what light will they behold those admirers of scales and weights, the unintelligible, mathematical, and algebraical Physicians? who, computing by the laws of Hydrostatics and Hydraulics, with Logarithms in their heads, and clumsy glass tubes in their hands, affected to calculate with exactness, the pressure of the

* See an able exposition of these doctrines in John Bell's *Anatomy*.

incumbent Air, the momentum of the impinging Fluids, the muscular force of the heart, the velocity of the Blood, the calibre of the Arteries, the capacity of the Veins, and the precise dimensions of every minute pore and invisible tube, as if *they* had been the makers of the Machine.

OR, what can be said to the analytical Chemists, to their obtunding and sheathing, to their hooked corpuscles, their cones, and their spiculæ, to their *acute parts, dividing, and “cutting asunder, and breaking into smaller pieces, the tough and viscid humours:” or to their “hard, rough, and pointed particles scouring and cleansing away the filth, sticking in the passages:” or to others, “fastening the parts together as by little wedges, or tying them close as with cords?”—

It is not long, since an all-pervading Æther was accounted the sole and sufficient cause of elasticity, of gravity, of electricity, of magnetism, “† of heat, light, sensation, muscular motion, and, in a word, of every phenomenon in nature.

* Tumor de morbis cutaneis. Pages 508 and 509, who borrowed this from ZYPÆUS.

† See BROWN'S Observations.

WE are all of us acquainted with that potent, primary, and celebrated affection "*Spasm*;" with the "pretended sufficiency of the Brunonian doctrine, for *all* medical theories;" with that "subtle fluid, the Spirit of Animation† residing in the brain and nerves," the grand *primum mobile* of DARWIN: with the omnipotent powers of electricity and galvanism: and with the novel, astonishing, and universal effects of the Gases; by which we were, according to DR. BEDDOES, "to exalt the mental and bodily powers, to renovate excitability, to convert torpid into vivacious, cold blooded into warm blooded animals, and come to rule over the causes of pain and pleasure, with a dominion as absolute, as we now rule over domestic animals, and the other instruments of our convenience."

SUCH have been the several delusive speculations, such the successive *ignes fatui* of the day: and, notwithstanding all of them are now growing into disrepute; and most of them have rolled away as silently as the periods which produced them; yet still we go on in a varying round; other fabrics are building; other systems are framing; and the present race of young men are remarkable for nothing so much,

† DARWIN'S Zoonomia.

as an over anxiety, and morbid appetite after the discovery of new inventions; blameably neglecting the acquisition of that which is already sufficiently known, and too frequently despising the assistance of many of those less showy, but more important, and most invaluable sciences, which have tended so much to the real advancement of knowledge, and raised the practical part of Medicine to all that high respectability, which it at present possesses.

THE primary rise of this strange infatuation may perhaps be ascribed to that unconquerable propensity, implanted in the mind of man, for investigating the secret operations of nature, and inquiring into the hidden causes of every thing around him; which sentiment, powerfully as it preponderates, too frequently mistakes the true means of arriving at the end proposed: for, always most dearly prizing that which is least understood, and eagerly thirsting after applause, which the supposed discovery of new truth universally commands, we invariably begin "by the assumption of fancied causes," and then proceed to warp and distort facts to the support of our favourite hypothesis, instead of first endeavouring, by a patient, careful and laborious collection and examination of *facts themselves*, to trace each particular, back to its original

source, till at last, we arrive at some grand productive principle, or broad and sweeping generality. Or, perhaps, this increasing evil may be ascribed to some less excusable motive, to vanity associated with indolence; to impatience of long continued labour; to inability or unwillingness to endure a state of mental inquietude, and a secret consciousness of doubt: for, every one knows, that it is a much easier thing to speculate and to theorize, than thoroughly to understand and digest old and established truths; or, by honest and unabating industry, to gather up into the memory a store of undeniable facts: to survey them in every possible light; to guard against the deception of appearances; and by indefatigable caution, and accurate observation, to seize every minute agreement, and weigh every discordant particular. For to what, but to the total rejection of all unfounded supposition, to the general facility of reducing every dogma to practice, and of examining, and re-examining the several results of every experiment and operation, do we owe the rapid, and substantial improvement. of Anatomy, of Surgery, and of practical Chemistry? though it must be confessed, that, in the *theoretical* department of the latter science, there is by no means the same degree of certainty. And yet, no paucity of positive decisions, no want

of a sufficient number of arbitrary alterations, no reluctance in throwing aside old technical terms, no tardiness in the invention and adoption of new ones, can be ascribed to the modern Chemist, or indeed to the modern Physician: specious, however, as may have been their reasonings, and confident as may have been their assertions, yet even the great, and boasted throne of the modern Antiphlogistics themselves, has lately been shaken to its very basis, by the brilliant and important discoveries of the accurate and penetrating DAVY.* Indeed, I imagine that another Æra, both in the annals of Chemistry and Medicine is probably not very far distant; and possibly, before the expiration of half another century, many of the most celebrated, and fashionable doctrines of the present day, will be looked upon with as much contempt, as we now review the absurd and fantastic reveries of the ancients dreamers upon Alchemy; where the little of pure truth, and real discovery which the books of such writers contain, is forgotten and set aside, like old family portraits, on account of the preposterous decoration, and ridiculous extravagancy of fancied ornament, by which their few chaste lines of simple nature,

* See DAVY's Paper on the Oxymuriatic Acid; his Disquisitions on negative and positive Electricity, on Caloric, and on Light.

and unaffected beauty, are so gorgeously obscured and confounded.

It is for these reasons; from a serious consideration of this fickle and ever mutable spirit of Hypothesis, which, an endeavour to trace back, from the earliest ages, the History of medical and chemical opinions on the subject of Mineral Waters, has more forcibly impressed upon my mind; and, from an earnest conviction of the total inutility of theoretical speculation, where useful instruction is the principal object in view; that I have determined, while preparing a third edition of these observations for the public, to adhere to the same plain, unassuming, practical method, which was the distinguishing characteristic, and, I must confess, the chief merit of the former. It was my aim in that edition, and shall be more particularly so in this, to put into the hands of the invalid, a short and easy, but condensed and comprehensive account of all that is necessary to be known, as to the nature of the LEMINGTON WATERS, or observed, as to the method of using them. I did not then scruple, nor shall I now, to collect from every different source, whatever may appear important from its practical utility, or suitable to my purpose, from its plainness and perspicuity: and as I simply profess to instruct the ignorant,

and caution the unwary; and as I neither did, nor do pretend to any very great originality of materials, nor aspire to seize and captivate the imagination by dazzling, but futile theories; I hope I shall be excused, if that kind of merit be not found in my book, which I never had the vanity to assume, and that class of subjects, which I never *intended* to place there. To the admirers of such subjects, I would recommend the valuable productions of DR. LAMBE, and DR. SAUNDERS. The scientific Chemist will peruse, with pleasure, the highly ingenious, but purely chemical work of the former, which, however excellent as an analysis, touches, in no respect, upon the medical virtues of the WATERS, and to a common reader, desirous only of such information, must tend rather to confuse than inform. While those, who are anxious to enter more extensively into all subjects connected with Mineral Springs, than the limits of a pamphlet will allow, may consult the copious, and general Treatise of the latter Gentleman, whose long experience, and profound knowledge of the subject justly entitle him to confidence.

FROM the long list of successful Cases that have fallen under my care, I had, in my last edition, subjoined a few, which appeared remarkably adapted to illustrate the beneficial

effects of these **WATERS**, in some of the more general and important maladies; but, I am induced to omit the insertion of any Cases in the present edition, because, in consequence of the very liberal and praiseworthy conduct of the Proprietors of the New Baths, who, from motives of pure benevolence, have appropriated a part of their elegant Building to the sole use of the Poor, an arrangement is in contemplation, by which an opportunity will be afforded of publishing annually, under the sanction of a Medical Society such Cases as may be thought worthy of public attention; and because I am aware with what suspicion Medical Cases, however well authenticated, are received, from an individual, when they are given to favour any particular practice, or to recommend any particular Water; besides, the insertion of names is a great objection in private practice, and I consider the reputation of the Waters to be too well established to require such assistance.

ANXIOUS to obviate all possibility of mistake, and to prevent the reputation of a remedy, so well deserving of public notice, from being sullied by failures on account of misapplication, and improper collateral treatment, I have added to the slight catalogue of diseases, in which these **MEDICAL SPRINGS** are more immediately indi-

cated, a few succinct directions, for the rational observance of such cautions, and the adoption of such a regimen, as will be most likely to increase their salutary efficacy. And this from local situation, and the ample experience of twenty years, I flatter myself, I am, in some measure, capable of doing.

IN reviewing the several pages of the work, I have carefully endeavoured to blot out all such parts, as seemed irrelevant to the main intention; or which from the improved state of Science, or more mature consideration, I had reason to think were in any degree erroneous: and if, at last, the result of the whole, shall be only to forward, or excite others, more successfully to prosecute the subject, I shall so far, at least, have the consolation of reflecting, that I have not laboured in vain.



PRELIMINARY REMARKS.

UNTIL the time of DR. LAMBE'S Analysis, in 1797, neither the Village of LEMINGTON PRIORS, nor the Mineral Springs, for which it is now so deservedly famous, were either much known or much noticed. It is true, that the WATERS had been slightly mentioned by most of our older writers, but their reputation had extended only to the country people in the neighbourhood, who flocked in numbers, every day, to drink at the common Spring. Upon the appearance, however, of DR. L's Papers in the "MANCHESTER MEMOIRS," they began to excite attention, and, their efficacy being acknowledged by DR. KERR and DR. JOHNSTONE, through the recommendation of those Gentlemen, they rapidly gained ground in the public estimation. Since that time, the place has been constantly increasing, and the excellent effects produced by the Waters in many chronic disorders, in plethoric habits, in diseases of the skin, and in visceral obstructions, particularly such as have arisen from a residence in hot climates, or from too great indulgence in the pleasures of wine and the table, have stamped

them with the highest value, amongst that class of natural medicines to which they so eminently belong. Instead of an insignificant village, known only to a few invalids, who, from the benefits they received from the Waters, were contented to put up with any accommodation, LEMINGTON is now become the resort of rank, elegance, and fashion; spacious buildings are constructed, both for hot and cold Bathing; the *Public Spring* is inclosed in a handsome stone edifice,* for the accommodation of those who drink the Waters; a grand, extensive, and beautiful new range of houses has been erected, fit for the reception of people of the first distinction; and every convenience, that health, or sickness, can require, is amply provided. From the anxiety of the sick, and from the eager attention and persevering efforts of speculative individuals, many new Springs have been discovered; and instead of one solitary fountain, there are now no less than seven. But as the medicinal properties of all of them appear to be invariably the same, and, as the following pages are intended, as I before mentioned, rather for the Invalid than the Chemist, I shall confine myself to a simple statement and explanation of the medicinal

* This has been done by the liberality of the late Earl of Aylesford, whose patronage was never wanting to any undertaking, for the public benefit.

ingredients contained in one Spring. This remark applies equally well to the *New Spring*, by which the numerous and elegant Baths on the bank of the river, are supplied; for, upon a careful examination, I find this Water to contain the same ingredients, and nearly in the same relative proportion as the others. I have been induced to adopt this method as the Waters are liable to be in some measure affected by the weather, and because, after repeated examination, I find no material difference in the chemical results obtained from a separate analysis of the several Springs. Instead of enumerating, as is usual, the various experiments made, and expedients used to ascertain with exactness the different gaseous and solid products of the Waters, I have preferred laying before my readers, a plain table of their general contents, and a brief view of the nature and effects of the different component substances. In doing this, I have taken no notice of the *oxyds* and *oxygenated muriats* of *iron* and *mangenesse*, on account of the imperfection of the tests which are necessary to discover them, the want of coincidence in different experiments for that purpose, the uncertainty at last, of their actual presence, and their almost infinite minuteness, if really present at all, which renders them of little or no consequence in estimating the medical effects of the Waters.

A TABLE

OF SUBSTANCES

CONTAINED IN THE WATER.

Gasceous contents of a Wine Gallon,

IN CUBIC INCHES.

<i>Chemical Names.</i>	<i>English Names.</i>	<i>Quantity.</i>
*Sulphuretted Hydrogen Gas	or Hepatic Air	. 25
†Nitrogen Gas	— Mephitic Air	3 . 5
Carbonic Acid Gas	— Fixed Air	. 75

Solid Contents of a Wine Gallon,

IN GRAINS.

Carbonat of Iron	or Carbonated Iron	. 75
Sulphur	— Sulphur	. 25
Muriat of Magnesia	— Muriated Magnesia	50 .
Muriat of Soda	— Common Salt	430 .
Sulphat of Soda	— Glauber's Salt	160 .
Sulphat of Lime	— Gypsum	135 .

* Formerly called Hepatic Gas.

† ——— Azotic Gas.

On Sulphuretted Hydrogen Gas, or Hepatic Air.

SULPHURETTED HYDROGEN GAS is a very fetid, elastic fluid, somewhat heavier than Atmospheric Air, and soluble in water, smelling very strongly like the scourings of a foul gun-barrel. It kills animals quickly, turns syrup of violets green, extinguishes bodies in combustion, and, mixed with Oxygenous, or Common Air, flames, and detonates by the electrical spark. This Gas is quickly destroyed by atmospheric air. The oxygen of the atmosphere combines with the hydrogen, and forms water, while the sulphur is precipitated; and hence arises the quantity of that body, which we see about Mineral Springs. Water may be easily made to absorb nearly twice its bulk of this Gas, and it is to this absorption, that the WATERS of *Harrowgate, Moffat, Aix-la-Chapelle, Bareges*, and several others, owe their principal medical celebrity. When internally taken, the sulphur, rendered highly diffusible by the hydrogen, seems to penetrate into all parts of the system, and to pervade the whole mass of the fluids. LEMINGTON WATER, when fresh drawn, smells strongly of this Gas, but from its very loose adhesion to the water, it soon loses this property, like all other Springs of the same nature, and becomes,

on exposure, almost inodorous. From hence we learn the propriety of drinking this Water, as fresh as possible from the Spring; or, if it be taken away in bottles, of keeping them closely corked: though this latter expedient is not quite so effectual as could be wished. If a piece of polished metal be plunged into water, strongly impregnated with this Gas, its surface is immediately blackened;* but the best tests for the presence of the Gas in water, are the different metallic salts. With a solution of arsenic it gives a fine yellow precipitate, a dark brown, with acetate of lead, and various other precipitates, differing more or less, in colour and quantity, with various other metals.

Nitrogen Gas, or Mephitic Air.

THIS aeriform fluid is unflammable, incapable of supporting combustion, fatal to animal life, and somewhat lighter than Atmospheric Air. It is owing to this comparative lightness, that it

* As this Gas possesses many acid properties, combining with earths, alkalies and several metallic oxyds, and yet has no Oxygen in its composition, it should seem to contradict the assertion of LAVOISIER, that Oxygen was the only cause of acidity. This fact, with the additional ones to which I before alluded, brought forward by MR. DAVY, in the Philosophical Transactions, will hereafter, perhaps, afford a handle by which the plausible system of the French Chemists may be finally overturned.

is enabled to rise through the air, after being emitted from the lungs ; without which property, it would have occupied all the lower parts of the Atmosphere, and produced universal pestilence and destruction. As it is however, it has the effect of neutralizing, in some measure, the effect of Oxygen Gas, the other principal constituent of the Atmosphere, and rendering it fit for respiration and combustion. Plants grow and vegetate freely in this Gas, and it seems to be the grand agent which Nature employs, in the process of animalization, converting vegetable into animal substances, and entering into the composition of *all* animal bodies. It is computed, that the human blood absorbs from four to five ounces in every twenty-four hours. The utility of this substance may be estimated from its enormous and almost incalculable quantity, being diffused over the whole earth, and forming 77 parts out of a 100 of the whole Atmosphere. If this quantity were very considerably less, or, if its proportions with Oxygen in Atmospheric Air were reversed, the air taken in by respiration, would become a most violent stimulus ; all the secretions would be amazingly increased ; the blood would flow with furious rapidity : and the tone of the vessels, thus stimulated to vehement action, would be destroyed by over excitement. From hence, we may easily infer the great suc-

cess of this Gas, when administered for a length of time, in inflammatory constitutions, and all cases of increased irritability. Its presence in Mineral Waters is not very common, and from its slight adhesion, it is easily expelled by a very little heat. It does not seem to give any very sensible properties to the Water in which it is found, nor is it discoverable by any single test whilst in combination; but, when set at liberty, and received in proper vessels, it is easily distinguished, and its presence and proportion in the Lemington Water, has, in this manner, been frequently ascertained, beyond all shadow of doubt.

Carbonic Acid Gas, or Fixed Air.

CARBONIC ACID GAS, is invisible, elastic, the weakest of all the acids, perfectly without smell, destructive to combustion, unfit for respiration, and twice as heavy as Atmospheric Air. It remains unchanged by the application of heat and light, and is of all known acids the most abundant in nature, being found in great plenty in chalk, limestone, marble, &c.; indeed, a single cubic inch of the latter substance contains more Carbonic Acid in a state of combination, than, if released, would fill a six gallon vessel. There is calculated to be about one per cent. of

this Gas diffused through the Atmosphere, and perhaps the great quantities which are perpetually forming by the burning of different bodies, and by animal breath, seize upon the pestilent exhalations which arise from the earth, and arrest the numerous malignant vapours, which the putrefactive process is constantly sending forth. It is remarkable also, that vegetables absorb this Gas, which is fatal to men and animals, and give out Oxygen; while men and animals respire the Oxygen Gas, which is necessary to their existence, and give out Carbonic Acid, the proper food of vegetables. Carbonic Acid Gas has been given medicinally with great success. It has proved a most powerful antiseptic; is highly beneficial in malignant fevers; and has been found of much service in pulmonary consumption, and many other classes of disease. This Gas exists in great abundance in many natural Springs: the Waters which are impregnated with it, have a pleasant acidity, and a sparkling briskness, which is very agreeable. Water, by considerable pressure, may be made to combine with almost three times its bulk of Carbonic Acid, but, from its slight adhesion, it easily escapes upon agitation, or even long standing, and may be completely expelled by boiling the Water in which it occurs. The tests for this Acid in Water are various. Lime Water

causes a turbidness, and chalk is precipitated, Litmus Paper is turned red: and the strong Mineral Acids disengage copious air bubbles.

Carbonat of Iron.

CARBONAT OF IRON is formed by the union of Iron and Carbonic Acid. It is one of the most common, the most useful, and the most extensively employed of all the metallic combinations. The solubility of Iron in animal fluids renders its exhibition as a medicine, safe, and of little difficulty; it is consequently, easily introduced into the circulating fluids, of which it forms, at all times, both in youth and age, a most material and important part; so much so indeed, that it has been said by a late eminent and popular writer, to occasion, either by its excess or deficiency, many of the most fatal and dangerous maladies, to which human nature is liable: however this may be, it has long been highly esteemed by the Physician, both for its efficacy as a particular, and universal tonic, in all cases of debility whether of the stomach, of the nerves, or of the system in general: as well as for its wonderful powers in supporting the almost exhausted frame, under the pressure of incurable diseases; and for its highly beneficial effects, when Nature, fal-

tering in her work, requires to be urged to the performance of her customary functions.

IRON occurs most frequently in Mineral Waters, in the form of a Carbonat. This arises from the very common impregnation of natural Waters with Carbonic Acid. When this impregnation is pushed to its highest extent, Water so saturated with that Acid, will dissolve $\frac{1}{10500}$ of its weight of Iron. The affinity, however, of the Water, for Carbonic Acid is so very weak, that, upon exposure to the Air, it easily flies off, depositing the neutral Carbonat of Iron it had enabled the Water to take up, upon the channels through which it flows, or, after standing, upon the bottoms and sides of the vessels in which it may be kept, a portion generally swimming at the top in the form of a thin iridescent pellicle. In some few instances, Iron is found in Mineral Springs, combined with Sulphuric acid. Such waters may be readily distinguished from those containing the Carbonat, by the property, which they possess of continuing to strike a black with a solution of Galls, after they have been boiled, as boiling drives off the excess of Carbonic Acid in the Water, and causes the Carbonat of Iron to be precipitated.

THE presence of Carbonat of Iron is easily ascertained by the tests of Gall-nuts, and the Prussian Alkali.

Sulphur.

SULPHUR has been so long and so well known, that it must be unnecessary for me, in this place, to enter into any very detailed account either of its nature, or properties; particularly, as its most important *compound* has been explained in a former place, and as the quantity of the *simple* substance, contained in the LEMINGTON WATER, is almost too small to be worthy of notice.

It may be sufficient to remark, that it is employed by Nature “ in a great number of her
“ operations, she presents it under many forms
“ among fossils; charges with it the waters
“ denominated sulphureous; mineralizes with it
“ the metals; causes it to pass into the vegetable
“ and animal fibres; and exhibits it to chemists
“ in an infinite number of combinations.

It has the curious property of breaking to pieces with a crackling noise, if a large piece be held in a warm hand. Its uses as a medicine are many and various: in cutaneous disorders, especially, it has great power, for one of the most obstinate of which it is a well known specific. However exhibited, it penetrates easily through the most minute ramifications of the extreme vessels, and powerfully impregnates all the secretions.

Muriat of Magnesia.

MURIAT OF MAGNESIA is a salt of an extremely bitter, unpleasant taste, not easily crystallized, soluble in its own weight of water, and in five parts of Alcohol: it deliquesces very speedily when exposed to the air, is decomposed by a strong heat, and when highly dried is exceedingly caustic. It is very abundant in Sea Water, and is found in the WATERS of *Harrowgate, Cheltenham, Tunbridge, Bristol, Kilburne, Enghien*, and several others. It is an excellent cooling aperitive Salt, and exists in greater quantity in the LEMINGTON WATER than in almost any other, *Harrowgate*, I believe, excepted. When held in solution, it is easily detected by a combination of well known chemical tests, amongst which nitrate of Barytes and Alcohol are generally the principal.

Muriat of Soda, or Common Salt.

THIS SALT is the most abundant of any in nature: the Sea contains an almost incalculable quantity; and prodigious masses are hidden in the bowels of the earth. Its culinary use, as a condiment to our food, is known to every body, and it is generally supposed to furnish the neces-

sary degree of soda, to keep the bile in an alkaline and antiseptic condition. It is a curious fact, that, in some of the back settlements of *America*, the wild beasts assemble to regale themselves wherever this salt is found; and some of the places are so much frequented by them, that the ground is literally trodden to mud; this will not appear singular, when the fattening property of our own Salt Marshes is taken into consideration, and when the fondness of the horse for it, and the quantity of milk given by the cow, when supplied with this salt are recollected. Muria of Soda combines very quickly with water, in which it is extremely soluble; it is not altered by exposure to the air, and is volatilized by heat, but not decomposed; it yields, however, to the sulphuric and nitric Acids, to Barytes and to Lime. It is discoverable in Mineral Waters by no single test, but is readily distinguished by various re-agents.

Sulphat of Soda, or, Glauber's Salts.

SULPHAT OF SODA is the common cathartic Salt, so much used in medicine, and generally known by the name of Glauber's Salt.

It is found plentifully in the Sea, and in many Mineral Waters, both in England and on

the Continent. Its taste is at first like that of Common Salt, but it speedily becomes bitter and nauseous. By exposure to the air, it loses its water of crystallization, and falls into a fine white powder, which is of course much stronger of the saline ingredient, than the crystals. This circumstance ought always to be attended to, in proportioning the dose of this useful purgative. The LEMINGTON WATER holds a larger quantity in solution than any of the most celebrated Waters in this country, *Cheltenham* only excepted; and it is to this Salt and the Muria of Magnesia, that the Waters of both places owe their principal effect on the bowels. Sulphat of Soda is found in mineral springs, in combination with many other earthy and alkaline Salts. Its presence is easily discovered by a process well known, and its quantity may be exactly estimated, by freeing the water of all other Sulphats, and precipitating the Acid, combined with the Soda, by means of Nitrat of Barytes. Sulphat of Barytes is then formed, and the proportion of this substance, when ignited, will determine the quantity of dried Sulphat of Soda; as 170 grains of the former indicate 100 of the latter.

Sulphat of Lime, or, Gypsum.

THOUGH this substance was well known to the ancients, under the name of Gypsum, its composition was not known till the time of MARGRAF and MACQUER, who analysed it, and proved it to be composed of Sulphuric Acid and Lime. It is one of the most frequent of all the Salts, that are found in natural waters; it has a very slightly nauseous taste, and imparts that roughness and peculiar harshness to most waters which spring from the ground, that occasions them to be distinguished by the name of *hard* waters. Such waters have, as is well known, the property of curdling soap; though Sulphat of Lime, at a common temperature, requires for its solution, 500 times its own weight of water. It is found crystallized in various forms, sometimes transparent, and sometimes opaque, but when pure it is of a white colour. It is soluble in sulphuric acid, decomposed by charcoal, unaltered by exposure to the air, and when heated undergoes a kind of fusion, but cannot afterwards be melted except by the most violent heat. It forms that very useful substance, called Plaster of Paris, when heated red hot and afterwards cooled. Its quantity, in mineral springs, is easily ascertained by evaporating a portion of the water to a few ounces, and precipitating

the Sulphat of Lime, by means of weak Alcohol. The Precipitate may be then dried and weighed. If any of the earthy carbonats be present, they must be previously saturated with nitric acid.

COMPARISON OF THE

Lemington and Cheltenham Waters.

HAVING thus enumerated the medical contents of the WATERS, and explained their separate uses and properties, I shall now proceed to lay before my readers some account of their combined effects, when taken altogether, as they are found in the Lemington Springs. But, before making this attempt, it may be gratifying to many of those, who will peruse this pamphlet, to see these Waters compared with some of the other most celebrated Waters of England; from amongst these I shall select the CHELTENHAM WATERS, as they most resemble the LEMINGTON, both in the number of their ingredients, the proportion of those ingredients in a given quantity of Water, and their medicinal effects upon the human body, when internally taken. As the chief end in making this comparison, is to satisfy curiosity and promote the knowledge of

the nature of the LEMINGTON WATERS, by referring the enquirer to the nature of a Medicinal Water, which is already well known and generally understood; I shall prefer using the old Analytical Table of DR. FOTHERGILL, to either of the newer, and more strictly accurate accounts of MR. ACCUM, or MR. JAMESON.

COMPARATIVE TABLE.

Gasceous contents of a Wine Gallon,

IN CUBIC INCHES.

LEMINGTON WATER.

CHELTENHAM WATER.

<i>Substances.</i>	<i>Quantity.</i>	<i>Substances.</i>	<i>Quantity.</i>
Sulphuretted Hydrogen Gas	.25	Sulphuretted Hydrogen Gas	—
Carbonic Acid Gas	3.5	Carbonic Acid Gas	30.368
Nitrogen Gas	.75	Nitrogen Gas	15.

Solid Contents of a Wine Gallon,

IN GRAINS.

Carbonat of Iron	.75	Carbonat of Iron	5.
Sulphur	.25	Sulphur	—
Muriat of Magnesia	50.	Muriat of Magnesia	25.
Muriat of Soda	430.	Muriat of Soda	5.
Sulphat of Soda	160.	Sulphat of Soda	480.
Sulphat of Lime	135.	Sulphat of Lime	40.

FROM the slightest survey of the foregoing table, it must be easy for any one, though ever so little acquainted with the sciences of Chemistry and Medicine, to perceive the similarity in the *general* composition of the two Waters; and the remarkable difference, in the proportions of one *particular* article, namely, the Carbonat of Iron. To explain the effects, which this difference is likely to produce upon the medicinal qualities of the Lemington Springs, and to give a short account of the nature of the Cheltenham Water, in order to compare its aggregate effects, with those of the Waters at Lemington, is all, therefore, that now remains to be done under this head. For the sake of perspicuity, I shall begin with the following short account of the Cheltenham Spring.

“CHELTENHAM WATER, when fresh drawn,
 “is not perfectly transparent; by standing it
 “becomes turbid, and separates bubbles of air;
 “it gives out a slight sulphurous odour, very
 “perceptible on the approach of rain; to the
 “taste, it is bitter, brackish, and chalybeate;
 “it does not keep, nor bear transporting to any
 “distance; for the chalybeate part is soon lost,
 “by the precipitation of the iron, which takes
 “place, even in the closest vessel, after a few
 “days; and in the open air, it sometimes

“ becomes foetid. The sensible effects, produc-
 “ ed by this water, on first taking it are a
 “ degree of drowsiness, and sometimes head-
 “ ache, but which pass off, even before its opera-
 “ tion upon the bowels. Its operation, as a
 “ laxative, is highly salutary, producing neither
 “ griping, nor sense of weakness; so that it
 “ may be persevered in, for a length of time,
 “ without producing any inconvenience to the
 “ body; and during its use, the appetite will be
 “ improved, the digestive organs strengthened,
 “ and the whole constitution invigorated. In
 “ small doses it is apt to pass off by the kidneys.
 “ This water is much used in a variety of
 “ chronic diseases. In the cure of glandular
 “ obstructions, it is considered particularly bene-
 “ ficial, especially, where their seat is the liver
 “ and alimentary canal. Thus, it is a grand
 “ restorative for the injuries of a hot climate,
 “ in respect to the secretions of those organs;
 “ and even considerable debility, in such cases,
 “ is no objection to its use. Cutaneous erup-
 “ tions are also much relieved by this mineral,
 “ where their appearance is occasional, and at
 “ stated intervals. In cases of simple debility,
 “ or relaxation, this water certainly yields to
 “ the other chalybeates; but wherever there
 “ prevails obstruction, or fixed local congestion,
 “ its exhibition is strongly indicated.”

IN addition to this brief, general account of DR. REECE, I shall subjoin a short extract from the publication of DR. SAUNDERS; as the superiority of the Lemington Waters, in many respects, after reading this account, will be made very apparent.

“ AMONG other chronic disorders that are
 “ much relieved by the Cheltenham Springs,
 “ we must enumerate a variety of Scrophulous
 “ affections, in different parts; but as these
 “ often require the assistance of *external ap-*
 “ *plication* the Sea has certainly here a very
 “ decided preference.

“ ANOTHER class of diseases in which the
 “ advantage of Cheltenham Water is constant-
 “ ly experienced, is in some of the most dis-
 “ tressing and painful affections of the skin, of
 “ the kind usually termed scorbutic eruptions;
 “ that arise often without any very obvious
 “ cause, that chiefly depend on the habit of
 “ body, and make their appearance at stated
 “ intervals in painful ulcerations on the skin,
 “ producing a copious acrid discharge of lymph,
 “ and an abundant desquamation. In common
 “ with other saline purgative springs, this is
 “ found to bring relief in these most harassing
 “ disorders, but it requires to be persevered in

“ for a considerable time, keeping up a constant
 “ determination to the bowels. It is an ad-
 “ vantage attending these saline waters, that
 “ they may be used at once, without any pre-
 “ paration, nor is any other medicine often
 “ required during their use, except, as has been
 “ already mentioned, the occasional addition of
 “ the crystallized salts, where the water itself
 “ does not prove sufficiently active to the
 “ bowels ; and likewise the use of the *warm*
 “ *bath* in several of the cases, and more espe-
 “ cially *the diseases of the skin.*”

FROM what has been here said, it must
 be obvious to every one, how much the efficacy
 of the Cheltenham Waters would be increased,
 if they could be procured in sufficient quan-
 tity for the purposes of Hot and Cold Bathing,
 but from the scantiness of the stream this is
 rendered impossible. Upon this head, LEMING-
 TON must ever possess a most decided advan-
 tage, as the quantity of the Mineral Water,
 furnished by the different Springs, is sufficient
 not only to answer the present demand for
 bathing and drinking, but also to afford a con-
 stant and regular supply to as many Baths,
 both hot and cold, as could be required by the
 greatest number of Invalids, that attend any
 watering place in the kingdom. The want of

proper quantity of the saline Water for bathing being very sensibly felt at *Cheltenham*, it has been attempted to supply its place, by constructing Baths in different parts of the town, and filling them with common water; but the superior effects of the saline water are well-known and acknowledged by every medical practitioner. The excellency of Salt Water for external application, when compared with other water, seems to consist in the stimulating power of its saline particles, which, by their action upon the skin, prevent the ill effects which the cold Bath, from its debilitating tendency upon exhausted constitutions, whose vital powers are incapable of much re-action, is very apt to produce. But perhaps this may be better expressed in the words of DR CURRIE, which at the same time, as they serve for an explanation of the meaning, will serve also as an authority for the doctrine; “I was led to prefer salt water to fresh,” says the Doctor, “on account of the stimulating effect
 “ of Sea Salt* on the vessels of the skin, by
 “ which I apprehend the debilitating action of
 “ cold is prevented. Salt water, either for the
 “ purpose of immersion or affusion, is more
 “ grateful to the patient than fresh water, and

* *Lemington Water* contains this Salt in very great abundance, more so than any celebrated Water in the kingdom, except *Harrowgate*, the quantity in a gallon being 430 grains, and of saline contents altogether 775 grains.

" it is well known that it may be applied to the
 " surface for a length of time, with much less
 " hazard. Persons immersed in sea water, for
 " some time together, preserve the lustre of the
 " eye and the ruddiness of the cheek, longer than
 " those in fresh water, of an equal temperature,
 " and such persons exhibit the vital re-action
 " stronger when removed from it."

As a Warm Bath, the WATERS of LEMINGTON, artificially heated, are highly serviceable; particularly in stiffness of the tendons and rigidity of the joints, the effects of preceding inflammation from the attacks of the gout and rheumatism. Patients afflicted with paralytic affections, often find most remarkable relief; it is well known that salt water, instead of losing its saline impregnation by being heated, contains a greater quantity in that state than when cold, owing to the evaporation of part of the water in which it is dissolved; for this reason, the Bath may be used at the highest point of heat which the skin can endure, and this in palsy is of much consequence. The combined use of the warm bath externally, and the internal exhibition of the waters, has been found an almost sovereign remedy for all diseases of the skin, not excepting some of those, even of the most deplorable nature; many people having come to Lemington, in a condition so miserable as to have

been objects of pity to all around them, and returned so free from all symptoms and appearance of disease, as almost to stagger credulity in the relation of their former sufferings.

Except, as far as the influence of the Baths, and the weaker chalybeate powers of the Lemington springs can extend, the general effect of the two Waters is very nearly the same, in all those classes of disorders to which they can be applied. Upon the superior efficacy of saline water for the purpose of bathing, I have already spoken pretty largely; it now only remains to explain what effect the smaller quantity of Iron in the Lemington Waters is likely to produce, when they are applied to the same disorders as those for which Cheltenham is famous.

The metal exists under the same state of combination in both Waters, but the one has five times the proportion of the other. Though when we consider the ease with which the carbonat of Iron may be added to the water; administered in the form of a small pill; or taken in any other way whenever its exhibition is likely to be of use, we shall not regret the comparatively small quantity of a mineral, whose loss may be supplied with so much facility. But, though it can be so easily added, it cannot be taken from the water for the purpose of drinking without the

loss of other important ingredients, and in those diseases, where a simple chalybeate is indicated, the Cheltenham Water, from its strong action as a purgative, cannot with safety be used. For, to give the words of a very strong advocate for the Cheltenham Water, "there are some constitutions which are naturally languid or debilitated by disease, but which do not shew any marks of obstruction, or those symptoms which have been attributed to an acrimony of the fluids; and these cannot bear with impunity any constantly increased operation on the bowels."

From hence, it is easy to infer with how much hazard, the exhibition of such a water must be attended, when attempted to be employed as a chalybeate; the tonic power of the Iron being so much overbalanced by the effect of the neutral salts. On the other hand, the quantity of Iron which is held in solution by the several springs at Lemington, though, it be not sufficient to authorize their use, where, from simple debility without obstruction a chalybeate *only* is required, yet enables us to remove all those cases of languor and debility which *do* arise from obstruction, (and such cases are very frequent,) and we have thus the satisfaction of employing the water with perfect safety, wherever it can be of service, and are not liable, from its less complicated

nature, to produce mischief, by its misapplication, in cases of doubt and uncertainty. Moreover, the quantity of the Carbonat contained in the Lemington Springs, seems to be abundantly sufficient to prevent a long course of this aperient water from producing any debilitating effect upon the constitution; this quality, is however, undoubtedly assisted by the combination of the salts and their high state of dilution in an aqueous menstruum. The effect of the waters when taken into the stomach, is in a very high degree purgative; a pint is generally a full dose for an adult, and few require more than three half-pints; its operation is speedy, and produces none of that griping or flatulency, sickness, languor, or oppressive faintness, which is so often occasioned by common purgatives.

Having thus placed before my readers a brief account of the comparative effects of these Waters, and given by that means some *general* insight into their nature and medical properties, I shall now proceed before entering into any *particular* detail of their efficacy in individual diseases, to lay down a few of those necessary rules and general precautions, which every Invalid will find benefit in observing, whether the water be taken as an internal medicine, or applied to the skin as a warm, a cold, or a tepid bath.

GENERAL RULES.

“ It will at first be necessary to reflect that
 “ mineral Waters, like other medicinal sub-
 “ stances, are appropriated to certain diseases
 “ only, and that the more powerfully they act,
 “ the greater mischief they are capable of doing,
 “ if improperly administered; for, if it be as-
 “ serted that they are capable of doing good only,
 “ without the power of doing harm; we may be
 “ satisfied that their qualities are too insignificant
 “ to merit notice.”

This consideration indicates the necessity of some caution in the use of all waters which are said to possess *any* sanative power, and suggests the propriety of consulting some professional man upon the spot, whose judgment may determine how far the water is appropriate to each individual case, and in what manner it should be employed, so as to be most efficacious. There is, however, an advantage attending the Le-mington Waters, in common with a very few others, that, wherever their use can be of service, they may be entered upon at once, without any danger, or necessity for previous preparation; for at all times, and in all cases, they invariably act upon the bowels as a mild and gentle purga-

tive. The season for drinking them is during the whole summer, and in the spring and autumn, from March to November; but in cutaneous diseases they may be used during the winter with great advantage. The water should, if possible, be always drank at the fountain head, and never kept long exposed to the open air.

After a full dose, there is generally a slight determination to the head, which is manifested by a sense of drowsiness, and a little fullness across the forehead, but this speedily goes off of itself, or is immediately removed by a walk, a ride, or any gentle exercise; and indeed, I should always recommend some sort of exercise after drinking the water, as it prevents that sense of nausea and oppression, which arises from a quantity of *any* fluid, when taken into a stomach, preternaturally weak and irritable. In general, for an adult, I should advise half a pint of the water to be taken the first thing in the morning, while the stomach is empty, and the same quantity to be repeated in half an hour after. Should this quantity be found insufficient to keep the bowels open, and to act as a diuretic, I should recommend a tea spoonful of the salts to be dissolved in a wine glass of the water boiling, and added to each half pint when taken; this being far preferable to increasing the quantity of water to

any great extent ; for common prudence, independent of medical information, dictates, that the quantity of water taken into the stomach at one time, that some people require to act as a purgative, must be highly improper. By pursuing this method for a few days, the bowels will invariably be brought into such a relaxed state, that ever after, a pint or three half pints of the water will be found sufficient. But, if the stomach should be in such a debilitated state, from age or disease, as to reject this quantity of water when taken in the morning, which will be often the case, I should recommend it to be taken at night, as water gruel, and a small glass (about a quarter of a pint) at eleven in the morning after breakfast ; as the irritable stomach, will at that time better receive it, and it will be found much more grateful if a little warm ; to do this it is by far the best method to put the water into a bottle closely corked, and to immerse the whole in hot water, for by this means but little of the air can escape.

With regard to the time requisite to continue the use of the water, much depends upon the disorder, and convenience of the patient ; a month or six weeks is the time commonly allotted for a trial ; but this term is much too short for any great constitutional change to be effected,

and it may be observed in general, that in those diseases for which the LEMINGTON WATERS are famous, for scrophula, and cutaneous eruptions of every kind, the longer they are continued, the more important and conspicuous will be the relief, which they are likely to afford.

WITH children, I have always found it the most pleasant way to give them the water at first with their meals; for they will take it at those times, when you cannot persuade them at others, and it is wonderful how soon they acquire a taste for it, and really prefer it after to common water; the quantity taken at a time must depend upon their age and constitution, but it will always be found that they will take more in proportion than adults.



ON THE COLD BATH.

So much has already been said and written on the subject of Bathing, so many excellent practical directions are to be found in almost every author upon the subject of Mineral Waters, and so much elucidation have both the theory of animal heat, and the effects of the bath, under every variation, received from the valuable works of the late DR. CURRIE, that little more is necessary to be done in this place, than to select, from a mass of materials, such parts and passages as are most conformable to my own experience, and most applicable to the nature of the work before me. There has been much disputing upon the causes of animal heat, the internal generation of caloric, and the production of that powerful re-action, which is always observed in a healthy person, to follow the shock of cold, upon plunging into the Bath. I have no intention here, to enter into controversy upon any of these points; but shall simply give such an account, as is most likely to be serviceable in preventing any dangerous mistakes in the use of this remedy, amongst those, for whose use I am writing. There can be no doubt, but that the external use of water has a most pow-

erful effect in many disorders: and, when we consider the ease with which its temperature may be adapted to its intention, the numerous ways in which it may be exhibited, and the very different diseased actions which one or other of its modifications is capable of correcting, we shall certainly not be able to find any single remedy, whose powers are so many, or so highly diversified; or which, by acting upon so large a surface at once, produces effects so instantaneous, so beneficial, and so permanent. In acute fever, its use is very justly becoming general. The hurried pulse, the wandering and delirium of this malady, are always accompanied by excessive heat, a dry, parched skin, and an unspirable state of all the extreme vessels. This state it is very difficult to overcome, except by the application of a cold medium, whose powers of conducting heat are considerable; amongst these, water is the best, from the easy regulation of its temperature, and its very rapid absorption of heat from bodies immersed in it, or with which it is brought into contact. There is a point of heat at which perspiration commences; and if, from any cause operating upon the exhalents, this process is prevented, no increase of temperature will cause it to flow: and the body, which by means of this powerful refrigerent was able to resist all external impression, and pre-

serve its natural equable standard, even amongst the burning sands of *Africa*, and the scorching heat of the *Line*, becomes unable to throw off even its own internal heat as fast as it is generated, or to endure its accumulation; and hence arises all that train of violent and dangerous symptoms which are described as the attendants of ardent fever.

To relieve these symptoms, to restore perspiration, and to reduce the oppressive heat, are the immediate effects of the sudden application of cold water to the surface; and whether this be effected by affusion, or immersion, the same salutary end is equally obtained. “The sudden, “general, and powerful stimulus given to the “system dissolves the spasm on the extreme “vessels of the surface, and of the various “cavities of the body; the sudden and general “evaporation carries off a large proportion of “the morbid heat accumulated under the skin; “and the healthy action of the capillaries and “exhalents being restored, the remaining superfluous heat passes off by sensible and insensible perspiration. The stimulus of morbid heat “and of morbid stricture being removed, the “morbid association seems also broken, by the “sudden and powerful impression on the sensations; in fact, the inordinate action of the

“ heart and arteries subsides, and the harassed
 “ and toil-worn patient sinks into that peaceful
 “ sleep, which nature has provided as the solace
 “ of our pains and sorrows, and the restorer of
 “ our strength.”

THIS vigorous and invaluable remedy may be used in fever, with most safety, when the
 “ exacerbation is at its height, or immediately
 “ after its declination ; but it may be safely used
 “ at any time of the day, *when there is no sense*
 “ *of chillness present, when the heat of the sur-*
 “ *face is steadily above what is natural, and*
 “ *when there is no general or profuse sensible*
 “ *perspiration.* For, if either immersion in the cold Bath, or the affusion of cold water be used during the cold stage of the paroxysm of fever, the consequences are highly dangerous ; “ the
 “ respiration is nearly suspended, the pulse
 “ becomes fluttering, feeble, and of an incalculable frequency ; the surface and extremities
 “ becomes doubly cold and shrivelled ; and the
 “ patient seems to struggle with the pangs of
 “ instant dissolution.” Avoiding then such evident misapplication, and attending to the precautions laid down, this important and active remedy may be resorted to without danger, and with certain benefit in this highly dangerous disease. To enlarge upon this subject were very

easy, but as what has been said relates chiefly to acute diseases, which admit of little delay in their treatment, and but seldom of a visit to a watering-place; and as the cold affusion may be practised at any time, and in any place, where necessity may point out its use, I shall proceed now to give some account of the use of the Bath in chronic disorders, and in those local affections for which LEMINGTON is most frequented. What has already been said will throw light upon the nature of the cold Bath, and help to illustrate several points which are hereafter to be treated.

THE intention of using cold water in chronic diseases is very different from that in acute fever, though, exciting the general system, and by that means producing re-action upon the surface, is the method, in both, by which the desired effect is obtained; for, in the latter, we permanently *diminish* the heat of the system, by inducing copious perspiration; and having once performed this properly, by the instantaneous shock of cold producing a sufficient re-action, we have seldom any thing more to do: but, in the former class of diseases, our object is to permanently *increase* the general temperature, by exciting a healthy re-action, and *prolonging* and increasing its salutary operation by the addition of moderate exercise; taking care to *renew*, as often as is neces-

nary, the important application of the Bath. By this treatment, the nervous energy is roused and excited, the constitution is invigorated, the moving powers are strengthened, and peevishness, debility, and disease give place to cheerfulness, health, and activity. Indeed the most general indication, for the use of the cold Bath, is the appearance of all that long train of listless, fretful, disagreeable symptoms, usually called nervous.

THIS remedy seems also remarkably efficacious in removing that small, slow, irregular fever, which too frequently preys upon the spirits, and undermines the health of the sedentary and studious. To this disease, the bane of Genius, and the pest of Literature, we owe the loss of many a promising young adventurer in the world of Science: more dangerous from its apparent insignificancy; and so often fatal, because so seldom noticed; it proceeds slowly, but surely in its work, and saps the foundations of life, before any precautions are taken to resist it. This fever generally arises from too long continued, or too great intensity of thought, without a sufficient portion of rest and relaxation. Its commencement is noted by a partial loss of appetite, want of sound natural sleep, hot hands, quick pulse, a general listlessness, unfitting the

mind for exertion, rendering study irksome, and business fatiguing; as the disorder advances, it paves the way for Hypochondriases, Consumption, and a long train of dangerous and destructive diseases, without ever, till its ravages are too far advanced, totally preventing the usual occupation. In this disease, cold Bathing, by its general tonic powers, appears to act with more benefit than any remedy which we possess; and, when conjoined with a removal from ordinary employments, with an abstraction from every thing which may strain or disgust the mind; together with fresh air, gentle exercise, novel society, and agreeable amusements of a pleasant watering-place, it seldom fails to be completely successful. There are many other disorders, and circumstances of disorder, in which cold bathing is of the highest importance: but as I propose taking notice of most of these in the catalogue, and of noticing together with cold bathing, whatever other methods of relief and kinds of treatment may be individually necessary for each particular malady. I shall not extend this article to an unnecessary length by saying any more upon the subject here, but shall refer the reader to that part of the book which I have just mentioned. It may, however, be proper to caution the invalid against the use of the cold Bath, in cases where it may do mischief, and to point out

to labour for the solution of the affections of the thorax, which occur in this fever, expectorant Medicines were not often relied upon, nor always very early exhibited. The whole, that was generally thought necessary, in this view, was to direct some *oily*, or *mucilaginous mixture*, which might lubricate the internal fauces, and which, in that way, seemed to impart a soothing effect to the bronchia, thereby producing in them an abatement of irritation. For this purpose, the most commodious for public use appeared to be a mixture of the *mucilage of Gum Arabic* sufficiently diluted, with the addition of a little common syrup and lemon juice; and with the same intent *Linseed Tea* was employed, which indeed possesses all the common advantages of such medicines.

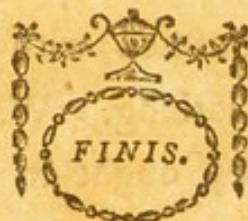
Although the Temperature of the air in the rooms of some description of fever patients, may with advantage be kept at a low degree, no material benefit appears to be obtained by such means, to those labouring under this disease. There can be no hesitation in admitting, that a low temperature of the air may be of some use in the height of the paroxysms of this fever; but this mode of

applying cold requires the immediate superintendence of a medical man: this state of the paroxysm seldom exceeds a few hours, and during the remainder of the twenty-four the febrile heat is in general moderate. In the wards of hospitals, however, where there may be patients under different circumstances of the disease, the endeavour to preserve a low temperature, in such rooms, is inadmissible; as, although it may be of some advantage to a few, there may be, and almost always are, others, whose disease will be increased by it. A change of temperature, even of the external air to a much lower degree, as is often the case in spring, has never happened without being visibly detrimental to some of the patients in the military hospital under this disease; and cold connected with moisture appeared most materially to have effected them. For under such circumstances, the air in those large wards must be considerably lowered, where a solitary fire, in each of them, remains the only means of supplying warmth. On individual patients the effect of this change of temperature might remain doubtful, but when it is seen more, or less, repeatedly to affect whole wards, its pernicious influence must necessarily

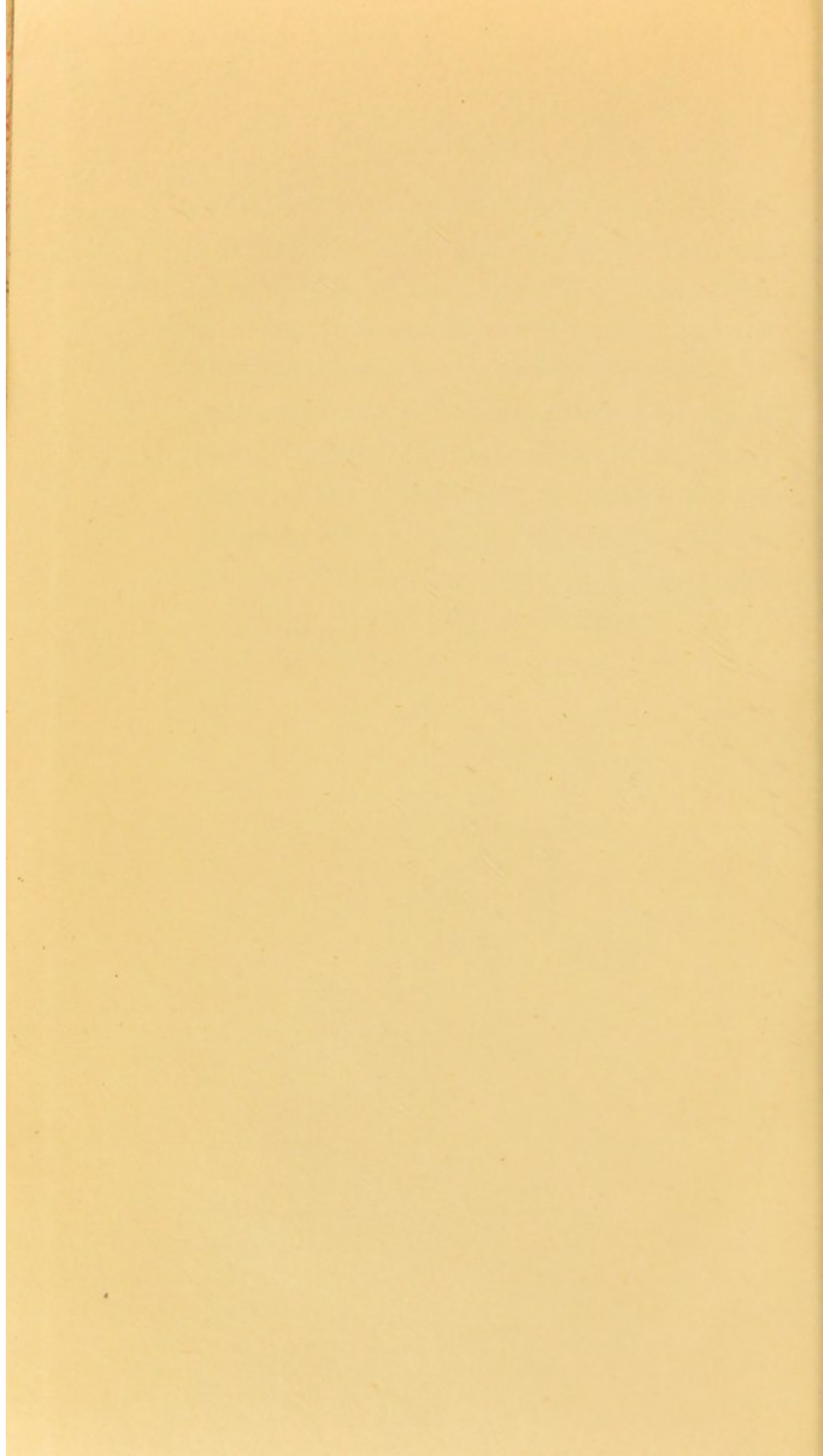
be acknowledged. Those who were approaching to convalescence, and the convalescents themselves, were particularly, and repeatedly, observed to be much affected by such a change. Unconnected with these facts, such effect might reasonably be supposed to be likely to be produced by cold, as it appears to be the chief predisposing cause of this disease, which, through its whole course, has a manifest tendency to internal congestions, that must be promoted by diminishing, in any material degree, the circulation on the surface. There can, therefore, be no doubt upon the whole, that a moderate and equable temperature is the best in which persons, under this disease, can be kept.

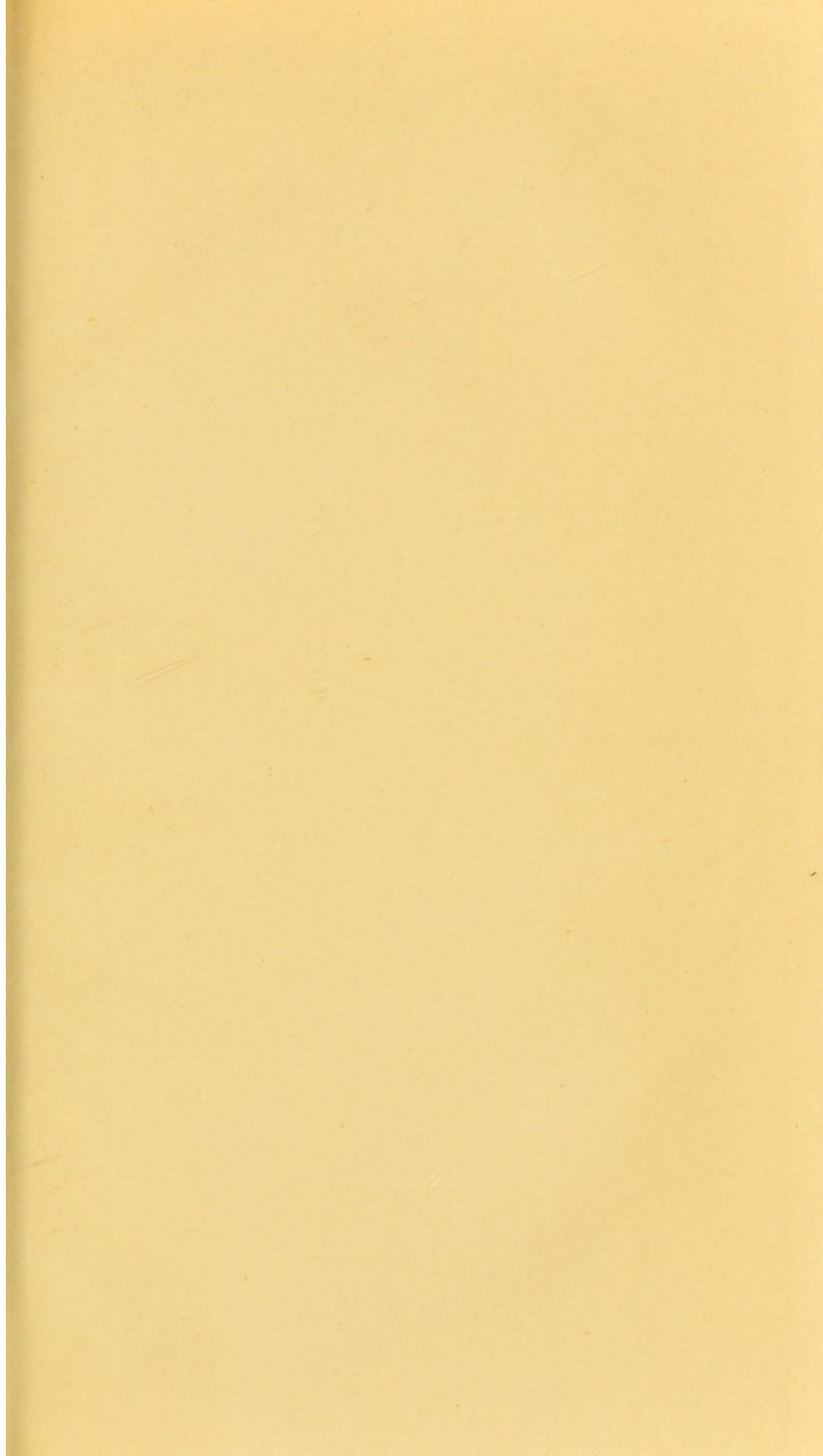
Immediately connected with this subject, is the business of Clothing. When the patients are fit to sit up, they ought to be very warmly clad, and during the recent state of convalescence, they should be attentively guarded against the effects of cold and moisture. On the same account, they ought, if possible, to remain in comfortable convalescent rooms for some time, otherwise there will inevitably follow many relapses caused by cold alone.

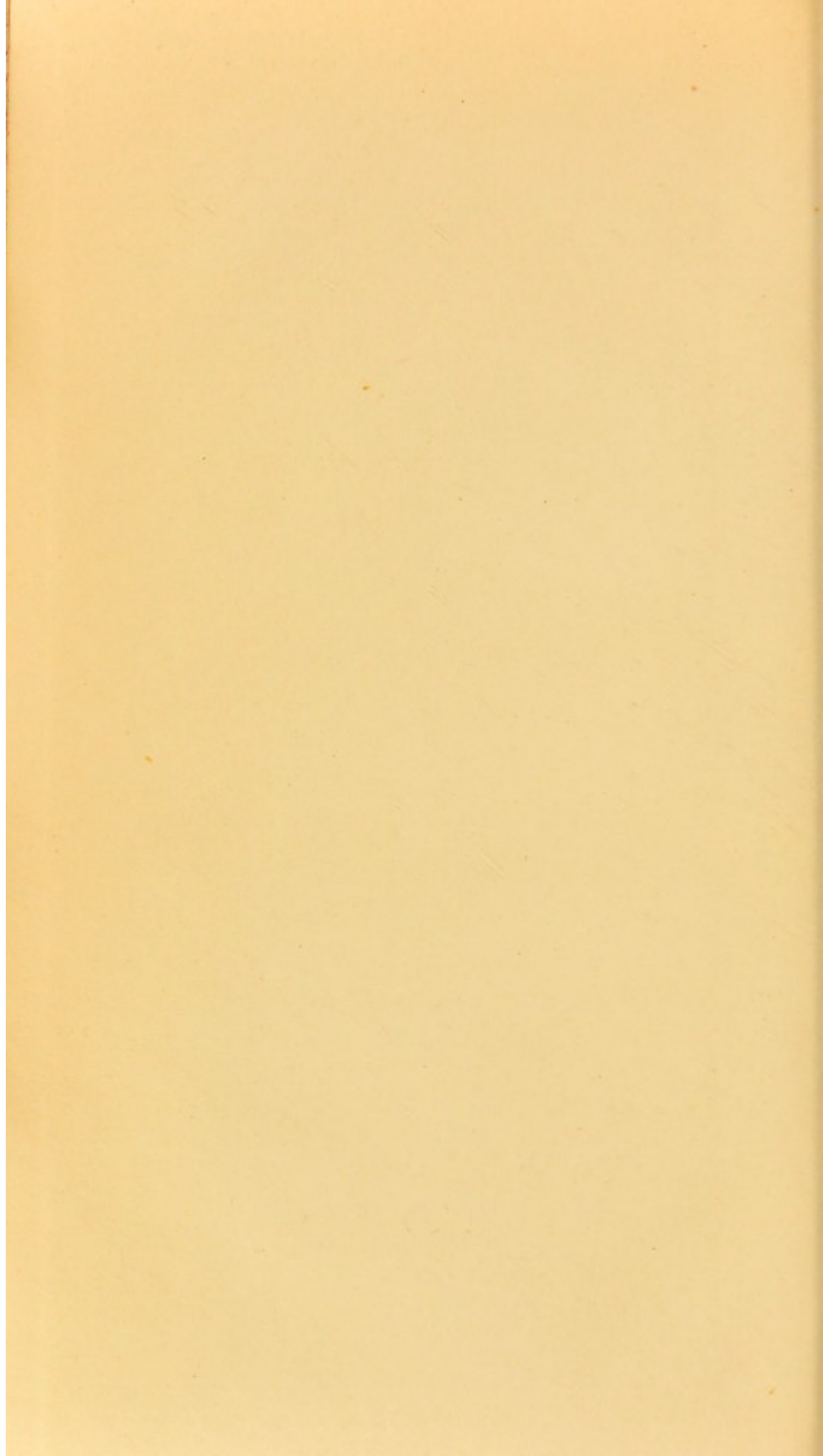
On the subject of Food in the febrile state, there is no necessity to dwell, as the plan of diet must be very evident from the preceding remarks; but it will not be irrelevant here to observe, that the early use of solid animal food has appeared to be very detrimental to such convalescents, by encouraging relapses. It was therefore, at last, determined in the hospital, not to accede to this indulgence, till after several days of convalescence, and even then a full diet was allowed to be very guardedly and gradually entered upon.



From the Press of
James Simmons,
Canterbury.







514
+
1

