



CURTIS
ON
HEALTH

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THE
PRESERVATION OF HEALTH,
&c. &c.

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A. Harrison Curtis





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SIMPLICITY OF LIVING.

OBSERVATIONS

ON THE

PRESERVATION OF HEALTH,

IN

Infancy, Youth, Manhood, and Age :

WITH

THE BEST MEANS OF IMPROVING THE MORAL AND PHYSICAL
CONDITION OF MAN, PROLONGING LIFE, AND PROMOTING
HUMAN HAPPINESS.

Λόγῳ ἡγεμόνι ἐν παντὶ χρώμενος οὐκ ἁμαρτήσεις.

THIRD EDITION.

BY JOHN HARRISON CURTIS, Esq.

AUTHOR OF

“ A TREATISE ON THE PHYSIOLOGY AND DISEASES OF THE EAR,”

“ A TREATISE ON THE PHYSIOLOGY AND DISEASES OF THE EYE,”

ETC. ETC.

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1839.



CRITICAL NOTICES OF FORMER EDITIONS.

In the little volume before us, upon the Preservation of Health, is a well-arranged mass of facts establishing the point that the grand secret of keeping or getting health is—simplicity of living.—*Aberdeen Constitutional*.

This volume inculcates attention to the means by which life is prolonged, and the avoidance of those evils which abridge its duration and utility. It is a judicious practical work, and deserves the attention of all classes of the community.—*Baptist Magazine*.

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CRITICAL NOTICES.

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Cobbett, in his "Cottage Economy," says that every parson should, upon pain of loss of ears, present a copy of that work to every girl that he marries, rich or poor. With all respect for the memory of him of "Gridiron" notoriety, we would suggest the adoption of Mr. Curtis's book in preference, convinced that if its precepts were attended to, disease would be less common, and the happiness of the people consequently increased.—*Dunfries Courier*.

Mr. Curtis is well known as the author of several able works on the structure and diseases of the ear and eye, which have met, we believe, with general approbation. The present work will not prove unworthy of his former reputation; but, on the contrary, add to it. It exhibits him as a writer, not only of accurate and extensive knowledge on the subject of which he treats, but as one who is willing and able to direct his talents into that channel through which they may be rendered most serviceable and beneficial to mankind. The style is clear and simple, and totally devoid of professional technicalities.—*Dundee Advertiser*.

Mr. Curtis, in his Observations on the Preservation of Health in tropical climates, is eminently deserving the attention of our friends in India and the colonies.—*East India and Colonial Magazine*.

This is a plain, sensible, unpretending little treatise, on a subject of universal interest. It is not the least valuable feature of the work that the author has drawn largely on the best popular writers on health.—*Tait's Edinburgh Magazine*.

Mr. Curtis's maxims for the preservation of health are sound and judicious, and utterly opposed to those of amateur dabblers in medicine.—*Edinburgh Weekly Journal*.

This little work presents in a brief compass a great body of useful advice and information, which no one who regards health as a necessary means of enjoying existence should leave unread.—*Edinburgh Evening Post*.

In a useful treatise on the Preservation of Health, by J. H. Curtis, Esq., we find well-conceived observations on the subject of labour and exercise.—*Chambers's Edin. Journal*.

Mr. Curtis has been eminently successful in his treatment of diseases of the two most precious organs of sense, the eye and ear. In this work he teaches, by the simplest rules, the way in which health may be preserved and life prolonged, without any of that art of book-making which has been, and is the great bane in works of this description. The book is not only fit for the more respectable classes, but ought to be disseminated through the great body of the people. The observations it contains on education throughout deserve the serious consideration of every parent and teacher.—*Educational Magazine*.

Mr. Curtis has here brought together a complete treasury of rules and recommendations connected with human health and habits, whether in reference to what we should eat, or what we should drink, or wherewithal we should be clothed. Small in size, but great in value, it richly merits a welcome in every English household, and a position in every library beside the works of a Sinclair, a Paris, and an Accun.—*Issea Mercury*.

It is written in a popular manner, and contains many sensible and excellent observations, perspicuously expressed, on the important subject of the preservation of the body in a state of health.—*New York Evening Post*.

We cannot better express our opinion of this excellent work than by recommending it to be purchased, read, and thoroughly studied by every man, woman, and child in the Queen's dominions.—*Woolmer's Exeter Gazette*.

We have no hesitation in recommending his treatise in the warmest terms. It is more than a merely useful work; it is absolutely interesting and amusing. When such are its claims to public favour, we are not at all surprised to find that the volume has already reached a second edition; it has only to be known to become far more extensively popular.—*Glasgow Scots Times*.

Notwithstanding the brevity of the work, there are few subjects connected with the proper regulation of the faculties of the mind and the body which do not come under the author's observation.—*Glasgow Chronicle*.

Mr. Curtis has recently given to the world a neat little volume on the Preservation of Health, which abounds in information of a practical kind, and furnishes clear and precise rules, founded on physiological principles, for the guidance of all at every stage of existence.—*Globe*.

This work is from the pen of Mr. Curtis, with whose name the public are familiar, as author of several admirable works on Diseases of the Ear. Its subject is laid out in the clearest possible order, and its details handled with great professional skill.—*Greenwich Gazette*.

Containing much sensible advice, evidently deduced from mature study and experience, calculated as a guide to health for all classes in every period of life.—*Hampshire Chronicle*.

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The rules laid down in this book are applicable to every situation of life, and if attended to, must serve to avert a large amount of human misery, particularly among those engaged in professions of a sedentary nature.—*Hampshire Independent*.

This is a valuable book, adapted for all classes, on a subject important to all, and every person may profit by the plain common sense and useful remarks which will be found in almost every page; it has the recommendation of containing much that is amusing as well as instructive.—*Hereford Journal*.

This unassuming but most valuable little work contains a series of exceedingly useful observations, the result of considerable experience, directed by a sound judgment; and the whole is written in a plain and popular style.—*Kent Herald*.

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This is a little book which deserves to be popular; it is calculated to increase Mr. Curtis's reputation as an author desirous and able to benefit his fellow-men; it is practical, judicious, and interesting.—*Leeds Mercury*.

Full of judicious and sensible observations on the subject, gathered both from reading and from practical experience. Mr. Curtis, after setting out by putting us in the right roads to hear and see, very properly applies his advice to the whole physical and moral system of man.—*Literary Gazette*.

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Its chief value arises from its condensation of an immense quantity of matter, which could not be got at without the expense and labour of going through a multitude of large volumes. Convinced, as we are, that every person who reads it will be benefited thereby, we hope the book will have an extensive circulation.—*Liverpool Albion*.

The practical directions contained in this small volume are based upon the unerring principles of nature, and evidently deduced from mature observation.—*Lincoln Gazette*.

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It is far preferable to the larger and more technical treatises, the affectation of profound learning in which bewilders the mind of the general reader, and the expense of which deters a vast number from purchasing. Mr. Curtis does not pretend to do away with the necessity of medical advice; he only shews how best to avoid the misery of frequently wanting it. The book ought to become a family one, and as necessary to a household as Mrs. Glasse's treatise on cooking. The work will do much to open the eyes of the public on this subject.—*Metropolitan Magazine*.

In this small volume Mr. Curtis has attempted to render that which is well known to the scientific, familiar to the general reader.—*Medico-Chirurgical Review*.

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This little volume is exactly of the order which we should wish to see spread among the people. At once brief, clear, and intelligent, it gives a variety of important rules for the sustenance of man in mental and bodily vigour. Curtis is clever, and his little book is alike amusing and well informed. His description of the tender passion is excellent, true, and odd.—*New Monthly Mag.*

The arrangement is good, and taken altogether, the "Observations" do great credit to Mr. Curtis, and well deserve the extensive circulation which invariably attends his productions.—*Monthly Magazine*.

It is due to the author to observe, that he has performed his task with ability, and that this little volume contains much useful information on a subject of the greatest importance to all classes of the community.—*Manchester Courier*.

Mr. Curtis deserves the thanks of the community for this sensible treatise; an attention to the rules of which will do more good than all the medicine contained in the pharmacopœia.—*Morning Advertiser*.

CRITICAL NOTICES.

Mr. Curtis clearly shews that ignorance or neglect of the circumstances on which health depends is one of the chief causes of disease; and he proceeds to lay down rules, simple, plain, and practical, for self-regulation in all the daily concerns of life. The advice to the sedentary and the studious is deserving of attention.—*Morning Chronicle*.

To all whom want of time or want of money may deprive of the means of perusing the more costly and scientific treatises on the same subject, we can conscientiously recommend this valuable little work.—*Morning Post*.

A valuable little work, containing much practical information.—*Musical World*.

Mr. Curtis was for some years a medical officer at the Royal Naval Hospital at Haslar, which circumstance alone would recommend his work for consideration. The general reader will find in this essay all necessary information on the preservation of health and the prolongation of life, communicated in a perspicuous and entertaining manner; the views of the author being frequently of a highly enlarged and philosophical character.—*Naval and Military Gazette*.

An able treatise on a philosophical as well as medical subject. These pages breathe an amiable spirit and good feeling throughout, inculcating the soundest axioms in the most intelligible manner.—*National Magazine*.

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A little volume on the most interesting of all subjects. There are none, let their situation in life be what it may, who may not profit by Mr. Curtis's advice; and there are few who will not confess that his advice is administered in a most pleasing and popular form.—*Oxford University Herald*.

The mere name of Mr. Curtis as the author of this little work, is quite sufficient to shew that it is of great utility: we recommend to our readers the excellent advice to any one about visiting a tropical climate.—*Parbury's Oriental Herald*.

Mr. Curtis has taken up a subject in which all are interested, to which he gives the charm of novelty from the extent and variety of matter. Temperance, out-a-door exercise, early rising, a quiet mind, and cleanliness, are the medicines he recommends, and certainly the simplest and least expensive a man can take.—*Railway Magazine*.

This is a new and improved edition of the *Observations on the Preservation of Health*; we congratulate the author on the well-merited success which has attended his literary labours. The "popular" editions of the works on the eye and ear afford evidence of the philanthropy of the author.—*Salisbury and Wiltshire Herald*.

The author's dietetic rules and general observations, as well as his professional knowledge and advice relative to the preservation of health, are often founded on experience, as well as deduced from sound authorities. We entirely agree with our amiable author.—*Sheffield Mercury*.

Under the above title a small book has lately been published by Mr. Curtis, which appears to supply a desideratum among works of this class. It is written on the plan of his well-known works on the preservation of hearing and sight, and is calculated to be as extensively useful as those productions. It contains directions for the guidance of all in regard to health at every period of life.—*Standard*.

This is a neat little volume, addressed to the general reader, and we think the community would be greatly benefited if the advice it contains were more strictly followed. We strongly recommend the youth, the adult, and the aged, attentively to read and follow the advice especially directed to them.—*Stockport Advertiser*.

The plan of this work is simple, and the style lucid and elegant; its price is so moderate, and the matter so good, that there are but few who could not possess the one, while all would be profited by the realisation of the other. We are much mistaken if most of those men who have felt the blessings of the temperance reformation do not place it upon their book-shelves as a family directory, not in cases of sickness, but as a guide in health to a long and useful life.—*Weekly London Temperance Intelligencer*.

In a compact shape, Mr. Curtis has laid down general rules for the preservation of health.—*Weekly True Sun*.

This is an excellent little work, full of the most useful information, observations, and directions, conveyed in a plain and intelligible style, brief and simple.—*Weekly Dispatch*.

A man that disregards his bodily health must, in the same degree, be guilty of impiety to God. We recommend this little work to our readers who consider life a blessing, and are desirous of living well, and of living as long as the apparatus of our present alimental life will last.—*Wesleyan Association Magazine*.

Of the general contents of this intelligibly written little book, we are bound to express our warm approbation.—*Worcester Journal*.

This work treats on a subject which comes home to every man's business and bosom: for no doubt it ought to be one of the leading parts of the moral and intellectual education of man to take care of his health. To preserve health is the primary object of this treatise.—*York Herald*.

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PREFACE

TO THE THIRD EDITION.

SINCE the publication of the second edition of this work, there have been several indications of an increasing demand for information on the subject to which it relates; the most gratifying of which is, the fact that several eminent surgeons, and among them the late President of the College of Surgeons, have condescended to become writers on the preservation of health. I rejoice to see in these events a proof that the objections which the profession have hitherto generally entertained against making the people at large acquainted with the principles of the science of health, are in some measure overcome: and we may now hope that the tide of instruction will year by year become more full and broad, until, in its onward progress, it shall reach and benefit every human being.

That there is no happiness without health, every one who has experienced the deprivation of it even for a short period will readily testify; and it is a deep conviction of this truth that induces me to press upon parents, guardians, and the instructors of youth, the duty of an attention to the means by which this blessing may be secured to those committed to their charge.

Mistakes, in themselves slight, are here frequently of the most serious consequence; and from a mere youthful indiscretion, arising from ignorance of what would be its effects, the seeds are often sown of diseases which either embitter life, or send to a premature grave those who were objects of the fondest solicitude and the most ardent hopes. It is in youth, also, that the foundations of a vigorous manhood and of a cheerful old age must be laid; and few things, in my opinion, would tend so much to these desirable ends, as communicating to the young such a knowledge of the animal economy, and of the laws on which health depends, as would enable them to judge what, under various circumstances, is conducive to health, and what is destructive of it. This would really be useful knowledge; and were this method generally pursued, we should not so frequently see the human constitution broken down, and premature old age induced, by close confinement, too ardent study, want of air and exercise, &c. during the period of youth; but especially by the improper use of medicines, which too many parents consider themselves competent to administer both to themselves and to their children, and which medicines, however simple they may be, by their constant repetition on every fancied ailment, prevent the constitution from fully developing itself, and lay the foundation of future debility or disease.

As regards public happiness, statesmen and politicians too often forget, that though good political institutions conduce to it, yet that they are but one means to

the attainment of this end, and that more than these are requisite to make individuals and nations happy. The cultivation of good-will, kindness, humanity, and all the gentler affections, are far more influential in the promotion of private happiness than the justest balance of the political constitution can be; so that though the value of civil and religious liberty is great, and has a large influence on national well-being, still it alone does not constitute happiness; and therefore it seems to me that those writers who devote their energies to the task of endeavouring to soften and improve the social affections, do incomparably more to promote the benefit of communities than those who have only in view what is more strictly designated "the public weal."

It now remains for me to give the reader some account of the principal alterations and additions made in the present Edition.

Desirous of rendering the following pages as complete a manual of health as possible, and convinced of the great benefits derivable from change of air and scene, I have introduced a brief account of some of the principal watering-places and mineral springs in this country, with such remarks as may serve to point out the most eligible of them for persons of various classes. Our communications with every part of the country are now so good, that any one of the places I have mentioned may be visited with little trouble or expense. Mineral waters are not so highly esteemed at the present day as they were formerly, and perhaps with reason;

but I think it cannot be denied that, joined with air and exercise, they may in many cases, when properly made use of, prove of considerable benefit.

The adulteration of the principal articles of food, always extensively practised, has lately been much on the increase, and is a fertile source of injury to the health of the community. I have enumerated the more important of such adulterations, and pointed out the necessity which their frequency creates for the adoption of some means to prevent these serious offences.

I have prefixed to the third chapter a general view of the principal causes of disease, which may serve as a synopsis of the contents of the chapter, and impress them more deeply on the memory.

The great attention paid to the improvements of London, must rejoice all who understand their influence upon the health of its inhabitants. No city in the world is better circumstanced for health than our favoured metropolis, although many beneficial changes of which it is susceptible still remain to be made. I have endeavoured to render some assistance in carrying out these requisite improvements, by suggesting additional places of resort for the enjoyment of exercise in the open air, and by calling attention to the impurity of the water, and the deplorable state of the sewerage in many parts of London. It is of the utmost importance that some general measure should be adopted for the better construction and management of sewers, upon which the comfort and health of the people is greatly dependent. I have also

adverted to the subject of cemeteries, the universal adoption of which for the purpose of interring the dead, would add much to the salubrity of every town; and in conjunction with other measures would prevent a large amount of disease.

The entire work has been carefully revised, and numerous minor additions and alterations made. The arrangement has in several instances been improved, and I trust that this edition will be found, on comparison with those that preceded it, in every respect superior.

I cannot conclude without mentioning that this work has been reprinted in France, and translated into German by Dr. Calmann of Leipsig. These testimonies to its usefulness, confirming as they do my own partial opinion, afford me much pleasure. That the "Observations" may be the means of conveying to many human beings knowledge that shall render them better able to secure health and happiness, is the sincere wish of

JOHN HARRISON CURTIS.

2 SOHO SQUARE,
March 2, 1839.

PREFACE

TO THE FIRST EDITION.

THE popularity of my two small works on the Preservation of Hearing and Sight, has led me to believe that a book on the Preservation of Health, written on the same plan, would probably be useful to that large class of the community, the members of which, having neither the leisure, the inclination, nor the pecuniary means of becoming acquainted with more voluminous and scientific treatises, are yet, doubtless, as much interested in the subject, and as desirous of information upon it, as persons more favourably circumstanced.

I am aware that many excellent and useful works have lately been published on this point; which have, I trust, effected much good, by directing the attention of the public to a matter of first-rate importance, previously but little attended to. Yet I think it cannot be denied, that the size and price of these books have excluded many persons from participating in the advantages they are capable of conferring: and it is to be feared that the same effect has been produced by their profoundly scientific nature; a quality which, however admirable in itself, unfits works possessing it for very extensive circulation; and hence, while man is continually extending his dominion more widely over animate and

inanimate nature, and reducing the most intractable elements into the subservient agents of his will,—of his own nature and constitution, of that which most nearly concerns himself, he remains in comparative ignorance; and consequently he, the controller of the elements, is their sport also.

For the purpose of diffusing knowledge among every class of society on the subject of health, I have penned the following pages; in which my object has been, not to start original speculations, nor to attempt to enlarge the boundaries of science, but to present to the reader a simple statement of those anatomical and physiological facts, from which may be derived a body of rules for his guidance in relation to those circumstances of every-day life which exert the greatest influence upon the health; and which rules it has been my endeavour to set before him as *necessarily resulting from the constitution of his frame*. By pursuing this plan I hope I have avoided, on the one hand, the tedious and generally uninteresting details of science; and on the other, that dogmatism and appearance of superficiality, which cannot but detract much from the influence of rules upon the conduct of those to whom they are addressed.

Long-recognised principles become truisms; but, as such, instead of being disregarded, they should be the more highly valued. In the present advanced state of physiological knowledge there is little left to the writer on this subject, but to shew the practical application of these truisms to the actual state of society, and how their tendency may be most beneficially worked out for mankind at large. This I have endeavoured to accomplish; with what success, it is not for me to say. It

has been my object to compress into a small compass the wisdom of past ages, with the improvements and discoveries of contemporaries; nor, when my purpose has been answered by it, have I disdained to make use of the valuable information contained in the writings of others, and to record my obligations to many distinguished contemporaries.

The subject of this book—I repeat it—is the preservation of health, not the cure of disease. Its chief aim is to furnish practical directions for that purpose, in relation to the four states of man—Infancy, Youth, Manhood, and Senility, so beautifully shadowed out in the physical world in the successive seasons of Spring, Summer, Autumn, and Winter. These rules are so simple, that no one, who pays the least attention, can misunderstand them; and I am persuaded that if they were systematically and rationally observed, they would tend greatly to prolong life, and to increase the capability of enjoyment.

A prejudice still exists, though far less general now than it was a few years ago, against the study of works on health; from which many evils are asserted to arise, and no counterbalancing good results. The persons who entertain this prejudice appear to think that instinct, (which, in their vocabulary, goes by the name of “common sense,”) however confessedly insufficient for other purposes, is quite capable of guiding them aright in respect to the health of themselves and children, which they maintain would not be at all improved by attention to rules on nursing, diet, exercise, &c. &c. If such individuals would but reflect on these opinions, and examine the validity of the arguments by which they

are supported, they would soon, I think, be compelled to acknowledge their error.

The functions of the body are so closely connected with the operations and feelings of the mind, that it may safely be asserted, a healthy community alone can be a virtuous, and therefore a happy one. The chronicles of the crimes of every country furnish abundant evidence of how great a mass of wickedness has been occasioned by the exacerbation of disease. This is a feature of my subject too little insisted upon, and perhaps not sufficiently understood. I know that by teaching men how to live healthily, I am, at the same time, inculcating upon them the principles of morality; and this conviction has sanctified my labours, and will ever be to me a source of elevated satisfaction.

I have, in this book, made a few observations on the influence of some of the professions upon the health; and it is my intention to enlarge upon this subject, as well as upon the effect of various trades, in a separate work, as soon as I have completed my publications on the Ear and Eye.

This volume is of the same size as my two small works on Hearing and Sight; so that those who possess them can, if they wish, bind it up with those works.

JOHN HARRISON CURTIS.

2 SOHO SQUARE,
April 20, 1837.

PREFACE

TO THE SECOND EDITION.

THE rapid sale of the first large impression of this work, indicating as it does the increased and increasing attention paid by the public to the subject of the preservation of health, is highly gratifying to me; and has stimulated me, in preparing this new edition, to endeavour to render it still more useful, more conducive to the happiness of my fellow-countrymen, and more worthy of the favour with which it has already been received.

For this purpose I have corrected it throughout; and have thus, I trust, made it in many places more perspicuous: in a few instances errors have been rectified; and numerous additions on various important subjects have been made, the principal of which I shall here briefly mention.

The boundaries of our knowledge respecting insanity are continually extending: I have availed myself of the latest information obtained on this alarming disease, which will, I think, be found highly interesting, and, I would fain hope, in some degree useful.

The intimate connexion of education with all that concerns the best interests of the human race has induced me to make some observations on national education, which will not be deemed out of keeping with the aim

of this book, upon the main subject of which—the preservation of health—they appear to me to have a direct bearing.

Whatever relates to the improvement of the medical profession cannot but affect the health of the community; I have therefore appended to the third chapter a few remarks on the division of medical labour—a subject not altogether novel, I confess, but one which has not hitherto received the attention its importance demands, and one on which the advancement of the science of medicine depends, perhaps, more than on any other cause.

Although this work is designed, and, I trust, adapted to be, a *general* manual of health, yet the population of London is so vast, that I have judged it hardly a departure from its generality, to add some remarks having special reference to the metropolis; most of which, however, are also applicable to other large towns.

The dangers of tropical climates are encountered by so many of our countrymen, that the precautions given in this edition to those thus circumstanced cannot fail to be acceptable, and to add to the value of my work.

There are many other additions that do not require to be specified here; but any one who will take the trouble to compare this edition with its precursor will find that its improvements are by no means inconsiderable or valueless.

The addition made to the title of this edition, “Simplicity of Living,” may require a few words of explanation; and these I will now give.

By the phrase, “Simplicity of Living,” then, I wish to point out, that the preservation of health is dependent not upon the observance of any uniform set of rules—

for this is an error which I have endeavoured to expose—but upon such an obedience to the natural laws, as that our whole conduct shall be in strict subservience to, and harmony with them, so that all our actions, and the whole course of our lives, shall be, as it were, manifestations of those all-pervading principles. Let me not be misunderstood; I am far from expecting that any one in the present state of society has it in his power thus to regulate himself; but I do maintain that it is possible for *every* one to do so more completely than *any* actually do.

I cannot conclude this Preface without expressing the sincere satisfaction I have derived from having, by my humble labours, aided in the diffusion of knowledge respecting the laws which regulate health. That those labours have received the approbation of the public and of the press, emboldens me to think that I have not altogether unsuccessfully performed the task which I proposed to myself in entering upon them.

JOHN HARRISON CURTIS.

2 SOHO SQUARE,
23d December, 1837.

OBSERVATIONS, &c.

INTRODUCTION.

IN my works on the physiology and pathology of the Ear and Eye, I have remarked, that in order to hear and see well, it is necessary to be in health. I might have added, that hearing and seeing well are merely parts of what, in the aggregate, is denominated "health." For what is health? It consists in that state of the bodily organs in which they perform their respective functions easily and well; when, in fact, this performance is a source of pleasure. So that the possession of a considerable degree of health is essential to the enjoyment of happiness, and even to the preservation of life. By what means health may be secured is thus obviously an inquiry of the deepest interest to every individual; for, in the majority of cases, we may refer ill-health to ignorance or disobedience of the laws regulating the condition of the body, and through it of the mind.

That God designed man to be happy, is a proposition strongly supported by all that we know of his creation; and it is probable that our ignorance alone leads us to imagine there are any exceptions to its universality. The most striking of these seeming exceptions is the existence of disease, entailing upon those subjected to it various degrees of misery, and finally death. Death is inevitable, and can easily be proved to be an instance of Divine benevolence; but disease is not a necessary evil. The causes of disease are yet but imperfectly understood. By some persons, disease is represented to be the

result of the direct agency of God, and inflicted by him for the purposes of moral training and correction: by others, it is considered to be the result of circumstances inherent in, and inseparable from, the present condition of man; whence they conclude that it is vain to endeavour to escape its attacks. A careful consideration of facts, and a knowledge of the characteristics of the three great classes of natural laws—the physical, organic, and intellectual or moral—would suffice to prove that both of these opinions or theories are unfounded. I shall therefore briefly explain what is meant by the natural laws, and mention some of their leading characteristics.

“Law,” says Blackstone, “in its most general and comprehensive sense, signifies a rule of action; and is applied indiscriminately to all kinds of action, whether animate or inanimate, rational or irrational. When the Supreme Being formed the universe, and created matter out of nothing, he impressed upon that matter certain principles from which it can never depart, and without which it would cease to be. When he put that matter into motion, he established certain laws of motion, to which all movable bodies must conform.”

“Every natural object has received a definite constitution, in virtue of which it acts in a particular way; there must, therefore, be as many natural laws as there are distinct modes of action of substances and beings, viewed by themselves. But substances and beings stand in certain relations to each other, and modify each other’s action, in an established and definite manner, according to that relationship,—altitude, for instance, modifies the effect of heat upon water; there must therefore be also as many laws of nature as there are relations between different substances and beings.”*

* Combe — “Constitution of Man.”

But these individual laws, though thus innumerable, may be all included in the three classes above mentioned.

The physical laws embrace all the phenomena of mere matter: an acid, for instance, applied to a vegetable blue colour, converts it into red; and this is said to take place according to a chemical law.

The organic laws are the established modes according to which all phenomena connected with the production, *health*, growth, decay, and death of vegetables and animals take place; and with these, therefore, I have in the following pages principally to do.

The moral and intellectual laws relate to all the manifestations of mind or of instinct.

The most important characteristics of the natural laws are, 1st, that they are independent of one another; 2dly, that they are universal, unbending, and invariable in their operation.

A man, by obeying one set of laws, does not thereby receive an immunity from punishment for disobedience of the others, nor *vice versâ*. For example, if an individual, endeavouring, in the strictest obedience to the moral laws, to promote the well-being of his fellow-men, should violate either the physical or organic, his moral excellence will not, and cannot, preserve him from the penalties of such disobedience: and, on the contrary, a man who lives in total disregard of his fellow-men, and in habitual infraction of the moral laws, will, if he observes the others, preserve his health, and perhaps attain old age.

The natural laws are universal, invariable, and unbending. No change of geographical situation, no lapse of time, no human skill, can enable us to escape from their influence. Human laws are limited in their operation by divisions of countries—they are constantly varying, and as constantly evaded; and hence they are rendered far

from completely efficacious. In these respects, then, human laws and natural laws are totally different.

Let us now apply these general facts to the particular subject of this work,—the preservation of health.

Our bodies are subject to the physical and organic laws: so long, then, as we act in accordance with those laws, we shall enjoy health; but every infraction of them produces a proportionate deviation from that state.

Men cannot obey laws of which they are ignorant; yet will their ignorance not exempt them from the penalties of disobedience. The first thing to be done, therefore, is to acquire a knowledge of the natural laws: and these, so far as they relate to health, it is the purpose of this book to expound.

Loss of health is, in every instance, the result of the infringement of one or more of the laws, or conditions, essential to the well-being and activity of every organ; the knowledge and observance of which are, to a great extent, within our own power.

Errors in relation to diet, to muscular exercise, to clothing, to ventilation, and to other every-day concerns; morbid states of mind, the result of these errors, of excessive mental activity and excitement, and of defective education,—not only prepare the way for disease, but are themselves the immediate exciting causes of it. By learning to avoid, modify, or control them, we may secure for ourselves a large amount of health, both of body and mind; in other words, of happiness.

How much it is in the power of every one to effect, by attention to these apparently trifling things, in preserving his health, prolonging his life, and thus increasing his happiness, the numerous cases of persons attaining old age, in the possession of great bodily and mental powers, are decisive proof. Galen, though of an infirm constitution up to the age of thirty, attained to a great age by

taking much regular exercise ; so did Herodicus, the preceptor of Hippocrates, who was full of humours in his youth : Socrates and Agesilaus were also convinced of the good effects of exercise, and the former constantly enjoined it on his scholars. Asclepiades, a celebrated physician in ancient Rome, publicly declared, that he was content to pass for an idiot, if ever attacked by illness, or if his death was caused by any thing but old age, or accident : nor was he deceived in his estimate of what he could accomplish by conformity to the laws of nature ; he lived more than a century without any illness, and died at last from the effects of a violent fall.

Another and most important cause of disease is the vice, folly, and ignorance of parents. It has long been known to philosophers, that the constitution, bodily and mental, of children is derived from that of their parents ; but this truth appears to be little known, and less attended to, by the great bulk of mankind. It is vain to expect that disease will ever be eradicated, or the condition of the human race much ameliorated, unless greater care and conscientiousness are displayed in the contraction of marriage, and in the conduct of those who have entered into that state. Various observations bearing upon this momentous subject will be found in the following pages.

The connexion between knowledge and health is now, I trust, sufficiently obvious. It is impossible to accommodate ourselves to the ever-varying external circumstances in which we are placed, unless we are acquainted with them and their mutual relations. Hence every discovery in science, however abstract, has a bearing more or less direct upon health. From this fact we infer, that the condition of man must have been constantly improving, and his life becoming longer, from the rude state of primitive times up to the present day.

“ The first savages collected in the forests a few nou-

rishing fruits, and salutary roots, and thus supplied their most immediate wants. The first shepherds observed that the stars moved in a regular course, and made use of them to guide their journeys across the plains of the desert. Such was the origin of the mathematical and physical sciences. Once convinced that it could combat nature by the means which nature herself afforded, genius reposed no more; it watched her without relaxation, it incessantly made new conquests over her, all of them distinguished by some improvement in the situation of our race. From that time, a succession of leading minds, faithful depositories of the attainments already made, constantly occupied in connecting them, and in verifying them by means of each other, have conducted us, in less than forty ages, from the first essays of rude observers to the profound calculations of Newton and La Place, to the learned classifications of Linnæus and Jussieu. This precious inheritance, perpetually increasing, brought from Chaldea into Egypt, from Egypt into Greece, concealed during ages of disaster and of darkness, recovered in more fortunate times, unequally spread among the nations of Europe, has every where been followed by wealth and power: the nations which have reaped it are become the mistresses of the world; such as have neglected it, are fallen into weakness and obscurity.”*

The means which men possess of increasing their natural powers, by pursuing a systematic course of *training*, is clearly shewn in the surprising effects produced by a few weeks' training for the performance of extraordinary muscular feats; in the course of which persons who had

* Cuvier. Vide the author's "Lecture on the Anatomy and Physiology of the Ear in Man and Animals," delivered in the theatre of the Royal Institution of Great Britain, before the President and members of that Society.

previously been unable to walk a few miles, have been enabled to walk as many as thirty in a day.* If the muscles may be thus invigorated, what reason have we for thinking that, by the use of equally appropriate and powerful means, every other part of the frame may not also be strengthened? There *is* no such reason; and therefore it cannot be disputed, that men have it in their power to prolong their lives (since long life must in general be a result of strong and healthy organs); and this, as we shall afterwards shew, to an indefinite extent.

Some persons, however, may reply to all this, that longevity is a thing not worth striving after, and that their motto is, "A short life and a merry one." Be it so; with such individuals I have nothing to do; they form a very small minority of the human race. Few indeed are those who care not for life, and would not willingly take some pains to preserve it;—to the *majority* I address the following pages.

I conclude these introductory remarks by again asserting the universality and inflexibility of the laws of nature. They are no regards of person; they make no exceptions; every offence against them receives its appropriate punishment, and that with infallible certainty. They may sometimes appear to be tardy in their operations, and to overlook offences; but surely, though silently and unobservedly, the exact amount of suffering which the case requires is inflicted.

All hope of escape is thus shut out; and those who value their health and happiness will therefore see the necessity of conforming to whatever laws shall appear to be plainly made out and ascertained.

* Captain Berkeley's "System of Training."

CHAPTER I.

INFANCY AND CHILDHOOD.

— Tener, et lactens, puerique simillimus ævo
 Vere novo est. Tunc herba nitens, et roboris expers
 Turget, et insolida est, et spe delectat agrestem.
 Omnia tum florent; florumque coloribus almus
 Ridet ager; neque adhuc virtus in frondibus ulla est.—OVID.

THE periods of infancy and childhood are those in which the human frame is most susceptible of injury, and in which morbid influences exert the greatest power: the large proportion (between a third and a fourth) which deaths under the age of two years bear to the total number of births, is a sufficient proof of this;* and in those who survive infancy and childhood, the seeds of disease are often implanted by injudicious treatment at those periods. It is necessary, therefore, to take care of the health at the commencement of existence, if it is desired to attain old age, or to be free from disease. The care of health at

* The bills of mortality for London, for the year ending 1838, shew that, notwithstanding the great improvements effected in the metropolis, having a beneficial effect on health, and the increased attention paid to the subject of this book, much still remains to be done. By this document it appears that out of 19,833 infants born, no fewer than 6,286, nearly one-third, died under the age of five years; and there were besides 823 still-born children, not included in the above statement. These fearful facts should make mothers more vigilant in watching over their own health and that of their tender offspring, and induce them to acquire a knowledge of the proper methods of bringing up and training them.

these important eras devolves upon parents ; and it is their bounden duty to make themselves acquainted with that on which the life and happiness of their offspring, as well as of themselves, mainly depend.*

The points which are of the greatest moment in the treatment of the young are, diet, cleanliness, clothing, atmospheric temperature, respiration, muscular exercise, sleep, and mental education.

In discussing these subjects it will be necessary to make many statements which are *universally* applicable ; the conditions on which the health of children depends being in many cases the same as those that regulate the health of adults.

Nature has provided for every thing in the best possible manner ; and to obey its laws is the highest wisdom. The organs of digestion, as well as all the other organs of infants, are imperfect, weak, and easily disordered. The organs of mastication are wanting, and therefore solid substances are unfit for their support. The difficulties which might hence arise in the rearing of the young are completely obviated by the opening of a source of nourishment simultaneously with the birth of the child ; of nourishment perfectly adapted to its wants, and amply sufficient to furnish it with all needful strength. The only food fit for infants is that which they derive from their mothers ; and hence those who are thus supported are generally stronger and enjoy better health than those who are brought up differently. There are certain mysterious affinities between

* Parents should not imagine that their concern with the health of their children *commences after* birth. It is certain that the human constitution is generally fixed before that period ; and not less so that the health of parents, more particularly of mothers, is the principal circumstance on which it depends. Further remarks on this point will be found in a subsequent page.

the constitution of a mother and that of her offspring, which in an especial manner render the mother the best nurse of her child; and which it is probable do not exist between the child and any one but the mother; and for this reason children should not be put out to nurse. A few cases there doubtless are, which peculiar circumstances render exceptions to the general rule; but for the most part, this practice must injure both the child and the parent.

Another error, more common than this, is the giving of artificial food too early. The time when infants may be safely weaned varies in almost every individual; but it should be carefully borne in mind, that, for a long period after birth, their organs are capable of digesting only the simplest food: to supply them too soon with any other than that which nature has provided, is to impose upon them a task they cannot perform; and in endeavouring to accomplish which they are sure to be injured.*

For the same reason, the quantity of food given at any one time ought to be small; infants need therefore to be frequently fed, since it must not be forgotten that *deficiency* in the supply of nourishment at this period is productive of the most disastrous consequences. But errors are seldom made in this direction. Infants are far more frequently injured by *excess* than by deficiency of food.†

The safest guide in this matter is the *natural instinct*

* Improperities in the diet of children are one of the chief causes of the diseases which generally accompany the period of dentition, and which might be greatly diminished, both in number and danger, by proper attention to this subject.

† In the children of the rich we sometimes have striking proofs of the evils of *excess*: and in the children of the poor, examples of the contrary evils arising from *deficiency* of food.

of the child. Never compel an infant to take food after it shews signs of satiety ; nor suffer it to be long without food when it is sought for.

After children have passed the period of lactition, their diet should be simple, nutritious, and easily digestible. The activity of all the vital functions in childhood renders an abundant supply of wholesome food indispensable. It is the more necessary to insist upon this, because the appetite of children is frequently attempted to be repressed ; and that which is in fact the monition of nature, that a large supply of nutritious substances is needful to carry on the growth and development of all the organs of the body, is disregarded ; and thus feebleness and liability to disease are induced.

But though abundant, the food of children ought never to be given in large quantities at a time ; nor ought they to be allowed to eat till their appetites are cloyed. They should especially be taught the importance of thoroughly masticating all solid substances. The digestibility of food depends greatly upon the degree of mastication which it has undergone : if swallowed entire, or in haste, it remains long in an undigested state, and disorders the stomach.

Every thing that is highly stimulating or difficult of digestion ought to be withheld from children ; not only because their general health is affected by giving them such food, but also on account of the injury inflicted upon the digestive organs. Animal food is stimulating, and ought to be sparingly given. High-seasoned food is still more improper ; and I need scarcely add, that fermented liquors of any kind whatever are little better than poisons. The parent who desires his offspring to enjoy health and long life, will above all things prohibit such articles being given to them.

Unripe fruits are difficult of digestion, and consequently

unfit for children ; yet they are often allowed to consume as much as they please. All the food of children ought to be thoroughly cooked.

The stomach, like every other organ, may be improved by proper training, which consists in furnishing it with suitable aliment in proper quantities and at regular periods. Either too great or too little action, or action ill regulated, enfeebles it, and, by deranging its functions, injures the whole economy.

Some explanation of the structure and functions of the *skin* is necessary to enable my readers to comprehend fully the importance of cleanliness, clothing, and the due regulation of temperature.

The skin is that membranous covering which extends over the whole surface of the body, and which, besides performing its specific functions, serves to connect and protect the more delicate parts situated beneath.

It is composed of three distinct layers—viz. the cuticle, or external skin; the mucous coat; and the true skin.

The former two are of service principally as shields to the true skin: they are both permeable, and the mucous coat is the seat of the colouring matter of the skin.

The dermis, or true skin, is the thickest of the three layers; and its functions are of the most important kind. It is abundantly supplied with blood-vessels and nerves, of which, indeed, it may be said to be wholly composed. The capillary branches of the blood-vessels are ramified upon it, and are so exceedingly numerous, that, as is well known, no part of the skin can be punctured with the finest needle without effusion of blood. The point of most practical moment is, that the capillary vessels of the skin are the channels from which that important exhalation—perspiration—is given out, on the regular and uninterrupted performance of which process the health

is greatly dependent. Absorption also is carried on by the skin.

The particles which constitute a living body are continually changing. They wear out, or, rather, their nutritious qualities become exhausted; and they are then removed, to make way for new particles. The channels by which they are removed are various, namely, the lungs, the bowels, the skin, &c. The product of perspiration is this waste matter thrown out of the system, the amount of which is far greater than is commonly imagined. In hot weather, or during great exertion, every one knows that its quantity is considerable; but comparatively few are aware that the process by which it is evolved is going on at every moment when the body is in a healthy state.

Chemists are not agreed as to the exact elements of the perspired matter, but it is well established that it consists of a large proportion of water and of various salts and animal matter.

Let us now see what rules can be deduced from these ascertained facts, for the promotion of the health not only of the child, but of the adult also.

And first in relation to *cleanliness*.

When the perspiration comes to the surface, the watery particles are rapidly evaporated, the more solid substances which were held in solution are deposited upon the skin, and, if suffered to remain, obstruct its pores, thus stopping the perspiration: the effect of which is, to keep in the body a great quantity of noxious matter, deteriorating the quality of the blood, and thereby unfitting it for supporting and nourishing the frame. Moreover, since action is essential to the well-being of every organ, the skin, thus prevented from performing its functions, becomes diseased. Still further: it has been mentioned that the lungs also perform the same office of excretion as the skin; if, then, the latter is unfitted for its duty, the lungs having to

undertake the office of the skin in addition to their own, are overtasked, weakened, and injured.

Nor is this all: it has been stated that the skin is an absorbing as well as an excreting organ; and thus bodies brought into contact with it are taken into the circulation. If, then, the residual parts of the exhaled matter are permitted to remain upon the skin, they are conveyed back into the blood, and act on it as a poison, sometimes so powerful as to occasion even death. This of course happens, if noxious substances of any kind come in contact with the absorbing surface.

It results from this, that personal cleanliness is a matter of first-rate importance. The entire body ought frequently to undergo ablution; the best mode of performing which is tepid bathing. It is gratifying to observe the attention that is now beginning to be paid to this subject, and the facilities that are afforded to every one for taking care of his health in this direction. But even where these are wanting, the abundance of water takes away every excuse from those who neglect the duty of cleanliness.

These remarks are applicable not only to children, but universally. In reference to them, however, it may be added, that bathing in cold water is frequently fatal, warm water being in most cases preferable. Reasons in support of this doctrine will presently be given.

The next thing to be considered is *clothing*.

The considerations which shew the necessity for *personal* cleanliness prove also the importance of cleanliness in dress. For as portions of the dress are in constant contact with the skin, they take up the perspiration, and retain many of its impurities, which, as I have before stated, are liable to be absorbed into the system. The linen ought therefore to be frequently changed, particularly in early life, when cutaneous diseases are common.

All parts of the dress ought to be loose, and of a

porous texture, in order to give free play to the vascular circulation, to permit the exit of the perspiration, and to absorb it readily. How far at variance with these rules is the dress in this country, of females in particular, it is needless for me to say. One would think that it had been adopted for the express purpose of hindering the development of the body, and of retarding its functions; certain at least it is that such is its effect: few things would tend more directly to increase the well-being of our countrywomen than the adoption of more natural modes of dress.

Another important quality of clothing is warmth; in treating which the subject of *temperature* generally will be discussed.

It has been stated that the vessels which are ramified on the skin, and from which the perspiration proceeds, are those minute branches of blood-vessels which are called capillaries. Now, in accordance with a general law of nature, cold contracts these vessels, so as to render them incapable of admitting the red particles of blood, and frequently closes them altogether. By sudden exposure to cold, the blood circulating in the capillaries is immediately driven in upon the internal organs, which, thus being oppressed, are deranged and injured; by the same means, perspiration being stopped, the task of expelling the waste matter is thrown upon the other excreting organs, which being made to perform greater labour than they are naturally capable of doing, frequently receive permanent and fatal injury. The most usual form that disease, generated by these circumstances, takes in the first instance, is that known as a common cold; all the phenomena of which arise from the lungs having to perform the duty of the skin in addition to their own; hence the close connexion between colds and pulmonary complaints.

It is a prevalent error to suppose that the constitutions of children are fortified by early exposure to cold; whence arises the inexpressibly absurd practice of bathing infants in cold water even in the midst of winter. The circulation of infants is almost wholly cutaneous; hence any severe impression of cold upon their highly sensitive and vascular skin destroys the natural distribution of the blood, producing bowel-complaints, inflammations, and convulsions; which, if they do not destroy life, at least weaken the constitution, and prepare it for the reception of other diseases.

The researches of Dr. Milne Edwards have conclusively shewn, that to no one cause more than to injudicious exposure to cold is the great mortality of infants to be attributed. The natural heat of young animals is several degrees lower than that of adults; they lose it more rapidly, and recover it more slowly: the necessity for keeping them always in an atmosphere of considerable elevation, or of protecting them with warm clothing, is therefore manifest. At the same time, care must be taken not to confine children to very hot rooms, nor to clothe them too heavily. The skin is thereby opened and relaxed; and liability to take cold, at every change of temperature, is occasioned. In this, as in every other matter, the maxim, "*in medio tutissimus ibis*," holds good.

The reason why exposure to rapid changes of temperature is so injurious, is now, I trust, sufficiently obvious; I need not, therefore, enlarge upon the danger of emerging from the heated atmosphere of theatres, and other crowded places, into the cold night-air, unless care be taken to ward off the evil effects of so doing by additional clothing and active exercise. Neglect of these simple precautions frequently gives rise to long-continued coughs, ending in consumption.

It must not, however, be supposed that transition from

a warm to a cold atmosphere is alone dangerous ; this is a great mistake : passing immediately from cold air into a high temperature is equally injurious ; and one of the most common causes of colds in winter is coming out of the freezing temperature of the streets, and going straightway to the fire ; a practice which is so agreeable in its immediate effects, that there will, I fear, be some difficulty in persuading many of its impropriety.

Nothing further can be required to shew the imprudence of those who, while freely perspiring, drink large quantities of cold water ; or, worse still, plunge into it. Ignorance or insanity alone can excuse these suicidal actions ; yet they are too frequently committed in spite of knowledge and reason.

At every period of life, but more especially in youth, the clothing should be sufficiently warm to keep up the natural heat of the skin. Any thing less than this is certainly hurtful, in the way already pointed out : but by too many persons, particularly by the young, it is considered a mark of manliness and vigour to go through the winter in the same kind of dress as they wear in summer—to adopt more suitable clothing being despised as effeminate. If these *men* knew the consequences of such conduct, they would perhaps hesitate before they preferred the show of manliness, attended with premature weakness and decay, to the appearance of effeminacy, when conducive to health and strength.

As an article of winter clothing, nothing is more useful than flannel : being a bad conductor of heat, it prevents the escape of the warmth of the body, and serves to defend the skin from the effect of sudden external changes. Its rough and uneven surface affords a gentle stimulus to the vessels and nerves of the skin ; and being of a loose and porous texture, it is better adapted to absorb the perspiration than any other material in common use.

Before I quit the subject of temperature, I must observe, that sufficient importance is not generally attached to the influence of low temperature upon the health; hence children are frequently in the winter months designedly kept away from the fire, while at the same time they are slightly clad. The consequence of this mistake is, to depress the vital energies and weaken the constitution—of which chilblains are a common and painful symptom. In boarding-schools fires are often not begun till the winter has fairly set in, and are discontinued at a stated time, the nominal commencement of spring: by this absurd custom, delicate young females are for a considerable period in each year exposed to a very low and greatly varying degree of temperature.

The next subject which demands our attention is *respiration*.

Some knowledge of the organ is a necessary preliminary to any satisfactory acquaintance with the function. I shall therefore give a brief description of the lungs, the principal organs by which respiration is performed. But previously to so doing, a few words respecting the nature and circulation of the blood are requisite.

Blood is of two kinds, one arterial, or red, the other venous, or dark; the essential difference between which is, that the former alone is capable of nourishing and sustaining the body; the latter being arterial blood deprived, in its course through the body, of all its nutritive qualities.

Arterial blood is propelled *from* the left side of the heart into the vessels denominated arteries, by which it is conveyed *to* every part of the body; venous blood is poured *into* the right auricle of the heart by the veins which collect and return it *from* the various organs. From this cavity it passes into the right ventricle, which

propels it into the pulmonary artery; and this, dividing into two branches, conveys it to the lungs.

The lungs are two light, spongy, conical bodies, situated within the two lateral cavities of the chest, the bony walls of which surround and protect these delicate organs from external injury. They are almost wholly composed of blood-vessels, bronchi or air-tubes, and air-cells, connected and supported by cellular tissue. The bronchi are ramifications of the trachea or windpipe, by which the air is conveyed into the lungs; they terminate in the air-cells, on the surface of which the capillaries of the pulmonary artery are ramified; thus a stratum of venous blood, several hundred feet in surface, is brought into contact with a stratum of air still more extensive, which contact has been proved to be no wise impeded by the coats of the capillaries, or the mucous lining of the air-cells.

It is estimated that one circuit of the blood is completed in about 160 seconds; so that the whole volume of blood passes through the lungs 540 times in twenty-four hours.*

But it will now be asked, what is the purpose of this contrivance? what effect is produced upon the blood by this exposure to the air?

The blood in its course through the body deposits its nutrient particles, and receives those which are noxious or useless, and thus becomes incapable of supporting life. Food supplies fresh particles, and air is the agent whereby these fresh particles are vitalised, and the noxious removed.

Atmospheric air is a compound body; its elements are azote, oxygen, and carbonic acid, the proportions in 100 parts being—azote, 77; oxygen, 22; carbonic acid, 1.

* The pulsation of the heart takes place 100,000 times a day; so that the pulse beats about 70 times in a minute: $70 \times 60 \times 24 = 100,800$.

The two former are simple gases;* the last is a mixture of oxygen and carbon, and is probably not an essential constituent of atmospheric air.

The proportion which these elements bear to one another in pure air is that which is most conducive to health. If the quantity of oxygen is increased, the circulation is quickened, and symptoms of fever appear; if, on the other hand, the proportion of carbonic acid is great, it diminishes the vital energy, produces headache, languor, and even death.

When air is respired, its composition is altered; the quantity of azote remains almost the same, but a large portion of the oxygen disappears, and is replaced by carbonic acid. The consumption of oxygen is regulated by a great variety of circumstances, which it is of little practical importance to detail; the fact to be carefully noted is, that in respiration oxygen gas is consumed, and carbonic acid gas evolved.

The principal impurity of venous blood is the extensively diffused element denominated carbon, which forms the basis of every variety of the vegetable kingdom. Oxygen has a chemical affinity with carbon, and in certain circumstances these elements combine and form carbonic acid gas. "The great object of respiration is to enable the carbon of the blood to enter into chemical combination with the oxygen of the atmosphere; and that they do combine is certain from the disappearance of both—of carbon from venous blood, and of oxygen from inspired air; that they do form, by this union, carbonic acid, is also certain, from the fact that this acid is generated in proportion as they disappear; and that the superior properties of

* Many modern chemists, however, are of opinion that azote or nitrogen is a compound body, although it has never yet been decomposed. Among these are Berzelius and Davy.

arterial over venous blood must result from this union, is established from the necessity of arterial blood for the purposes of life, and the necessity of oxygen for the formation of arterial blood.”*

Since, then, respiration completely changes the constitution of the air, consuming the vital portion, and substituting for it a gas of the most deleterious nature, it follows that a constant and copious supply of fresh air is indispensable to healthy existence.

Were it needful, a long list of fatal events caused by breathing impure air might be given. It will be sufficient to refer to the often-cited catastrophe of the Black Hole at Calcutta; which, dreadful as it was in itself, has yet perhaps been productive of extensive good, by forcibly impressing on men's minds the necessity of paying attention to the laws of nature. Such cases as these, it is true, are extreme ones, and happily of rare occurrence; but the destructive effects of breathing a moderately vitiated atmosphere, though not so appalling, are not less certain. The inhalation of such air may not leave any marked traces of its baneful influence, but slowly and surely, though imperceptibly, it is working evil—the body is weakened and rendered incapable of withstanding the attacks of disease by being deprived of the nourishment of healthy blood: yet, because the process is gradual, it is overlooked, and suffered to go on uninterruptedly. It is evident, from the foregoing exposition of the function of respiration, that every inspiration of impure air must be injurious. Dyspepsia, consumption, and the general deterioration of the whole system, are some of the consequences of continual exposure to bad air.

I will now point out the principal and more common errors committed in relation to this all-important matter.

* Animal Physiology, p. 109.

In the construction of houses and public buildings, there is, for the most part, but little care taken to provide for due ventilation, which is capable of being regulated on the strictest scientific principles.* Who has not experienced the ill effects of this neglect, in headaches, flushings, languor, and debility, incurred by attending meetings of large numbers of persons? These evils are caused by the inhalation of air from which much of the oxygen has been abstracted, and which has thus become unfit for the purposes of respiration. Dr. Combe, in his valuable work on Physiology, informs us that, "During the winter of 1834 an unusual number of courses of popular lectures were given in Edinburgh, many of which were very fully attended. From the utter impossibility of *safe* ventilation, those courses which were most crowded were accessible only at such an expense of health and suffering on the part of their less robust auditors, as served to neutralise in a great measure the advantages which might otherwise have been derived from them. Several of my own friends were compelled to discontinue their attendance; while others persevered, although at the certain cost of a severe headache. This nuisance is the more to be regretted, as it has arisen solely from the architects and the public not having been sufficiently alive to the importance of procuring that prime necessary of life—pure air; and not at all from any difficulty of obtaining it, which could not, *at the first*, have been easily overcome."

It is sincerely to be hoped that more attention will be paid to this subject, and that provision for perfect venti-

* This observation is especially applicable in London, at least to the theatres, in which it frequently happens that in warm weather nearly all the windows are closed, and in cold weather open. It would be useful to have thermometers hung in various parts of the theatres for the purpose of regulating the temperature.

lation will not in future be overlooked by the architects either of private or public buildings. Meantime, persons of delicate health, especially those whose lungs are weak, ought to beware of frequenting numerous and crowded assemblies: the theatre, the ball-room, and other fashionable places of resort, have destroyed many a victim.*

It is still a common practice to surround the bed with heavy close-drawn curtains, as if for the express purpose of confining the impure air around the sleepers; and as in many bed-rooms (frequently the smallest in the house) the usual channels of ventilation, such as chimneys, &c. are wanting, and the doors continue closed for several hours together, it is not surprising that the atmosphere of these rooms should become much vitiated;† which is probably the chief cause of the languor and drowsiness experienced by many persons on first rising, instead of that

* A German writer has remarked, that persons who constantly frequent theatres never live long; and it has been noticed that members of the House of Commons who have been very attentive to their duties have seldom been long livers: there can be no doubt that the bad air of the House contributed to shorten their lives. And what can be worse than many of the modern club-houses? which, what with the number of water-closets, the smells from the cooking and lamps (often unnecessarily numerous), the crowded state of the apartments, and the "*aroma*" of the members themselves,—are any thing but wholesome. Yet few attempts are made to remedy this evil by a proper regard to ventilation. Since the publication of this work, considerable attention has been paid to the ventilation of the House of Commons, and a variety of experiments made, which, it is to be hoped, will result in the adoption of some plan that will effectually remedy the evils above alluded to.

† It is a remarkable fact, that if a canary-bird be hung up in a cage at night at the head of a bed with close-drawn curtains, it will be found dead in the morning.

buoyant cheerfulness which should be the result of rest and sleep.

Care should be taken to provide for the constant admission of fresh air into sleeping-apartments, which, instead of being the smallest, ought, in reason, to be the largest rooms of the house. At all events, during the day-time they ought to be perfectly ventilated. Perhaps nothing tends more to produce disease among the poorer classes of society than the practice of occupying the sleeping apartments throughout the day—a practice which must effectually prevent the complete renovation of the air, with them the more necessary on account of the confined situations of their dwellings. The custom of keeping dogs and large birds, such as parrots, in dwelling-houses, frequently causes the vitiation of the air to such an extent as to render it exceedingly unwholesome and unpleasant.

Oxygen is indispensable to combustion, so that the effect of fires (especially if coke or charcoal is used), candles, or gas-lights, upon the air is precisely the same as that of respiration, but in a greater degree. Where they are used, therefore, attention to ventilation is still more important; express provision ought to be made to carry off directly the impure air which they so plentifully generate.

These remarks are universally applicable; no circumstances whatever can remove the necessity for pure air, although the mode of procuring it is frequently a matter requiring great care.—(*Vide* “Temperature,” *antè*.)

The observations which were made at the beginning of this work are sufficient, however, to shew that attention to respiration is pre-eminently needful during the earlier periods of life, when the processes of nutrition and growth are most actively carried on, and when, therefore, whatever impairs the quality of the blood must be more extensively injurious than when the body has reached maturity. Whenever the weather permits, children ought to be

much abroad in the open air—in the fields, or wherever the atmosphere is least mixed with smoke and vapour. Sir John Sinclair observes, that “the great mortality among infants under two years of age in London must, in a great degree, be ascribed to atmospheric impurities; for in the new and improved streets, where the air may be supposed to be better, comparatively fewer children die at an early age than in the old and confined parts of the city.”

The nurseries and sleeping-apartments of children should be large, airy, and well-lighted rooms. They are generally situated at the top of the house—the best arrangement that could be made for ensuring them as free a supply of air as possible.

The impropriety of covering the faces of infants when sleeping with a thick cloth, or of confining their beds with curtains, must be obvious from the foregoing statements.

Before leaving this subject, a few remarks upon the importance of *light* may be properly made.

That light exercises a great and beneficial influence on the body, may be inferred from the ruddy fresh-coloured complexions of those who live in the country, and engage in agricultural occupations, compared with the dull, sallow countenances of miners, criminals confined in dark dungeons, and other persons long secluded from the solar beams; the effect is the same in kind on those who reside in narrow lofty streets. The complexion depends upon the condition of the blood; and it is well known that light co-operates with the oxygen to communicate to the blood its scarlet hue.*

The presence of light has a most important influence

* Vide the chapter on light, containing an account of experiments by Lord Brougham, and remarks by Sir J. Herschel, in the author's Treatise on the Physiology and Pathology of the Eye.

on vegetables: for example, the leaves of plants exposed to the solar rays, while they absorb the carbonic acid of the atmosphere, give off an equal volume of oxygen. In the dark, on the contrary, plants absorb oxygen, and disengage carbonic acid. These facts, of themselves, are sufficient to account for the different effects of night and day air on the human system. They explain also why it is dangerous to fill the bed-room with plants at night—a practice which has often proved fatal.*

The next subject to be considered is *muscular exercise*.

I shall first give a short account of the constitution of the bones and muscles—the instruments of motion.

The bones are compound in their structure, being formed of an animal and an earthy matter. The animal portion closely resembles cellular tissue; the earthy is phosphate of lime. The former is the seat of the life and growth of bones; while the other communicates to them hardness and the power of resistance.

The proportion which these constituents bear to each other varies greatly. It is not the same in all the bones of the body, nor in every part of the same bone. In early life the animal portion predominates, and in infancy many bones differ but slightly from cartilage; in middle age the proportion is nearly equal; as old age advances, the quantity of animal matter becomes smaller, and the bones more brittle.

Bones are liable to disease, and are sometimes deprived of nearly all the earthy particles, and thus, losing the power of resistance, no longer serve to support the body.

* Some excellent observations will be found upon this subject in the *Flora Londinensis* and *Botanical Magazine* of the author's late uncle, William Curtis, who was not only a celebrated botanist, but an able physiologist.

The uses of bones are various ; but the only one which it is needful for us to notice is, that they afford fixed points for the action of the muscles, and thus aid in the production of motion.

The muscles are those bundles of red compact fibres with which every body is familiar under the name of *flesh*. These bundles are of various sizes, each being distinct and easily separable from the others with which it is connected ; and, as the microscope has revealed, being itself resolvable into exceedingly minute threads, to which anatomists have given the name of filaments, every one of which is furnished with the ultimate branch of an artery, vein, and nerve, by means of which it is nourished and developed, stimulated and directed.

The essential characteristic of muscular tissue is *contractility*—the vital power of diminishing its length—of shortening on the application of stimuli. This is the property that distinguishes it from every other known substance, and the source of its chief use—the production of motion. The muscles acting upon the bones, which are connected by the ligaments, are the sources of all motion generated within the body.

Animal motions are divided into voluntary and involuntary : to the latter class belong those of the heart and the organs of nutrition ; the former comprises locomotion and all external actions : with these alone we have at present to do.

It has been already stated that muscles are abundantly furnished with nerves : one set of nerves conveys the stimulus from the brain to the muscles, and incites them to action ; another set carries back to the brain those sensations which indicate the exact condition of the muscles. Nervous influence is indispensable to motion ; the power of contraction depending greatly upon the strength of that influence ; hence any derangement in the functions of the

brain, or nerves, immediately affects the action of the muscles. This is clearly seen in the case of a drunken man, whose movements are weak and irregular, because his brain is disordered. On the other hand, powerful mental emotion sometimes restores the use of limbs which have long disobeyed the will. The gouty man who, on beholding an enraged bull close behind him, sprang over a hedge, and ran a mile, was a striking proof of the influence of the mind over the muscles. It results, then, that the condition of the brain is an important item in the question of muscular exercise: this subject will be fully considered in the proper place.

This account, though it omits many interesting and important particulars, is nevertheless sufficiently full for our purpose; which is to shew the necessity for muscular exercise, and to lay down the rules by which it ought to be regulated.*

To every organ a distinct function is allotted; the performance of which is essential not only to the general health of the body, but especially so to the health of the individual organ. Appropriate exercise is indispensable to the preservation of its integrity; and in proportion as it receives too much or too little exercise, or exercise unappropriate or ill-timed, in the same ratio will be its departure from a state of health.

The degree in which muscles answer the purposes for which they are designed is in exact proportion to their

* In my Treatise on the Diseases of the Eye I have given, in a condensed form, a connected account of the human frame, and pointed out the uses of every organ, and the intimate relation which subsists between all its parts; thereby setting forth the wisdom and beneficence of its Creator, the perception of which cannot fail to warm the heart of the reader, when he sees how "fearfully and wonderfully" man is made.

strength, or power of contraction ; their strength depends principally upon their size, and this is regulated by the quantity of exercise which they receive. Without going into the physiological proofs of these propositions, it may be enough to refer to the increased size and power of the arms of a blacksmith, or of the legs of an habitual pedestrian.

I shall at present confine my remarks to the subject of the muscular exercise of children.

That such exercise is beneficial to the young in particular, may be inferred from the tendency which the young of all animals manifest towards it. Infants, while awake, are in a state of perpetual motion ; as they increase in strength, and their muscles become capable of more powerful action, they take delight in more varied movements, and grow less and less able to endure restraint. It may be as well, however, to state briefly the principal benefits derived from well-regulated muscular training.

The first of these is increase of size and power in the parts exercised. When an organ is exercised, the processes of waste and renovation proceed more rapidly than when it is inactive ; a result brought about by the increased action of the arteries and nerves by which it is supplied.

But though this is the immediate result of muscular exercise, it is not the only one : exercise conduces to the due performance of several important functions, and exerts a beneficial influence over the whole system.

Most arteries are deeply imbedded among muscles, every contraction of which, therefore, by pressing upon them, assists the circulation of the blood, especially in the smaller vessels, and accelerates its return from the extremities. The value of this assistance may be estimated when we consider the evils of languid circulation, to which

persons of sedentary habits, especially females, are liable, —such as swollen extremities and varicose veins, besides more extensive injuries which arise from a sluggish circulation.

The quicker the circulation, the greater is the quantity of blood which, in a given time, passes through the heart, the lungs, and the organs of secretion, as the skin, the liver, and the kidneys; the greater, therefore, is the amount of exercise which these important organs receive: the consequences of which are, the strengthening of the organs themselves, the more perfect purification of the blood, and its consequent greater fitness to nourish and develop the entire frame.

If to these advantages we add the assistance which muscular exercise gives to the organs of respiration and digestion, it will be evident that nothing is more calculated to preserve the health and conduce to longevity.

The infant's first mode of progression is crawling; and it is the mode best suited to the condition of its bones and muscles, and calls them all equally into action. The bones are soft and flexible, the muscles weak; so that neither the bones nor the muscles are capable of supporting the weight of the body. Many persons inflict permanent injuries upon infants, by making them stand upon their feet, and walk upright, before their limbs are sufficiently strong: the consequence is, that the bones of the legs bend beneath their burden, the muscles become shorter on one side than on the other, and thus the efficiency of both is impaired. To this cause must be attributed the prevalence of deformities of the lower extremities.*

* Children's feet are sometimes distorted at their birth, and turned in a wrong direction. This often arises from a faulty position of the child *in utero*, and may, in many cases, be easily remedied by bringing the limb as near as possible to the natural

It is obvious, from these considerations, that *leading-strings*, and other devices of the same kind, cannot be otherwise than hurtful. By constraining an upright position, they keep the weight of the whole body upon the spine and legs, which, unable to sustain the load, deviate from their natural form, and become permanently distorted.

The first requisite, then, of healthy exercise is, that it be the kind adapted to the condition of those by whom it is taken; this adaptation is discoverable by the voluntary movements of each individual; since exercise disproportioned to the strength of the organs by which it is performed, produces pain, and therefore, if voluntary, is at once discontinued.

That exercise may be as beneficial as possible, it must be taken in the open air. One great good of exercise is, that it invigorates the respiration; the capacity of the chest is enlarged during active exertion; and the quantity of air inhaled is greater than at other times. Yet, unless the air is pure, the advantages resulting from this circumstance are considerably lessened.

But there are some states of the atmosphere during which it is impossible, or improper, to be out in the open air; in such cases, children ought to be sent into a large, well-ventilated room, and permitted to engage in such pastimes as they may themselves choose; and the more varied, noisy, and cheerful these games are, the better.

It must not be thought that the kinds of exercise which are suitable for adults are the best for children

position, and keeping it there by the proper application of bandages. Mothers should take care that their children's shoes are sufficiently large; if they are tight, the foot is cramped, and permanent lameness is sometimes the result.

also. A steady walk is of little use to those whose spirits are exuberant, and whose muscles are soft and pliable. Restraint, in these cases, is unnecessary and hurtful. It is almost impossible to induce a child to walk steadily along; it is ever making excursions from one side to the other, as it is attracted by the various objects that present themselves. This rambling propensity is loudly condemned by many mothers and nurses,—a proof either of ignorance or of love of ease; for this is the only efficient mode in which children can exercise their muscles and bones, and lay the foundation of a long and healthy life.

Nor is there any ground for fear of injury from this vivacious activity. It is, of course, indispensable that the places provided for children should be of such a nature as to prevent the occurrence of accidents: in summer, a level field, in the soft grass of which they may fearlessly roll their yet tender limbs, and in which their yet undeveloped faculties may be delighted and called into exercise by the various objects of nature by which they are surrounded; in winter, a well-carpeted room, unencumbered with furniture: these, or such as these, are the appropriate places for the young; these provided, nothing else is required to render the unrestrained gambols of children perfectly safe, save the presence and control of their attendants.

The influence of the nervous system upon the muscles has already been slightly noticed. A little observation would be sufficient to convince every one that the mind is the grand director of the muscular movements, and that its varied states manifest themselves by corresponding actions. If this harmony be destroyed, but little benefit can be derived from muscular exercise. The mind must accompany and be in unison with the body.

Children are naturally cheerful; and their lively, rapid

movements accord well with this mental state; both being admirably calculated to promote their bodily and mental well-being. Let not the careful mother restrain these expressions of happiness,—themselves the *sources* of further happiness.

Another characteristic of childish exercise is noise—screaming and bawling invariably accompany it; and if such expressions of delight are prohibited, the children cannot proceed with their diversions. Here, as every where, we may discover the wisdom and beneficence of the arrangements of nature. This noise, which to the adult appears so useless, and being to him a source of annoyance is forbidden, is produced by the exertion of those delicate organs—the lungs. By this exercise they are developed and strengthened, and rendered capable of resisting the morbid influences to which they are, in our variable climate, peculiarly exposed.

I have not attempted to lay down any precise rules for the exercise of children; these, though necessary when the subjects of discourse are adults—persons freed from the dominion of instinct, and governed by considerations wholly unknown to the young, and frequently interfering with the preservation of health—are needless in relation to childhood. This distinction is too often overlooked; because men cannot trust to their instinctive feelings in regard to health, it is too hastily inferred that such is the case with children also. It is forgotten, or unknown, that the latter, not yet having the superior endowment of reason, possess much of that instinct for which the lower animals are remarkable; and that all that is necessary is, so to control and direct their spontaneous actions as to prevent them leading to mischievous consequences. It will be seen that this is the principle on which all that I have said on the muscular exercise of children depends; and I am convinced that attention

to it would greatly improve the management of the young.

These observations are, for the most part, applicable to the subject of sleep. Sleep is the repose of the brain; and, as every body is aware, is indispensable to the preservation of health. During sleep the vital energy, exhausted by the previous excitement and action, is restored; and the process of nutrition goes on more rapidly and completely than in the time of active exertion. In infancy and childhood, the brain, the source of vital energy, is weak and unformed, while the greatest demands are made upon the organs of nutrition: hence, at those periods of life, there is a greater need of, and *therefore* a greater disposition to, sleep, than in those which succeed. The proper quantity of sleep must be determined by this disposition; in general, it is injurious either to increase or diminish it by artificial means. It will suffice, on this point, to say, that ten or eleven hours is considered to be the proper quantity for children under the age of eight years.

We have now arrived at the last, most important, yet least-understood subject in the treatment of the young, to which I proposed to direct attention—viz. the effects of education upon their health.

In this place I shall state the results of the labours of physiologists respecting the functions of the brain, and its influence upon the body. These results constitute the principles from which all the practical rules upon the subject of the mind, in relation to health, must be derived. I shall then proceed to lay down such of these rules as immediately affect the young under the age of ten years.

Whatever opinion may be entertained respecting the peculiar doctrines of phrenology, there can be but little doubt as to the soundness of its fundamental proposition

—“the brain is the organ of the mind”—a proposition, indeed, which was maintained by distinguished men long before the promulgation of the theory of phrenology; and which has *since* been, and *now* is, held by philosophers who have scarcely any other opinion on the subject of the mind in common with phrenologists. To prove this fact it will be enough to refer to the writings of Locke* and Hartley,† of Mill‡ and Southwood Smith,§ *all* of whom *impliedly*, and the majority *expressly*, admit the doctrine in question; which I shall therefore not here attempt to prove, but assume to be established. If, however, any of my readers require proofs, they will find the arguments in its favour briefly and lucidly stated in the valuable little work of Dr. Brigham, on the Influence of Mental Cultivation and Excitement upon Health, section 1.

The following remarks, then, proceed on the assumption, that whatever exercises or excites the mind affects the condition of the brain, and, through it, the *general health* of the body,—for the manifestation of the mental faculties is not the only function of the brain. Of such of its other varied and important functions as bear upon our subject it is necessary now to give some account.

Nervous influence appears to be indispensable to the performance of every function, whether animal or organic; hence the nerves, the channels by which it is conveyed from the central nervous masses, are diffused as extensively over the body as the vessels which distribute to every organ that not less necessary fluid, the blood; between which and the nervous influence there is this further analogy—that they are both variable in quantity

* Essay on Understanding, in various passages.

† Observations on Man. Propositions 1 and 2.

‡ Art. Education, Encyc. Britannic.

§ Philosophy of Health, vol. i. chap. 6.

and quality ; variations which materially affect the condition of the system.

It is true, that very little is known of the nature of the nervous fluid—being imperceptible, its existence is discoverable only by its effects. That, however, it does exist, and is essential to the carrying on of function, is nevertheless conclusively demonstrated. If the main trunk of a nerve be divided, and the cut ends held more than a certain distance apart, the organ which it supplies becomes powerless, and is no longer affected by the appropriate stimuli. Take, for example, the pneumo-gastric nerve, which goes to the muscular coat of the stomach : if this nerve be severed in the way mentioned, the contractions of the stomach cease, and the process of digestion is stopped ; as has been proved by actual experiments on dogs and other animals.* But if the cut ends of a nerve be left nearly in contact with each other, the flow of the nervous fluid goes on without interruption. It appears, also, that if a nerve be tied tightly, the effect is the same as if it were divided.

These facts clearly prove that the nerves are not the *sources*, but merely the conductors of the nervous fluid, which proceeds from the spinal column and the brain ; with the last of which, as being far largest in bulk, and as performing functions of a more diversified and important kind than the other, we have principally to do.

When any part of the body is actively exercised, an increased flow of blood and of nervous energy is occasioned to that part. Powerful action is indeed impossible without a large supply of nervous influence ; the quantity of which

* This and similar facts were demonstrated some years since, when Professor Magendie was in this country, who made several experiments on greyhounds and other living animals, at the late Joshua Brooks's theatre.

sent to those organs placed under our immediate control being determined by the *will*.

“But,” to use the words of the distinguished Bichát, “it is a fundamental law of the distribution of vital powers” (of which the nervous energy is one), “that when they are increased in one part, they are diminished in all the rest of the living economy: that the *sum* is never augmented, but that they are necessarily transported from one organ to another; and therefore, to increase the powers of one organ, it is absolutely necessary they should be diminished in others.” For example, while an individual is engaged in active muscular exercise, the blood and nervous fluid are withdrawn from the internal organs, and poured into those of locomotion; if, while in this state, he attempts to think intently, he will find it next to impossible to do so: or if, immediately after his exertion is over, he sits down, and eats a hearty meal, the stomach will not be able to digest it readily, because it is destitute of its proper share of blood and nervous influence. But when the increased action of the vessels and nerves of the muscles has subsided, and the balance of distribution has been restored, then the stomach will be equal to its duties.

When the mental faculties are much exercised, the nervous influence is concentrated in the brain, and consequently withdrawn, to the same extent, from the rest of the body.

We come now to inquire what is the condition of the brain in infancy and childhood; and what rules are to be observed in regard to mental cultivation at those periods.

The brain of a newly-born infant weighs about ten ounces: it is very soft, approaching to liquidity, nor are its parts distinguishable; yet it is now supplied with a larger quantity of blood, in proportion to its bulk, than at any after-period: it increases rapidly in size and firmness;

its weight is nearly doubled at the end of the first six months; and thus the nervous system is early developed, and becomes the predominant system in youth.

“ This great and early development, though necessary for the purposes of the animal economy, very much increases the liability to disease: it gives a tendency to convulsions, inflammations, and hydrocephalus, and to other diseases of the nervous system, which are most common and fatal in childhood.”*

If, then, the infant's faculties are prematurely called into exercise; if the parent, eager to impart early the rudiments of scholastic education, compels the child to spend its energies in the acquisition of tasks and lessons, or if its feelings are exposed to powerful excitement, the injurious consequences will be twofold: first, the nervous energy, at this time so necessary for the building up and perfecting of the body, being expended in fruitless intellectual exertions, all the organs of the body become weak and liable to fatal diseases: in the second place, the brain, by reason of the increased flow of blood to it, occasioned by mental excitement, enlarges unnaturally; by this means the nervous system, already powerful, receives an accession of strength which completely destroys that balance between the various systems of which the body is composed, which is indispensable to health, and even to existence.

As to the first of these evils: it is certain that, by unduly exercising any one organ, or system, in childhood, thus depriving all the others of that cultivation which they require, the favoured part is too greatly developed, and prematurely decays; whilst those which are condemned to inaction are stunted, become feeble, and often lose their vital powers. The truth of these statements will be established by reference to the well-known

* Brigham, p. 24.

fact, that those children whose mental powers are too early cultivated seldom or never possess healthy bodies, or arrive at maturity. The causes of this result are, the expenditure of the nervous energy on the brain, and the disproportionate quantity of blood sent to it, with the consequently inadequate supply of those vital fluids to the other organs.

Of the second class of evils, some are immediate; others consist in creating predispositions to disease, which do not at once attack their victim, but suffer him to make some progress towards maturity, and then suddenly cut him off. To the former belong rickets, scrofula, convulsions, inflammation, and dropsy of the brain; to the latter, insanity, hypochondriasis in all its various forms, diseases of the heart, and dyspepsia.

The proof that some of these diseases result from over mental exertion will be given in a subsequent part of this book. At present we will leave the subject, by laying down a few general rules deducible from the foregoing statements.

The first years of life should be directed to laying the foundations of health, which are the foundations of happiness. Nature plainly declares that this is not the proper time for devoting the mind to the incessant labour of scholastic education; that the faculties of the child must be permitted gradually to increase in strength by means of the exercise which the varied aspects of nature and the companionship of its equals in years afford. Let the fond parent, who desires his child to excel in intellectual attainments, and therefore urges on his feeble powers to accomplish tasks to which they are unequal, be aware how vainly he strives. Suppose the object gained, of what avail are the most splendid acquirements, if they are made by the sacrifice of *health*; without which they cannot be turned to good account, either for his own benefit, or for

that of others? Besides, although it is possible so to develop the powers of the child as to make him outstrip, for a time, all his juvenile companions in the acquisition of knowledge, yet *ultimately* the actual amount of knowledge possessed, and the capacity of enlarging it, will be smaller than if the dictates of nature were obeyed; for the powers of the mind are thus worn out long before the period at which, in other circumstances, they would arrive at maturity: they become incapable of further exertion when they should be in their highest vigour. There are few instances indeed on record of precocious children who, on arriving at maturity (which but few of such prodigies have ever attained), did not disappoint the fond expectations of parents and friends; while, on the other hand, many of the most distinguished men in every department of science and literature have been remarkable in their childhood for dulness and incapacity to learn.*

The parent who is so unfortunate as to have a precocious child, ought, as he desires his offspring to live and

* Among these may be mentioned Sir Isaac Newton, who himself says that "he was inattentive to study, and ranked very low in the school, until the age of twelve;"—Napolcon, who is described by those who knew him well in his childhood as "having *good health*, and in other respects being like other boys;"—and, not to multiply examples, Adam Clarke, whose talent, when at school, appeared to be confined to the rolling of *large stones*, his character being that of a grievous dunce;—the Rev. Dr. Lee, the present professor of Arabic in the University of Cambridge, who, up to the age of four-and-twenty, was a journeyman carpenter;—and the present able lecturer at the Royal Institution, Dr. Faraday, who was brought up as a bookbinder. These examples are sufficient to shew, that it is to self-education, rather than to that which is communicated at school, that eminence in the intellectual world is chiefly to be ascribed.

be happy, by all judicious means to discourage the child's propensity to mental exertion. Precocity is, in almost every case, a symptom of disease—of disease which is nourished and strengthened by excitement of the brain; and which can be overcome only by suffering the mind to enjoy tranquillity, and by strengthening the body to resist the attacks of the disease.

The following extract, from the work of M. Julien on education, will appropriately conclude these remarks on the effects of education upon the young.

“The course to be adopted for the first ten years of life, is, neither to oppress nor torment them; but, by plays, exercise of the body, entire liberty wisely regulated, and good nourishment, to effect the salutary and progressive development of the physical, moral, and intellectual faculties, and, by continual amusement, and freedom from chagrin (which injures the temper of children), they will arrive at the tenth year without suspecting that they have been made to learn any thing. They have not distinguished between study and recreation; all they know, they have learned freely, voluntarily, and always in play. The advantages obtained by this course are, good health, grace, agility, gaiety, and happiness; a character frank and generous; a memory properly exercised; a sound judgment; and a cultivated mind.”

It may not be improper to offer here a few remarks on education in general; a subject which may at first sight appear to have little to do with the objects of this book, but which is in reality intimately connected with them.

National education has of late taken a prominent place in public attention, and is constantly becoming more and more a subject of general interest, as, on account of its paramount importance, it well deserves to be; inasmuch as no other question bears more directly upon the well-being, physical, intellectual, and moral, of the community. A

good system of national education, liberal, enlightened, and comprehensive, may be regarded as the only sure foundation of national and individual prosperity and happiness; the institution and carrying out of which would speedily bring in its train all other beneficial changes, and transform the whole face of society, merging all parties and classes into one great community—one, not only in name, in language, or in laws, but one in sentiment, in interests, and in fraternal affection. If ignorance is the source of all evil, of hatred, dissension, and misery; knowledge is no less surely the source of love, of brotherly unity, and of happiness.

A truly good system of education must provide not only for the communication of knowledge, but also for training the faculties of the mind, for teaching self-control, and the due regulation of the passions; thus it becomes, even though no direct moral or religious instruction be given, a most efficient means of diffusing true morality and religion throughout all classes.

It is to be lamented that in our country we have as yet no such system—that we have been far outstripped in this important work by Holland, Germany, France, the United States of America, and by other countries, which have provided means for giving to every one of their inhabitants, rich and poor, an education such as members of the most favourably circumstanced classes in our own but seldom obtain. Let us hope, however, that this defect will not long continue; but that we shall shortly see the establishment in our country of a system of education which shall enable those who participate in it to attain the utmost perfection of which they are capable.

It is of course impossible for me in this place to enter into any details respecting this subject; I may, however, add, that the objections to making it compulsory on parents to educate their children appear to arise from prejudices

peculiar, in some measure, to our country, and from a misconception of the question. In regard to the subjects which ought to be taught in a national system of education, it is much to be desired that *physiology* may be included. The importance of an acquaintance with the structure of our frame, as a means of preventing disease, has already been insisted upon in the Introduction to this book; nothing more need, therefore, be said to shew the necessity for imparting such knowledge to the young. The influence of *music* upon the mind is so refining, and tends so much to beget feelings of kindness and benevolence, thus beneficially affecting the health, that no system of education can be considered complete which does not provide this important means of moral training. Music is taught in most schools on the continent; and it is to this circumstance, among others, that, as I conceive, the superiority of the Germans and Italians over ourselves in this science, is mainly attributable. Besides, are we not, equally with them, Saxons, and members of the great German family, and are not, therefore, our natural capabilities originally the same? The notion that our countrymen have comparatively no "ear for music" is an unfounded prejudice. Our actual inferiority arises solely from the want of cultivation. It is scarcely less to be wished that such improvements were effected in the *law*, as would render it so simple and concise, that a knowledge of its leading principles, and of their more important practical applications, might be communicated to the young at school, to guide them in after-life in the performance of their social duties.

CHAPTER II.

YOUTH.

*Transit in æstatem post ver, robustior annus,
Fitque valens juvenis: neque enim robustior ætas
Ulla, nec uberior, nec, quæ magis æstuet, ulla est.—OVID.*

WHEN childhood merges into adolescence—that is, when the body has attained the degree of development which it generally does between the age of fourteen and seventeen, it is of course necessary to accommodate the treatment of the individual to the changes that have taken place in the condition of his frame. An attentive reader of the previous part of this book will have no difficulty in discovering how far the management of the child is suitable for the youth, and in what respects it needs to be altered. The directions that I have laid down for the due regulation of cleanliness, clothing, temperature, respiration, and sleep, in relation to infants and children, are applicable, in their fullest extent, to those who are in the immediately succeeding period of life. But, in respect to diet, muscular exercise, and education, the case is otherwise; it will therefore be necessary, on these and some other subjects, to give special rules for the proper training of youth.

In this place it is requisite that I should lay before my readers a few remarks on the physiology of digestion.

It is hardly necessary to observe, that the use of the various processes which have collectively received the name of digestion, is, to make up for the waste which is constantly going on in every living being, by the assimilation of foreign substances to the blood: the product of digestion is blood, the quality and quantity of which is

mainly dependent on the proper regulation of diet, and on the integrity of the digestive organs.

In a healthy condition of the body the sensations of hunger and thirst are the warning of nature that a supply of aliment is requisite; and, taking this view of their use, the wisdom of the arrangement by which we are made to experience them is strikingly evident; for man, immersed in the occupations of life, would doubtless often fail to pay attention to the wants of his body, and thus cut short his existence, were he not by these monitors compelled to supply them. And as the force of these sensations is naturally indicative of the exact amount of food required, they furnish most valuable direction as to diet at every period of life.

One of the most important agents employed in the function of digestion is the gastric juice (so named from *γαστήρ*, *the stomach*); a fluid which is secreted from the blood-vessels of the stomach, and is one of the most powerful solvents known, dissolving and reducing into a soft thickish pulp whatever is taken into the stomach as food, but exerting no power over living or inorganic matter.

Dr. Beaumont, of the American army, has, with praiseworthy assiduity and skill, availed himself of an opportunity, such as rarely occurs, to investigate the mysterious processes of nutrition; having during many months, for this purpose, supported at his own expense a man who had received a gun-shot wound, by which a considerable portion of the ligaments and muscles of the abdomen were carried away, and the coats of the stomach perforated, leaving an opening, which never wholly closed; thus revealing to ocular inspection the functions of the stomach. From his observations it appears that the quantity of the gastric secretion is always in exact proportion to the quantity of aliment required by the system;

so that if more than this be consumed, the supply will be insufficient to digest the whole. Bearing in mind what has been said respecting hunger, it will be seen that this fact renders highly probable the opinion of those physiologists, who hold that “the sensation of hunger is an impression produced upon the nerves of the stomach, through the intervention of the gastric juice, in a manner perfectly analogous to the action of light upon the retina. As light is the appropriate stimulus to the nerve of the organ of vision, so gastric juice appears to be the appropriate stimulus to the sentient nerves of the stomach.”*

It has been established by the researches of physiologists, that the qualities of the gastric juice bear a close relation to the kinds of food habitually taken. The stomach of a herbivorous animal is, at first, incapable of digesting animal food; while that of a beast or bird of prey is equally unable to digest vegetable matter. But here, as in most other cases, habit exerts great influence: if the food is gradually changed, the properties of the gastric juice are essentially altered, and fitted to act upon it. Delabere Blaine states, that a horse lived for some time on animal food alone.

In man the qualities of the gastric juice vary considerably—the kind of food, the state of the health, the season of the year, modify its properties; a fact which shews that rapid and frequent changes in diet are to be avoided, as well as sameness or uniformity.

It is a great error to suppose that a diet composed of a single kind of food, however nutritious in itself, is one conducive to health. “Many observations and experiments,” says Dr. S. Smith, “shew that in man, at least, a mixture of various diet is not only consistent with health and vigour, but is highly conducive to both. This point

* Animal Physiology, p. 30.

is abundantly illustrated by Dr. Stark, of Vienna, who ultimately fell a victim to the zeal with which he prosecuted his researches ; and who made himself the subject of a highly curious series of experiments upon the relative effect of various simple substances, when used exclusively as articles of food for a long space of time. The result shewed that the body is invariably brought into a state of extreme debility by such a course of diet ; and that there is not a single article of food, not even the most nutritious, that is capable of sustaining the vigour of the body, or even of maintaining life itself, for any considerable period. By selecting, one after another, single and simple articles of food, and by confining himself exclusively to one, this experimentalist so irretrievably ruined his health, as to bring on premature death.”

The only other general observation which I shall at present make upon this subject is, that a large supply of nervous energy and of blood is indispensable to the carrying on of digestion ; hence the impropriety of taking food immediately after active muscular exertion, or intense thought ; and also of engaging in either within the first hour after a meal, during which time digestion proceeds most rapidly and vigorously, and when, therefore, the greatest quantity of blood and nervous influence is required to carry it on. These facts account for the languor and disinclination to powerful action which most animals—men not excepted—display after a heavy meal. A gentle walk, or cheerful conversation, on the other hand, are aids to digestion ; at the expiration of about an hour after an ordinary meal, most persons may safely engage in their usual employments.

I shall now make such applications of these principles to the diet of youth as are needful.

The keen appetite of the young is a proof that they require an abundant supply of wholesome food ; and the digestive organs at this period are so vigorous, that little

restriction is needed as to the kinds of food. But food of a stimulating nature ought still to be given sparingly, as well as nourishment in too concentrated a form. It is indispensable to the health of the bowels, that they perform their appropriate functions: but if highly nourishing food, such as animal food, is given too abundantly, the quantity of refuse being too small, constipation and other diseases of the bowels result; to prevent which, well-cooked vegetables should form a large portion of the food of the young.

It must not be forgotten, that deficiency of food at this time is productive of the most injurious consequences. If the youth is healthy, his appetite ought never to be left unsatisfied; and, although it must be given with limitation, animal food is also necessary.* As for other stimulants, as wine, or fermented liquors of any kind, they cannot but be hurtful as articles of diet, and ought on no account to be allowed. The taste at this period of life naturally prefers simple food; and provided it be substantial, and of a sufficiently varied kind, the plainer the better.

It is evident, from the foregoing observations, that young persons at school ought not to be tasked too soon after their meals: they ought to be allowed to amuse themselves by cheerful conversation, or gentle pastimes; instead of being, as they too often are, hurried from the dining-room to the school-room, with scarcely a minute's

* Boarding-schools, for both sexes, are the places where this rule is most disregarded. In the schools of France, a great part of the food of the young consists of broths, in which there is but little nourishment. "A dog was fed on the richest broth, yet could not be kept alive; while another, which had only the *meat boiled* to a chip (and water), thrived very well."—*Sir John Sinclair's Code of Health.*

relaxation. "Laughter," says Hufeland, "is one of the greatest helps to digestion with which I am acquainted; and the custom prevalent among our forefathers, of exciting it at table by jesters and buffoons, was founded on true medical principles. In a word, endeavour to have cheerful and merry companions at your meals: what nourishment one receives amidst mirth and jollity will certainly produce good and light blood."*

Any directions that I may deem necessary respecting the *quantity* of food will be found in that portion of this work which relates to the middle period of life. In childhood and youth a healthy appetite is the best of all guides, nor is any other required. But there is one rule, which ought to be universally observed—never continue to eat until the appetite is cloyed; rise from the repast even while a further supply of food would be grateful: in this case the stomach is not overloaded, and the work of digestion proceeds rapidly; but if this caution is neglected, a portion of the food will remain undigested for a long time, and give rise to many evils: the reason of which is shewn by Dr. Beaumont to be the deficiency of gastric juice; the quantity of which secreted, at any one time, being in proportion to the wants of the system, not to the quantity of food taken.

It is to be noticed, that the word *healthy*, as applied to appetite for food, means that state of the appetite which is in accordance with the condition of the body; it is therefore a relative, not an absolute term. The appetite of a person in a fever is naturally small: if it were otherwise, it would be an *unhealthy* appetite; because it would represent the state of the body to be different from what it really is. And, on the other hand, if a person in good health, and taking much muscular exercise, should

* Art of Prolonging Life.

have but little appetite for food, his appetite would be unhealthy also.

From this it results, that the appetite may be trained, and, by improper diet, be so perverted, as to be no longer a trustworthy index to the bodily condition. Excess of food is the means by which this result is most frequently brought about. By habitually eating or drinking more than is needful, many persons acquire an unnatural appetite, and thus turn that which was intended to guide them to health into a deceitful and destructive enemy. The evil consequences of repletion will be pointed out in another place.

Muscular exercise is essential to the preservation of health in this as well as in every other period of life: having already shewn its advantages, I shall in this place merely mention some of those exercises which are best adapted for young persons of both sexes; and give such rules as ought to be attended to, in order to make them as useful as possible.

Whatever description of exercise is taken, it is always best in the open air, when the state of the weather permits; and those active out-door games, in which many persons join together, and which are attended with shouting and laughing, calling into action a spirit of interest and emulation, thus making the mind accompany the movements of the body, are far more conducive to health than a solitary silent walk. Of this kind are many of those sports in which those who are engaged divide themselves into two parties—the one pursuing and endeavouring to overtake the other, and, in their turn, becoming the pursued party,—cricket, tennis, prisoners' bars, and dancing, when performed in the daytime, and either in the open air or in large airy rooms—for as it is usually practised, during the hours which should be devoted to

sleep, and in rooms the air of which is utterly unfit for respiration, it is a most destructive amusement. If to these we add gentle gymnastic exercises of various kinds, skipping, shuttlecock and battledore, ball, &c. &c., we shall have a list of exercises which, if properly indulged in, will be amply sufficient to develop all the muscles of the body, and give grace, vigour, and strength to the entire frame.

Boys are seldom injured by want of sufficient exercise ; they are left more entirely to follow their inclinations, and are not, as is the case with girls, hedged in on every side with rules of gentility and decorum, which repress all tendencies to free and rapid motion, and make the movement of a party of boarding-school ladies more like a funeral procession than a number of young persons taking exercise and recreation. The slow pace at which it is considered genteel for ladies to walk, affords exercise hardly sufficient to quicken the circulation of the blood, or to increase the warmth of the body, and is therefore almost entirely useless.

To make the above-mentioned exercises beneficial, they should be subjected to the following rules :—

Never continue any exertion after it *fatigues*. There is a point beyond which exercise, instead of invigorating, weakens: this point may generally be known by the feeling of fatigue which denotes it.

Never indulge in *violent* exercises, especially in summer. The consequence of neglecting this rule is profuse perspiration, followed by loss of animal heat, and a feeling of chilliness at the extremities,—a symptom never to be disregarded. Moderate exercise gently stimulates the circulation of the blood, creates an agreeable warmth, enlivens the mind, promotes digestion, respiration, and nutrition ; and thus strengthens both the bodily and intellectual powers.

Dr. J. Johnson, speaking of violent exertion, truly says : “ It did great harm, even when nations were more in a state of nature than they are now. Galen, in his discourse on Thrasybulus, inveighs against the athletic practices of the gymnasium. A smart walk of a mile is to a valetudinarian, what a furious wrestle would be to an athletic. If we trace those dreadful aneurismal affections of the heart and arteries in early life, we shall find their origins in violent exercise, or sudden over-exertion, in nine cases out of ten.”

Young persons should remember that they are still growing ; that their organs are in a state of progression, not yet having attained their full development, and that therefore those exercises which are proper and beneficial for the adult may seriously injure them. A single day of excessive exertion has been known to stop the growth of young persons, and induce permanent weakness and ill health.

It is not unusual for boys, after playing at cricket, or other active games, to sit down on the grass while yet profusely perspiring ; by which they often contract very severe colds, which lay the foundation of much mischief—one of the forms of which is deafness. Girls should be cautioned against going to a window, or into any draft of cold air, immediately after dancing ; an imprudence which produces evils of the same kind as those above mentioned. While I am on this subject, I may mention another fertile source of disease among young females—viz. the folly of wearing thin shoes and stockings at those seasons of the year when especial care ought to be taken to protect the extremities from cold and damp.

For youth of both sexes, cold bathing in summer, and tepid in winter, is highly useful, and ought to be frequently indulged in ; but great care is to be observed that bathing in rivers be not commenced too early in

summer, before the water has acquired a proper degree of temperature; and, at all times, that there be not too great a difference between the temperature of the body and that of the water. Exposure to great and sudden varieties of temperature is always dangerous.*

Swimming is an exercise which calls into active exertion all the muscles of the body, and is therefore one tending much to strengthen the frame; but it ought not to be continued long at one time: the slightest sensation of weariness should be the signal for leaving the liquid element, and retreating to terra firma. To remain in the water after this monition, is not only to throw away all the benefits of the previous exercise, but to induce an exhaustion of strength so great as sometimes to prove fatal.

It is truly gratifying to observe the facilities that are daily springing up for enabling even the poorer classes of society to participate in the enjoyments of the bath: an enjoyment which has hitherto, in our country, been regarded as a luxury, and attainable only by the affluent, but which is in reality a *necessary* of healthful existence, and which therefore ought not to be confined to any one class of the community. The baths in the City Road, at Lambeth, † at Brighton, Ramsgate, Margate, and Graves-

* Tepid bathing is perfectly safe even in the middle of winter: if on emerging from the bath, the body be rubbed completely dry, and active exercise be taken, no one need fear any ill consequences. It should, however, be added, that bathing is not in every case useful; there are many states of the system in which it would prove highly injurious. Delicate persons ought, therefore, to act with great caution in this matter.

† These baths consist of two tepid swimming-baths and a cold spring-water bath. The dimensions of one of the tepid baths are 150 feet by 50, and it contains 200,000 gallons of water, supplied by a steam-engine which throws up 15,000 gal-

end, deserve particular mention, both from their magnitude, and the low rate at which they are thrown open to the public.* It is to be hoped that other establishments, on the same plan, will shortly be set up in various parts of the metropolis, and all over the country. Few things would do more to increase the sum total of health and enjoyment.

In a previous part of this book I have alluded to the truly absurd and pernicious practice—by no means confined to the softer sex—of encasing the body in garments which shackle every movement of the muscles, diminish the capacity of the cavities of the chest and abdomen, and thus effectually stop the development of the frame, and prepare it for the ready reception of many fatal forms of disease. These evils have been so repeatedly demonstrated, and so strongly denounced, by men of the first eminence in the medical profession, that it is surprising and lamentable that any necessity should exist for me also to raise my voice against it.† Let those who care not

lons per hour. The other is still more extensive, and is intended for the use of mechanics and artisans, who are admitted for the sum of three-pence. There are various rooms for the accommodation of bathers connected with this establishment, which altogether covers nearly an acre of ground.

* I have visited most of the baths in England, at Paris, Dieppe, and many other parts of the Continent, including that built for Napoleon at Aix-la-Chapelle; and am of opinion that our own Baths are equal to any of them.

† I do not, however, ascribe all the ill health of females to wearing tight stays; other injurious habits concur to produce that hysterical and hypochondriacal state of the system so common with delicate females. Among these are especially to be reprehended the close confinement to which they subject themselves, the consequent want of muscular exercise in the open air, and their dietetic errors. I have, in several places, remarked on the

for health and life—who willingly sacrifice them both at the shrine of false taste and fashion—persist, if they will, in this destructive custom; but let those, at least, who entertain juster views of the relative importance of happiness and fashion, boldly abandon a practice which is opposed by all who can best appreciate its consequences.

The statement above made, that in youth the frame is not completely developed, applies not merely to the muscles, but to every organ of the body, and to the brain, the organ of the mind: hence the cautions laid down for the regulation of muscular exercise are not to be neglected in that training of the mind which constitutes education.

The period of youth is that which is generally devoted to, and which is indeed best adapted for, scholastic education: what I have here to do, is, not to interfere with this arrangement, nor with established modes of tuition—my province is to point out the effects of education, and of the circumstances under which it is generally carried on, upon the health.

My first remark is, that the mental faculties ought not to be severely tasked. The time spent in most schools is far too long: taking into account the hours employed in preparing lessons after or before the attendance at school, but little time is left for any thing else than sleep. This should not be: much nervous influence is still needed to superintend and control the vital processes constantly going on in the daily enlarging frame. Muscular exercise and fresh air are essential to the formation of pure blood;

injurious effects of drinking large quantities of warm fluids; no class of the community are more prone than young females to this practice, which gives rise to numerous nervous complaints, and is also productive of great injury to the teeth.

without which the development of the body cannot proceed for an hour. But at school, for the most part, the acquisition of tasks and lessons demands unceasing labour of the brain; and thus the nervous energy, instead of being equally distributed to every organ and tissue, is concentrated in the brain. The time that should be passed amid the fields in pleasant pastimes, or in the prosecution of botanical or geological researches, is spent in confined rooms, among books, which, by incessant perusal and repetition, fill the minds of their unhappy readers with disgust for literature of every kind, instead of being, as they might and ought to be, their guides to intellectual and moral excellence.

For the sake both of the body and the mind, this evil system should be changed for one more consonant with the laws of nature. The training of the body to perfection is not incompatible, but, on the contrary, strictly coincident with the highest mental cultivation. Let it not for a moment be supposed that I undervalue the importance of education, or desire to deter any one from bestowing upon himself, or upon his children, the best education he can obtain. But what proof have we that the system, which is so destructive to the body, is beneficial to the mind? On the contrary, might we not infer, without any knowledge of the actual results, and merely from the intimate connexion of the mind with the body, that such a system would be scarcely less injurious to the former than to the latter? And does not observation prove that this *à priori* inference is completely borne out by facts—that in this case at least the physical and moral laws, though perfectly distinct and independent, are yet closely connected, so that it is not possible to infringe one set of laws, without, in some respects, departing from the other?*

* In Germany much more attention is paid to physical educa-

But if mental exercise is conducted in subservience to the laws of nature, it contributes largely to health and longevity: the way in which it does so will be evident to those who read this book. The *proof* that it does so is contained in the long lists of persons who, distinguished by intellectual activity, have attained old age: "Of 152 savans, taken at hazard, one half from the Academy of Belles-Lettres, and the other from that of Sciences, in Paris, it was found that the sum of years lived among them was 10,511, or above sixty-nine years to each man."*

I shall conclude my observations on this subject by a few miscellaneous remarks.

The practice of sending young persons to the Continent to be educated is one which has frequently entailed upon them the loss of health and happiness; for such evils, the acquisition of foreign accomplishments appears to be but a poor recompence: especially as the numerous excellent educational establishments of our own country, by employing able foreigners as teachers, afford all the facilities which can be enjoyed for that purpose abroad.

Pupils at boarding-schools are often compelled to attend church or chapel three times on the Sunday; and, instead of obtaining a little relaxation on that day of rest, are, if possible, more closely confined then than at any other time. Two attendances are quite sufficient; a stroll

tion than with us; gymnastics, horse-riding, and swimming, forming part of the regular system of education. At the same time, the state of intellectual education is confessedly far better than it is in this country.—Vide Dr. Caldwell's work on physical education, for some observations on subjects connected with boarding-schools, to which too little attention has been paid, but which are of considerable importance.

* Brigham on Mental Excitement, p. 64.

into the country in the remaining part of the day would do young people more good, both bodily and spiritually, than a listless listening to words, which, by a constant repetition, lose all influence upon their minds.

The habit of early rising is one which conduces much to health, and ought to be encouraged, by all proper means, among the denizens of schools, and the young generally. It tends to produce that cheerful, buoyant state of mind which exerts so beneficial an influence over the bodily condition, that whatever is calculated to promote it deserves to be practised and enforced. It is valuable, also, inasmuch as it necessarily prevents the contrary habit of sitting up late; one which is too frequently contracted at this period of life by the ardent-minded student. There can be no doubt that prevalent modes of expression do much to lead young persons into this injurious practice. In the words of a popular writer, "The student is accustomed to associate in his mind the idea of great advancement in knowledge, and extraordinary eminence in his profession, with that of midnight study. The very terms which are often employed to designate those works which he regards as the labours of men of the highest attainments and greatest abilities, serve to confirm this impression."*

It can hardly be necessary to point out the absurdity of such notions, which are directly opposed to the truth. But apart from this, the consequences of the practice in question upon the health are so destructive, that no one who saw them in all their extent, and was convinced of their certainty, could possibly persist in it. The powers both of mind and body are enfeebled to a fearful degree by it; and thus the aspirant after literary or professional distinction frequently deprives himself of all chance of ob-

* Letters on Early Rising, by A. C. Buckland.

taining it, and sinks into premature imbecility and an early grave, by pursuing the very course which he had vainly hoped would secure to him the object of his ambition. "Nocturnal studies," says an elegant author, "too long and too closely continued, seldom fail to injure the eyes, and together with them the whole nervous system. They who are impelled by necessity to work by night and by day, must indeed submit with patience to their destiny; but that he who is master of his time should chain himself down to a more exhausting toil than the labour of the galley-slave, is a species of folly approaching to insanity. And, indeed, I know of nothing more likely to produce madness than intemperate study, with want of exercise, want of air, and want of sleep. It will, after all, be but a poor comfort, to have gone through a whole library, with the loss of our eyes and our senses in the laborious progress."*

* Essays, by Dr. Vicesimus Knox.

CHAPTER III.

MATURITY.

Excipit autumnus, posito fervore juventæ,
 Maturus, mitisque, inter juvenemque senemque
 Temperie medius, sparsis per tempora canis.—OVID.

WE come now to treat of the period of manhood.

Before I proceed to consider the subjects of diet, exercise, and mental excitement, in their particular relations to this period of life, it may be useful to give a general view of the more important causes of disease to which men in such a state of society as that which exists among us are liable.

No other animal deviates so far in its habits from the simplicity of nature as man ; none is exposed to the action of so many circumstances injurious to its well-being. Hence his morbid affections are numerous and diversified, as is abundantly shewn by our nosological catalogues—long lists of diseases, which afford strong evidence that man has deviated widely from the path of life marked out for him by nature.

The congregating of large numbers of men into crowded cities—living in an atmosphere loaded with impurities—ill-assorted and untimely marriages—sedentary and unwholesome occupations—intemperance—the use of adulterated food, and of high-seasoned and indigestible viands, taken, moreover, hastily in the short intervals allowed by the hurry and turmoil of business—constant and excessive mental excitement, kept up by luxurious habits—great intellectual exertion, combined with bodily inactivity—the

violence of the passions, such as envy, ambition, love, covetousness, which are constantly stimulated by intercourse with society—the delicacy and sensibility to external influences caused by heated rooms, too warm clothing, and other indulgences;—all these are departures from man's natural condition, and produce those morbid states of the system which a more simple and uniform mode of living would prevent.

I will now proceed to consider more particularly the topics above mentioned.

To give any precise rules on the subject of the diet of persons of mature age, is a matter of great difficulty, if it be not even impossible. Every variety of constitution, of age, of sex, of health, requires a distinct course of diet; in particular cases, therefore, it must be left to the individual's own judgment, to determine what diet agrees with him best. But there are, notwithstanding, certain general principles, the exposition of which may be useful in enabling persons, with proper care, to regulate their diet in all ordinary cases. Some of these which have been already stated, it will be sufficient briefly to enumerate.

Avoid excess of food. (Vide p. 49.)

Abstain from violent exertion immediately before or after meals.

Neglect of the former of these rules is, by the unanimous voice of writers on physiology, declared to be the main source of all the forms of dyspepsia and its consequences. The *kind* of food is generally thought to be of much less importance than the *quantity*. Dr. Abercrombie, in his Treatise on the Diseases of the Stomach, says, "In the regulation of diet, much, certainly, is to be done in dyspeptic cases by attention to the quality of the articles that are taken: but I am satisfied that *much more depends upon the quantity*; and I am even disposed to say, that

the dyspeptic might be almost independent of any attention to the quality of his diet, if he rigidly observed the necessary restrictions in regard to quantity."

It is to be borne in mind that the excess here cautioned against has no reference to, nor can be measured by, any *absolute* quantity. That which would be an excessive amount of food, if taken by one person, might be no more, or even less than sufficient for another person, or for the same person under different circumstances. The proper quantity of food is that which the body actually needs, and is therefore so far from being fixed, that it varies with every individual, and with the same individual in every variety of circumstance. It is well that men are not left in this matter to the guidance of their reason:—the appetite, when not perverted by bad treatment, is, as I have already shewn, a guide on which we may implicitly rely, representing and forcing upon our attention the real condition of the body.

Although the *quantity* of food is the most important matter connected with it, yet it is, at the same time, undoubtedly true that substances differ widely in their digestibility and nutritive qualities; on account of which differences some kinds of food are to be preferred to others, and some to be wholly abstained from, by those whose digestive organs are in any way impaired. For particular information as to the relative good qualities of the articles most commonly used for food in this country, I must refer my readers to works on the subject of dietetics, one of the best of which is Dr. Combe's, to which I am indebted for the following general statement relative to this point.

"Vegetables, generally speaking, are slower of digestion than animal and farinaceous aliments, and consequently, when digestion is feeble, are liable to remain in the stomach till acetous fermentation takes place, and gives rise to

acidity and flatulence; fat and oily meats are nearly in the same predicament; and hence both form unsuitable articles of diet for dyspeptics. Soups and liquid food are also objectionable, both because they are ill adapted for being properly acted upon by the gastric juice and by the muscular fibres of the stomach, and because they afford insufficient nourishment. From the former cause they frequently impair the digestive functions, and from the latter they induce diseases of debility, which it is difficult to subdue. Daily experience furnishes examples of stomachic disorder from constantly eating soups, especially as a preliminary to an otherwise substantial dinner: and the fatal epidemic which prevailed a few years ago in the Milbank Penitentiary was distinctly ascertained to have been partly caused by an insufficient and too liquid diet.

“ When, from the state of the health, or other causes, chicken-tea, beef-tea, veal-broth, or other kinds of soups, require to be given, their digestibility will generally be promoted by the addition of bread, barley, or rice, to give them consistency, and by taking little or no other food along with them. Even vegetables, when taken alone, are sometimes digested without difficulty, where if mixed with other substances, they disorder the stomach.

“ Pastry, rich cakes, puddings, and other articles containing much fatty or oily matter in their composition, are perhaps the most generally indigestible of all kinds of food, and consequently ought never to be eaten when the tone of the stomach is impaired.

“ Plain well-cooked animal food, not too recently killed, and eaten in moderate quantity, with bread, rice, or potatoes, forms one of the most easily digested meals which can be devised for a weak stomach. Venison, and most kinds of game, when not too high, are very suitable in the same circumstances.

“ In some states of the system, where the condition is irritable, and the mode of life not sufficiently active, red, highly animalised meat proves too stimulating, although easy of digestion. The same thing happens during recovery from illness : and hence fish, chicken, and other white meats, which excite less and are digested more slowly, are often allowable where beef, mutton, pork, &c. cannot be taken with impunity.”

As a general rule, the plainer the food the better : condiments serve only to stimulate and prolong the appetite, after the wants of the body have been supplied.

Few errors are more prevalent in this country than the notion, that without an abundant supply of animal food it is impossible to be strong or healthy ; and hence in general far *too much* is consumed. In our northern climate, some animal food is undoubtedly necessary ; but that its importance is too highly rated will be evident, when we consider that Irish peasants live almost exclusively upon potatoes—the East Indian upon rice—that the Italian’s dinner consists of a piece of bread, some wine, and a few figs—and that the French subsist principally upon poultry, eggs, and farinaceous food ; and that, notwithstanding, none of these (with the exception, perhaps, of the East Indian) can be characterised as weak or puny races, but are rather the reverse. A substantial meal of animal food once a-day is, in most cases, enough.

What is the proper number of meals a-day ? what are the best times for them ? are questions that have often been discussed.

From what has been already said, it is evident that the time of eating, as well as the quantity of food, ought to be regulated by the appetite indicating the wants of the system. But nature has given to man considerable power of training even those organs whose functions are organic ;

and there is in his constitution a tendency to periodicity, which makes it both easy and advantageous to adopt fixed times for supplying his wants.

The arrangements that have been made amongst the various classes of society, in regard to this matter, are sanctioned by habit and custom, and (with some exceptions) are perhaps as good as any others that could be adopted.

As a general rule, an interval of from five to six hours should elapse between the meals: but this must, of course, vary according to circumstances, and depend upon the appetite. Persons engaged in business frequently do themselves much mischief by disregarding its monitions amidst the bustle and excitement of trade: after a time, it is true, the appetite subsides, but the necessity for food is not thereby removed. It is no unusual thing for a merchant to breakfast at eight o'clock in the morning, ride several miles to town, and return to dine in the evening between six and seven o'clock, without having, during all that time, eaten any thing. This long fasting is injurious; and the subsequent full meal still more so. In such cases a luncheon ought certainly to be taken.*

In this country commercial men too frequently hurry their meals; neither giving themselves time for the due mastication of their food, nor abstaining from active exertion for a sufficient space after the meal to enable the process of digestion to go on uninterruptedly. Indigestion is the certain result of such habits. A rest of at least one hour ought to be taken after dinner; at all events, from intense thought or violent exercise.

There are two other rules as to diet which must be noticed. Never eat things out of season, nor much of dishes to which you are not accustomed.

* A biscuit eaten about the middle of the day will preserve the tone of the stomach, which is debilitated by long fasting. Inaction injures it, as well as every other organ.

We now come to the subject of liquid food.

Secretion and exhalation are constantly carrying off the fluids of the body, which process, when continued up to a certain point, gives rise to the sensation of thirst; a sensation perfectly analogous to that of hunger: it warns us that a supply of fluid is needed, and, at the same time, strongly impels us to procure it. Most of the foregoing rules and observations in reference to hunger are therefore applicable to thirst also.

A few remarks on the use of liquids at meals, and on the various kinds consumed in this country, will comprise all that is necessary to be said on this subject.

Liquids form a large proportion of the first meal among most civilised nations; a practice for which there is a good physiological reason: viz. the great expenditure of fluids during the night, occasioning the sensation of thirst commonly experienced in the morning.

It is by no means requisite that a large quantity of liquid should be taken at dinner; on the contrary, it is likely to delay the digestion of the meal; and, if habitually indulged in, permanently to weaken the stomach. The best time for taking drink is about three or four hours after a solid meal; the usual time for drinking tea in this country is in accordance with this rule.

Water, the fluid most abundantly provided, is that best fitted for man to drink: it is suitable for every variety of constitution, and is more effectual than perhaps any other liquid in allaying thirst; a fact which shews that it is the beverage designed to supply the loss of fluid to which we are perpetually subject.

There are many simple compounds in which water is the chief ingredient, such as ginger-beer, lemonade, toast and water, soda-water, tea, coffee, chocolate, cocoa, &c. All these are, for common consumption, far preferable to fermented liquors; and it is gratifying to observe the

extent to which they have superseded those intoxicating drinks. The introduction of tea and coffee, in particular, into general use, has done much towards effecting this change; and that, notwithstanding the objections which have from time to time been brought against them, these exotics are growing in public favour, we have conclusive evidence in the constant and rapid increase of the importations of them into this country. It is well known that tea is one of the most refreshing of beverages. After a long journey, a cup of it produces all the exhilarating effects of wine, without any of its bad consequences; coffee not only refreshes, but acts beneficially upon the digestive organs; and when taken early in the morning, before rising, sometimes alleviates an attack of asthma or coughing, and thus proves of great service to persons advanced in life. Still it must not be forgotten that they are stimulants; and if taken too strong, or in great quantities, give rise to nervous complaints; and that the latter especially, although for a time an aid to digestion, does yet, like all other stimulants, if too freely indulged in, weaken the sensibility of the stomach, and derange its functions. It must be borne in mind also, that diluents of any kind in large quantities relax the coats of that organ, and impair its efficiency.*

As to fermented liquors, it is the almost unanimous opinion of physiologists, that to a person in a state of health they are decidedly injurious; their effect is directly upon the nervous system and the circulation, which they

* This observation is especially applicable to *warm* diluents. It is a practice with many to drink warm spirits and water at night before going to bed: few things are more hurtful to the stomach; it is peculiarly injurious in this way to young persons, besides frequently laying the foundation of intemperate habits in after-life.

stimulate and quicken. Now, in a state of health the nervous system is duly balanced, neither too active nor depressed; and the circulation is of the kind best adapted for carrying on the processes of waste and nutrition. Whatever, then, tends, in however slight a degree, to disturb this condition of the system, is, *pro tanto*, a cause of disease: not the less a cause of disease because its effects may for a time be imperceptible, or because it may temporarily enliven the mind, and fill it with pleasing emotions. But fermented liquors (well are they denominated intoxicating, or *poisoning*; τοξικόν, *poison*) not only derange *function*, but if habitually taken, inflict terrible *organic* injuries. The following extract from the work of Dr. Beaumont, to which I have already referred, is so instructive, that I make no apology for its length. The individual who was the subject of his observations and experiments, a healthy, and, in general, a sober man, had been drinking copiously of ardent spirits for several days: when, at this time, Dr. Beaumont examined his stomach, “its mucous membrane was covered with inflammatory and ulcerous patches, the secretions were vitiated, and the gastric juice diminished in quantity, and of an unnatural viscosity; and yet St. Martin described himself as perfectly well, and complained of nothing. Two days subsequent to this, the inner membrane of the stomach was unusually morbid, the inflammatory appearance more extensive, the spots more livid than usual; from the surface of some of them exuded small drops of grumous blood; the ulcerous patches were larger and more numerous; the mucous covering thicker than common, and the gastric secretions much more vitiated. The gastric fluids extracted were mixed with a large proportion of thick, ropy mucus, and a considerable muco-purulent discharge, slightly tinged with blood, resembling the discharge from the bowels in some cases of dysentery. Notwithstanding this diseased

appearance of the stomach, no very essential aberration of its functions was manifested. St. Martin complained of no symptoms indicating any general derangement of the system, except an uneasy sensation and a tenderness at the pit of the stomach, and some vertigo, with dimness and yellowness of vision on stooping down and rising up again; pulse uniform and regular, appetite good: rests quietly, and sleeps as usual."

This account presents us with a description of the noxious effects of ardent spirits, which could hardly have been imagined; and which, but for the fortunate chance which enabled a philosophic eye to explore the hidden recesses of the stomach, we might perhaps never have possessed. One circumstance deserves particular comment: it shews that the defence commonly set up by those who are addicted to fermented liquors, that they are none the worse for what they drink, is worthless: inasmuch as St. Martin "complained of nothing," "had a good appetite," "and slept as usual," at the very time that his stomach was in a state of active inflammation!

But his strength of constitution carried him through a trial in which a less robust frame would receive far greater injury. It appears, from this account, that the quantity of the gastric juice was diminished: one of the consequences of which would, in most cases, be loss of appetite; and this is actually one of the evils most commonly experienced by the intemperate, although St. Martin appears, in this instance, to have escaped it.

To this statement it is only necessary to add, that the gastric disorder brought on by intemperance sometimes induces serious affection of the brain; but more frequently abdominal congestion, with diseases of the liver and stomach, are first established; and apoplexy or dropsy terminates life.

It may be said, your statements are decisive as to the

evils of indulging *to excess* in ardent spirits; but the abuse is no argument against the use: and many persons will be ready, on their personal experience, to testify the good qualities of various favourite liqueurs and compounds. To all of which I answer, that no one talks of *moderation* in the use of poison, nor concludes that because it is possible to swallow it in a diluted shape, and yet continue alive, it is therefore beneficial. The question is, whether spirits do not impart a morbid excitement to the system? This question must be answered in the affirmative; and what is this but to admit them to be hurtful?

But substances, poisonous in themselves, may often be exceedingly useful as medicines, in preserving health and life; such is the case with fermented liquors. There are some conditions of the body, in which the circulation is sluggish, and the nervous system weak and depressed: here, then, is the occasion when such liquors may be usefully and appropriately prescribed. There are, no doubt, many such cases; it would be absurd, therefore, to denounce their use absolutely and universally. But as no one takes medicine without the advice and direction of his medical attendant, so let it be with fermented liquors.

The nature of this work precludes me from entering upon the *moral* evils resulting from the use of ardent or intoxicating beverages. But supposing it produced no other than physical ills, the magnitude of these would render any attempt to extirpate their cause worthy of our sincerest admiration and support. Such an attempt is the institution of Temperance Societies; an attempt which has already been extensively successful in the land where it was commenced, and which has not altogether failed in our own country.* The good effected by Temperance

* In the lately published work on America, of Mr. J. F. Grund, remarkable for its statistical precision and accuracy, it is stated

Societies must not be reckoned merely by the number of their pledged members; this, it is probable, indicates but a small part of their beneficial results: by powerfully calling the attention of the civilised world to the tremendous evils of intemperance, they have, doubtless, led many thousands of persons who have not enrolled themselves under their banners, to see the real state of the case, and to abandon habits so fatally destructive of physical, moral, and intellectual excellence.

that in 1833 the American Temperance Society contained 2,000,000 members; and that in 1831, when the number was far less, 1,500 distilleries had been stopped; 4,000 merchants had ceased to traffic in spirits; 4,500 drunkards had been reformed; and 1000 vessels sailed without ardent spirits as a part of their provision, the men on board which were proved to be better able to undergo the fatigues and hardships of the sea than those in vessels where the old plan was persevered in. A few weeks since, Mr. Delaval, an American gentleman, read to the Ashmolean Society, at Oxford, a sketch of the rise and progress of Temperance Societies in the United States. Among other facts stated by him, it appears that Insurance Companies insure vessels which do not carry spirits 5 per cent lower than others; and that in several states laws have been framed to prohibit the sale of intoxicating liquors in less quantities than fifteen gallons, with the exception of what is wanted medicinally.

In this country, Temperance Societies have already made some progress, but not so extensively as is to be desired. There can be little doubt, however, that they will increase in number and usefulness as the attention of the public is more forcibly directed towards them, and as the conviction of the destructive effects of spirituous liquors upon the health becomes more general.

Mr. Livesey, of Preston, has informed me that upwards of 30,000 persons in Lancashire, principally mechanics and artisans, have joined the Temperance Society; and that the good effects of temperance have already manifested themselves in the increased and increasing comforts of themselves and families.

There can, however, be little doubt that the most powerful and certain means of exterminating such habits are the diffusion of knowledge, the enlightenment of mankind, and the consequent production of a taste for pleasures of an intellectual kind among the people at large. The consumption of spirits in this country is ascertained by official returns to be far less in proportion to the population than it was one hundred years ago; this diminution can be accounted for no otherwise than by the operation of the causes just enumerated, and by the introduction of tea, coffee, and other wholesome beverages.

In connexion with this latter cause may be mentioned the establishment in London and other great towns, within the last few years, of great numbers of coffee-houses; the effect, and at the same time a cause of the improvement that has taken place in this matter among the lower classes of society. The practice of dram-drinking, still unfortunately too prevalent in the industrious classes, might be much diminished if those who are immediately above them in society, their employers, were to make it their business, as it certainly is their duty, by precept and example, to discourage it; instead of, as they frequently do, sanctioning it, by giving spirits to their work-people as incentives to extra exertion. And as "evil communications corrupt good manners," no person should keep in his service any one who is habitually or frequently intoxicated. Were this made a rule in all workshops, manufactories, &c., its beneficial results would soon be apparent.

The *temperature* of drink is of great importance; if too low, it occasions an abstraction of heat from the stomach and neighbouring vital organs, so great as sometimes to produce death—and less degrees of cold are frequently hurtful; if too high, it injures the teeth and relaxes the coats of the stomach, and thus affects its efficiency. Above all, sudden variations in the temperature of what we drink

ought to be avoided. The degree of heat which seems in the greatest number of cases to be best, is about that of the healthy body, ranging from 90 to 100 of Fahrenheit.

On the subject of exercise I have already so fully entered, that I have here but little to add.

Manhood is the period which the condition of the body points out as that peculiarly adapted for labour; in which labour of a proper kind, and in moderation, so far from being an evil, and the necessity for it a curse, as it is commonly but ignorantly represented to be, is, in reality, indispensable (our constitution being such as it is) to the preservation of health. Well has the poet admonished those who take this false view of the subject, in the following lines:—

“ O mortal man ! who livest here by toil,
Do not complain of this thy hard estate :
That, like an emmet, thou must ever moil,
Is a sad sentence of an ancient date ;
And certes there is for it reason great :
For though sometimes it makes thee weep and wail,
And curse thy star, and early drudge and late,
Withouten that would come a heavier bale,
Loose life, unruly passions, and diseases pale.”*

Castle of Indolence, c. i. st. 1.

Persons whose circumstances enable them to dispense with labour, and who, having no activity of mind, pass their days in listless idleness, are, of all men, least to be envied. Not only are they too frequently led into vices

* History informs us that an ancient king of Persia commanded all his subjects to engage in some kind of labour or exercise before they ate their meals; alleging as a reason for so doing, that he wished to reign over a healthy and robust, not over a sickly people.

injurious to health, but the nervous system becomes the victim of sloth,—ennui, hypochondriasis, indigestion, afflict these unhappy mortals, who not seldom put an end to their miserable existence by suicide. Let the man who depends for subsistence upon the toil of his muscles or of his brain, console himself by pondering on these facts; and let those who are independent of labour recollect that man is a social being, and that the Creator has ordained that useful exertion is essential to individual happiness.

The exercise afforded by our occupations, when they are of a healthy description, and not too long pursued, is of the very best kind; inasmuch as it is one in which the mind as well as the body is engaged; harmony of mind and body having already been shewn to be requisite for the full realisation of the benefits of exercise.

It is deeply to be lamented that, notwithstanding the vast improvements that have of late years been effected in this respect, so many of the occupations of life are still destructive of human health and happiness.* It is to be feared that many of the causes of these evils must long remain in operation, and that some of them are irremovable. But there can be no doubt that most occupations are injurious, more by reason of the excessive length of the time of labour, than of any inherent unhealthy tendency;

* From the statements of Mr. Marshall, the superintendent of the Home Manufacturing District, it appears that the employment in mills and factories, of wool, flax, cotton, and silk, are still highly injurious to health. In the whole of this extensive district, which includes London, Halifax, Huddersfield, Leeds, &c., Mr. Marshall does not recollect three persons of the age of sixty employed in these mills. At thirty and five and twenty, a man and woman are considered to be old; nay, they are actually aged, so far as that is denoted by decrepitude, disease, and want of physical power.

and that if men generally were acquainted with the laws of the animal economy, and applied their knowledge to the counteraction of the morbid influences to which they are daily exposed, they would escape many of the miseries which they now too frequently endure. Such would be the results if, for example, persons engaged in business devoted the time during which they are released from labour to the invigorating of their frame, instead of spending it in practices which aggravate the complaints occasioned by their employments, and convert functional into organic disease.*

How many *young* men are there in this city, who, being engaged in sedentary occupations the greater part of the day, in banking-houses, merchants' counting-houses, or lawyers' offices, imperatively need much muscular exercise to preserve their bodies in health and strength, yet, in sheer ignorance, give up almost the only opportunity they have of taking such exercise; and instead of walking to and from their places of business, get into an omnibus, and ride, for the express purpose of avoiding a little fatigue: whereas their elder brethren, who have risen an hour before them, may be seen walking, thereby availing themselves of the advantage of exercise. Many of these same persons, breathing during the whole day confined and impure air, emerge therefrom, and, with admirable sagacity, proceed

* The proposal for shortening the hours of business, now so generally supported in London and other towns, is one, the adoption of which would prove highly beneficial to the health of a very large class of the community, and would not, I think, be any detriment to trade. The class in question has of late years improved so much in its habits, that there is little reason to fear that any additional time placed at its disposal would be mis-employed. The plan is certainly deserving of a trial.

straightway into the still more impure air of a theatre, or other crowded place !

If individuals of this class knew their own interests, they would fix their habitations at a short distance (two or three miles) from town ; and would regard as an indispensable appendage to their dwellings a plot of garden-ground. These preliminaries arranged, they would be early risers ; they would cultivate their gardens, and, whenever the state of the weather permitted, would call in to their aid no other instruments of locomotion than those with which nature has furnished them. If such a plan as this were pursued, they would be able to resist the unhealthy influences to which they are in their daily pursuits exposed ; and a blooming cheek and cheerful eye would be more common phenomena in the city of London than they at present are.

But, though the persons composing this useful and respectable class are in general neglectful of exercise, there are every year not a few victims from among them to excessive muscular exertion. Most of them enjoy once a-year a vacation of a few weeks—a resting from the cares and toils of business : and, as if to make up for their long confinement, many of these young persons determine to make the most of their short period of liberty, and set out on extensive pedestrian excursions. Ignorant or unmindful of the fact, that the muscles, for want of due exercise, become weak and incapable of powerful action ; and that, to be beneficial, it is necessary that exercise should be proportioned to the strength of the organ—their object is, to accomplish the utmost of which their limbs are capable. Having heard that exercise is conducive to health, and knowing that, for the previous twelve months, they have had exceedingly little of it, they imagine their best plan is to take advantage of the present opportunity, and to lay up a stock of health for the twelve months to come.

Unmindful of the monitions which their weary limbs afford, they march on to the end of their predetermined journey, consoling themselves for the pain they suffer by thinking that as it is caused by *exercise*, it will eventually promote their health. No opinion can be more mistaken: this excessive fatigue weakens the body to such a degree, as often to produce permanent debility, and lay the foundations of fatal disease; nay it is sometimes the direct cause of death—as it was in a case cited by Dr. Combe.

Now all this mischief may be prevented by attention to a very simple rule, which has already been enunciated in this book, but which I will here repeat—viz. never continue exercise after it has become *painful*. Our muscles, like the rest of our bodies, are made susceptible of pain, for the beneficent purpose that we may know when they are in danger, and may thus be warned to do every thing in our power to remove them from it. It is a mistaken notion that exercise of all kinds, and under all circumstances, is beneficial. Unless it is adapted to the condition of the muscles, it will prove the agent of death, not the giver of health.

As I have before remarked, exercise is most beneficial when in unison with the mental state; if amusement or business can be combined with it, the same amount of exercise will be far more useful than if it were taken for the sake of the exercise alone. The effect of mental occupation in enabling persons to perform feats of strength, or to go through great muscular exertion, is matter of common observation; and was remarkably exemplified by Captain Barclay when training T. Cribb.

As closely connected with the subject of exercise, I shall append a few observations relating to those who lead sedentary lives.

Persons who are much occupied in writing, such as barristers, editors of newspapers, and those engaged in

literary pursuits, will do well to have a high desk, at which they should stand to write whenever they are fatigued with sitting. This practice will be found extremely efficacious in preventing those desk-diseases which are incident to such occupations.

The constant use of soft stuffed seats by sedentary persons is one which frequently occasions distressing hæmorrhoidal affections. An excellent sort of seat is one common in France, having a circular hole in the middle; but the best seat is a common open cane chair.

The modes of warming by steam, hot water, and gas-stoves, now becoming prevalent, are decidedly objectionable, especially for rooms and buildings, such as banking-houses, &c. in which the sedentary are employed. They do not in any way assist ventilation; so that the air of buildings in which they are used is likely to be less pure and wholesome than where fires in open stoves are the means of diffusing heat. These objections are of course applicable with much greater force to stoves in which substances producing deleterious gases, such as carbonic acid, are used. However small a proportion the unwholesome gas may bear to the atmospheric air, it cannot fail to affect persons with weak lungs; even those in perfect health must suffer, though to a less extent.

We now come to consider the important subject of the effect of mental labour and excitement upon the health.

By mental labour is of course meant the exercise of the intellectual faculties.

By mental excitement is meant the undue activity of the passions.

It must be recollected that the states of the mind affect the body through the brain, which alone (and not the mind itself) is liable to disease.

Mental labour or excitement may injure the health in

two ways. 1st, By depriving the body of that cerebral influence which is essential to the carrying on of function, or by vitiating it. 2d, By inducing disease in the brain itself, which it probably does by concentrating upon that organ the nervous energy which ought to be diffused over the whole body.

I shall first point out those kinds of excessive mental labour which are most prevalent in this country, and those habits which contribute most largely to the production of mental excitement; and then consider the two classes of disease just enumerated.

The present age may be termed the commercial era. The spirit of trade prevails over the whole community, to the exclusion of almost every other feeling, and brings into subordination to itself the few feelings that it admits to take possession for a time of the minds of our countrymen. The loftiest sentiments of the soul, destined to rule therein, and to control and guide all the inferior powers of our nature, are often made subject to the low, the debasing love of gain. This state of society may be one through which it is necessary we should pass in our progress towards a higher civilisation; but it is one, notwithstanding, which, inflicting as it does so many evils, both moral and physical, upon those who are in it, it is the duty of every one, to the extent of his power, to endeavour to correct. It is for me to point out its physical evils.

Thousands—I might say millions—of our countrymen devote all their energies, bodily and mental, to the one concern of money-getting. Early and late they pursue their object; they engage in endless schemes for the increase of their wealth; their minds are perpetually on the rack; not a day passes without intense mental labour and excitement: health is neglected, and present comfort despised, that they may the more uninterruptedly pursue

their plans of aggrandisement.* The innumerable speculations that are daily starting up, and the avidity, the blind eagerness, with which they are entered into, are abundant evidence that this picture is not overdrawn. Who can enumerate the various associations for the carrying out of all imaginable projects, which occupy so large a portion of the attention of the legislature; each of which promises to its promoters the speedy realisation of that after which all men seem to be striving—wealth? This, then, is the first and most widely operating cause of mental labour and excitement.

But there is a class of men, many of whom err in the opposite extreme of total disregard of pecuniary considerations, who yet disobey the laws of the animal economy as entirely as do those just mentioned. They are men striving after fame, or actuated by the nobler motive of advancing the cause of human happiness: men who spend their days and nights in the acquisition of knowledge—

* “Of the causes of disease, anxiety of mind is one of the most frequent and important. When we walk the streets of large commercial towns, we can scarcely fail to remark the hurried gait and care-worn features of the well-dressed passengers. Some young men, indeed, we may see, with countenances possessing natural cheerfulness and colour; but these appearances rarely survive the age of manhood. Cuvier closes an eloquent description of animal existence and change with the conclusion that ‘life is a state of force.’ What he would urge in a physical view, we may more strongly urge in a moral. Civilisation has changed our character of mind as well as of body. We live in a state of unnatural excitement; unnatural because it is partial, irregular, and excessive. Our muscles waste for *want* of action; our nervous system is worn out by *excess* of action. Vital energy is drawn from the operations for which nature designed it, and devoted to operations which nature never contemplated.”—

who task their faculties to the utmost in their disinterested search after truth, and in communicating the results of their inquiries to the world. How many noble souls are there at this moment in our land, ever active, ever on the alert, ever labouring, and ever excited! —souls which scorn the acquisition of wealth, and are always devising plans by which they may gain credit for themselves, or confer on their fellow-men some new benefit! In our venerable halls of learning, in the crowded city, and in the solitary country, such men abound; but though their aim is far superior to that of the great body of mankind, the physical evils which result from their injudicious pursuit of it are not on that account less numerous or severe.

The causes of disease just referred to, are habits of mental labour, and of excitement produced by, or necessarily connected with, that labour. The following are chiefly habits of excitement: viz. indulgence in political discussions—in religious excitement and emotion—in gambling—and generally the immoderate indulgence of the passions.

It is not necessary for me to enter into any detailed statements respecting these causes of mental excitement. They all agree in this, that their effect upon the brain and nervous system is to excite and stimulate them to the utmost: it makes no difference whether the subject that engrosses the attention, and arouses the feelings and passions, be the jarring interests of party, or the joyful anticipations or dread forebodings of a future state—whether men are agitated by their lowest passions, or by their highest conceptions and aspirations—by hope or by fear*

* It is a curious fact, that during the South Sea scheme more persons lost their senses by the sudden acquisition of great wealth, than by the loss of it.

—the physical consequence is the same in kind, and differs in degree only according to the vehemence of the passion which produces it.*

As politics, however, are one of the leading causes of excitement at the present day in this country, I may be excused for referring somewhat more at large to them. It is strange that this subject should excite immoderately many men who display comparatively little anxiety about those private affairs which one would think (without attempting to undervalue the importance of politics) bear a far more direct relation to their well-being. How many hot-headed persons are there, who are in a state of constant excitement upon matters of the most trifling moment—who throw themselves into a fever in discussing a subject which concerns no one! The *media via* of politics, neither indifference nor partisanship, is the best, both for the health of individuals and for the general good. It is to be regretted that men, while striving, as they imagine, to promote the prosperity of their country, should so much injure their own happiness. “Politics,” says the Rev. Mr. Fletcher,

* The passion of love deserves to be particularised, as being the most universally experienced, and as having the greatest tendency to excess, in which state it produces the worst of maladies. Disappointment in love is one of the principal causes of suicide; and this fact clearly proves the deranging effect of the passion upon the mental faculties. The progress of the disease, of which excessive love is productive, may be thus described: as the force of love prevails, sighs grow deeper, a tremor affects the heart and pulse, the countenance is alternately pale and red, the voice is suppressed in the fauces, the eyes grow dim, cold sweats break out, sleep absents itself at least until the morning, the secretions become disturbed, and a loss of appetite, a hectic fever, melancholy, or perhaps madness, if not death, constitute the sad catastrophe.

“are at best an evil, though apparently, in the present condition of society, a necessary one: well, therefore, would it be for us if, in our promotion of the general good, we prudently kept within the limits of the necessity; but, alas! we suffer our prejudices to run riot with our judgment, and convert that into a curse which might otherwise partake of the nature of a blessing.”* When we recollect that political dissensions have frequently been the causes of war, even of civil war—one of the most tremendous evils to which mankind is liable—equally destructive to mind and body, involving both in one common ruin—surely the vehemence of party-feeling should be moderated; and since we all profess to be actuated by a desire for the general good, let us endeavour to promote it by good-will and kindness towards one another, recollecting that we frustrate our own objects if we introduce disunion and dissension into our country, inasmuch as no nation can become great unless it is united. “Every kingdom divided against itself is brought to desolation; and every city or house divided against itself shall not stand.”

There is another state of mind which must be particularly noticed, since it cannot properly be said to be included in any one of those I have enumerated: it is that uneasy, discontented temper which causes men to vex and fret themselves at those petty occurrences which ought not to give the least annoyance. There are persons who seem to be always on the look-out for events that may afford them some excuse for expressions of anger and passion; who are unhappy when they have no opportunity for finding fault; and who, when there is nothing of the kind in their own affairs, pry into those of others, for the purpose of discovering incentives to their ill-humour. It is of no avail to tell such persons that they cannot, by thus brooding

* Peace, not Party; recently published.

over their misfortunes, as they term whatever displeases them, remove or alleviate them : they desire to do neither the one nor the other. Their perverted minds feel a pleasure in giving utterance to the restless thoughts by which they are agitated.

An anecdote lately told me affords a very good illustration of this wretched class of individuals. A lady rented a cottage of a friend, who some time after she had taken possession, called to inquire how she did ; she replied, that she should be very comfortable if she had not so much rent to pay : he at once consented to reduce it one-half. Next year he again paid her a visit, and found her still discontented ; she said she was not much better off than before : as he was desirous to render her comfortable, he again reduced the rent a fourth of its original amount. On a subsequent visit the same complaints were uttered ; and her generous friend consented to let her occupy the cottage rent free. But even this was insufficient to make her contented. When her landlord again called on her, expecting to find her now quite comfortable, she undeceived him by saying she was very miserable because she could get no rest on account of the incessant noise made by his troublesome peacock on her wall !

There is another class of persons, who, possessed of whatever is necessary for present enjoyment, are yet rendered constantly unhappy by their anxiety about the future ; who ruin their health, and destroy their happiness, by indulging in gloomy forebodings of coming evils. Such persons forget that they cannot by so doing avert any misfortune ; that the true art of living is, to be contented and thankful for the means of happiness now at their command, and to be hopeful and trustful as regards the future.

This state of continual exacerbation and irritation is more fatal to longevity and happiness than almost any

other form of mental excitement ; and it is one exceedingly common.*

The last habit I shall mention as tending to produce mental excitement, is that of drinking intoxicating liquors ; the effect of which, as we have seen, is directly upon the brain and nervous system, and through them upon the mind. Ardent spirits are often resorted to by persons whose minds are in a state of excitement from other causes ; they invariably augment the excitement, and frequently render it fatal.

Before proceeding to expound the effects upon health of these various states of mind, it will be useful again to advert to the functions of the brain, and to give some examples of them.

The brain is the organ of the mind—the organ which is exercised whenever an intellectual act is performed, or a sensation or sentiment experienced. It is also the chief of those bodies from which proceeds the nervous fluid ; a due supply of which is as necessary to the carrying on of function as the blood—necessary to the carrying on of the function of the brain itself, as well as of every other organ of the body.

That the condition of the mind has a most important influence upon the nervous fluid, either in respect to its quantity or its quality, or to both, is a point that appears to be completely settled by such cases as the following, which are by no means of rare occurrence.

An individual hears unexpectedly that some great

* Mr. Abernethy says, “ the state of men’s minds is another grand cause of their complicated maladies. Many people fidget and discontent themselves about what cannot be helped : and as passions of all kinds—especially malignant passions—pressing upon the mind, disturb the cerebral action, they necessarily do themselves much harm.”

calamity has befallen him—that a dear friend is dead—or that his affairs are ruined;—in an instant he becomes paralytic—loses all power over one or more of his limbs, or even over the whole of his body. How is this? His muscles and bones remain unchanged, but he is no longer capable of setting them in motion—the stimulus by which his mind directed them is gone, and with it his power over them; and although he may after a time appear to recover from the shock, yet the injury inflicted by it upon the vital functions is too extensive and deep ever to be wholly remedied,—and its victim is generally hurried to his grave long before his time.

The same cause operates, though less strongly, when a person about to partake with a strong appetite of a repast, receives unwelcome news—he turns away with disgust from the food he would a moment before have relished, having lost all sense of hunger.

It is well known that the depressing emotions of fear, despair, &c. produce a liability to disease in circumstances otherwise harmless. For example, persons who entertain great apprehension of the cholera are very likely to be seized by it; and it is the same with other diseases. Sir George Ballingall, in his valuable work on Military Surgery, states that about 5 per cent is the usual proportion of sick in garrison, healthily and favourably situated; while during a campaign it is 10 per cent. But such are the beneficial effects of success and cheerfulness, that in the French army, after the battle of Austerlitz, there were only 100 invalids in a division of 8000, or only one in 80.

Having thus sufficiently proved the influence of the mind upon the health, I proceed to point out the injuries resulting from the various forms of excessive mental labour and excitement.

Innumerable have been the attempts to discover the seat of the soul, which some have supposed to be in the

pineal gland, others in the corpus callosum, others in the cerebrum, and some in the cerebellum. If those who have devoted their energies to the solution of this question, which after all is of a purely speculative character, had spent but a tithe of their labours in the inquiry after the principal seat of disease, the world would have profited much more by their exertions. If it be in any one part more than another, I am inclined to think that part is the semilunar ganglion and solar plexus, situated near the stomach, in connexion with the great sympathetic nerve and its ganglia—parts which exercise a leading influence on all the organs of the body, particularly on the ear and eye, and which are supposed to be indispensable to secretion, nutrition, and circulation, and to be the source of a multitude of diseases.*

The connexion between the brain and the stomach is of the most intimate kind; hence the latter organ is sure to be implicated in any disturbance of the functions of the former. Mr. Abernethy, in his Lectures on Anatomy, Surgery, and Pathology, says, “there is no hurt of the head that does not affect the digestive organs.” A severe blow on the head is generally followed by vomiting and sickness: and, as already noticed, a sudden mental shock at once takes away the appetite and weakens the stomach. It is not surprising, therefore, that dyspepsia (frequently

* In the last edition of my Treatise on the Ear, I have, by means of engravings, shewn the organs of sensation, with the distribution of their nerves from their origin to their termination, and also the great sympathetic nerve (which going to most of the vital organs, sends off nervous filaments to the stomach likewise), exhibiting the semilunar ganglion and solar plexus, and their connexion with the organs of sight and hearing; many obscure diseases of which arise from derangements of the stomach and its nerves.

bringing on gout) should be one of the most common forms of disease occasioned by undue excitement of the mind; nor that some persons should be inclined to refer to the brain as the primary seat of most gastric complaints, and to ascribe but little comparative importance to diet.

The greater number of persons afflicted with dyspepsia are to be found among care-worn speculators, stock-brokers, and ardent students, or among those whose nervous system has by injudicious education been too greatly developed, and rendered readily excitable. "The expenditure of nervous influence in intense study or professional business," says Dr. Billing, "especially if anxiety be combined, withdraws so much of it as to diminish the energy of the digestive organs; and in this way the cares of business become the fruitful source of indigestion and gout, particularly if, as in great cities, perpetual feasting add to the labours of the stomach."* Most persons begin to be troubled with indigestion about the age of five and forty, when they discover that things which they might formerly have eaten with impunity now derange the stomach, unless they are careful and moderate. There can be no doubt that sedentary habits concur with mental excitement in producing dyspepsia; exercise derives much of its utility in these cases by determining the blood from the head to the extremities.

The numerous evils that flow from dyspepsia, that is, from imperfect nutrition, no one who has attentively read this book will be at a loss to perceive. An inadequate supply of blood must necessarily produce weakness in the whole body; and the brain itself, the original source of the malady, is not exempt from the disease to which it gives rise.

So long as excessive mental excitement is kept up,

* First Principles of Medicine, p. 73.

little relief can be obtained by the strictest attention to dietetics. Abstinence from mental toil, cheerful company, a country excursion, and relaxation of mind, will soon accomplish a cure where all the dietetic precepts and medicines in the world would prove inefficacious. It is now pretty generally admitted, that the use of purgatives in bilious or dyspeptic cases aggravates the evil it is intended to remove. It is still, however, very prevalent, and is likely to continue popular.

It is well known that persons in good health, of sound digestive organs, who take plenty of exercise, and are free from anxiety, may eat almost any thing, in quantities which would kill those in different circumstances. In reference to this point Dr. Brigham observes :

“ We do not find dyspepsia prevalent in countries where the people eat most enormously. Travellers in Siberia say, that the people there often eat forty pounds of food in one day. Admiral Saritchoff saw a Siberian eat, immediately after breakfast, twenty-five pounds of boiled rice, with three pounds of butter. But dyspepsia is not a common disease in Siberia. We do not learn from Captain Parry, or Captain Lyon, that their friends the Esquimaux are very nervous and dyspeptic, though they individually eat ten or twelve pounds of solid food in a day, washing it down with a gallon or so of train oil. Captain Lyon was, to be sure, a little concerned for a delicate young-lady Esquimaux, who ate his candles, wicks and all ; yet he does not allude to her inability to digest them.”

Another form which disease, occasioned by intense study and excitement, sometimes assumes, is violent fever. The whole nervous system is affected, and, by too powerfully stimulating the heart and the entire circulation, induces inflammatory action. Of this there is a striking

instance in Dr. Paris's Life of Sir Humphry Davy, who, in 1807, was reduced to the brink of the grave by the long-continued exertion and excitement attendant upon his discovery of the alkaline metals.

When such excitement is permanent, it often produces organic disease of the heart.

We have now to consider the diseases of the brain itself, arising from the various causes already detailed, and from the following *physical* causes, viz. injuries of the head, fever, suppressed evacuations, and intemperance. These diseases are displayed in the form of mental aberrations, which may be divided into the two classes of hypochondriasis and insanity.

Hypochondriasis is described by M. Andral as follows: "The love of one's self, when exaggerated, proceeds to extreme attachment to life, and consequently to fear and horror of death. This is the first form of hypochondriasis; but there is a second, which arises from the diminution of the sentiment of self-love, and thence results suicidal monomania.

"Hypochondriacs imagine themselves affected with diseases which they have not; or if they have them, they exaggerate in their imaginations the extent to which they are so affected. A longer or shorter term after the invasion of the disease, the organs which are the seat of the real or pretended pains may become physically deranged."

It appears, however, that hypochondriasis, though sometimes occasioned by excessive mental exertion, is more frequently the result of a sudden alteration in mental habits. M. Andral says, speaking of the causes, "We must place in the front rank the change in the functions of the brain which is produced by the substitution of a life of inactivity for one of occupation and mental exertion: next comes deficiency in the exercise of sensibility and move-

ment—in a word, the abrupt cessation of the physical and moral habits. In this way we easily explain the hypochondriasis with which men of business are affected when they get rich enough to retire. It may happen that an individual may always have led such a life as never to have had his functions properly exercised: the brain cannot then attend sufficiently to external objects, but is exclusively occupied with the individual himself. Thus too sudden or complete a degree of isolation may produce hypochondriasis. Persons may be placed in circumstances which deprive them of the requisite portion of wants and desires, &c.; in consequence of which they become hypochondriacal, as we see among the rich.”*

Although my chief object is to point out the dangers of too great mental activity, yet I have quoted the above passage for the purpose of shewing that exercise is necessary to the preservation of the brain, as well as of every other organ; and that, while excessive exertion is highly injurious, total inactivity is hardly less so. The duly regulated exercise of the mind is as essential to the health of the brain, as the exercise of the limbs is to that of the muscles: healthy exercise consists in calling into moderate action *all* the faculties of the mind: the continual contemplation of one subject, by exerting a few faculties only,

* For these interesting extracts, I am indebted to the London Medical Gazette, in which a translation of the learned professor's lecture is printed.

The case of Miss Bagster is a striking example of the debilitating effects of great mental dependence and inaction; in this instance they were so remarkable as to give occasion to a verdict of lunacy. Such a case as this strongly illustrates the necessity for a well-directed moral and intellectual education; and the folly of those who, from an injudicious indulgence of the young, suffer them to grow up untrained and unrestrained.

leaving the others unemployed, is one of the most likely means of producing hypochondriasis.

These considerations are sufficient to prove that long-continued retirement from the world, and from the society of our fellow-men, is not the sphere for which we are destined. In such a condition there is nothing to exercise those social feelings which we possess, nor are there many calls upon our intellectual powers; hence it might *à priori* be expected to give rise to hypochondriasis. We need not be surprised, therefore, when we are informed that the monks in primitive times, whose lives were consumed in penance and solitude, were sometimes relieved from the painful struggles of disease and despair by madness or death; and that many of them committed suicide.*

But while the want of objects on which to exercise the mind appears to be the chief cause of hypochondriasis, the undue excitement of the passions is in most cases the origin of the sentiment opposed to the love of life and of its preservation, which is denominated "suicidal monomania."

M. Andral states, that from a table formed by M. Falret of the suicides which took place in France between 1797 and 1823, the following results appear: Of 6782 cases, 254 were from disappointed love; 92 were from jealousy; 125 from the chagrin produced by having been calumniated; 49 from the desire, without the means, of vindicating their characters; 122 from disappointed ambition; 322 from reverses of fortune; 16 from wounded vanity; 155 from gambling; 287 from crime and remorse; 728 from domestic

* Gibbon, Decline and Fall, chap. 37. Pinel, on examining the registers of the Bicêtre, found inscribed in them a great many monks and priests, a considerable number of country people, advocates, and attorneys; but not the name of a single person accustomed to the habitual exercise of his intellectual faculties.

distress ; 905 from poverty ; 16 from fanaticism. In towns the cases are much more frequent than in the country, where indeed very few are met with ; this may be easily understood, when we consider how much our great cities become theatres in which all the passions are developed.

It is a striking fact, that in France, Germany, and England, the countries that are most distinguished for their intellectual activity, the number of suicides is greater than in any other countries.

When mental disease is limited in its extent, when the perceptions and ideas are deranged only in reference to one or a few subjects, it is termed monomania—a mitigated form of insanity. Speaking of it, Dr. A. T. Thomson says, “ In this form of the disease, when the delirium returns at intervals, instead of running on in the same strain day and night, the paroxysms appear periodically ; at other times the individuals seem reasonable, save when conversing on subjects within the sphere of their delirium ; and it is in vain to endeavour to perceive their insanity, unless we accidentally, or intentionally (if we are aware of the subject of their delusion) touch upon the chord of the mind which is unstrung. In many instances, however, this species of the disease is connected with the same irregular, often - desponding condition of mind which exists in moral insanity.”

We come now to the subject of insanity.

Leaving out of view, for the present, the numerous cases of insanity arising from hereditary predisposition (and this predisposition must have had its origin in the ill-regulated minds of persons in previous generations), and those occasioned by physical causes, the only remaining cause of that fearful disease is excessive mental toil and excitement. It is by far most prevalent in those countries where there is the greatest freedom of institutions, the most commercial enterprise, and the highest intellectual activity. Accord-

ing to the most recent estimates, for which we are indebted to the industry of M. Brière de Boismont, there is in

Spain, one insane person in	-	7181
Italy	- - - - -	4879
Holland	- - - - -	1046
Belgium	- - - - -	1014
France	- - - - -	1000
England	- - - - -	783
State of New York	- - - - -	721
Scotland	- - - - -	563
Norway	- - - - -	551

The inferences deducible from this table are strongly confirmed by the following, compiled by the same gentleman. Of the population of

Cairo, there is one lunatic in	-	30,714
Madrid	- - - - -	3,350
St. Petersburg	- - - - -	3,133
Naples	- - - - -	759
Rome	- - - - -	481
Dresden	- - - - -	466
Turin	- - - - -	344
Florence	- - - - -	338
Milan	- - - - -	242
Paris	- - - - -	222
London	- - - - -	200

These tables, however, it is evident, must be regarded as approximations only to correctness. It is obviously impossible to ascertain, with as much accuracy, the number of the insane in Cairo as in London; the calculation in regard to these two extremes certainly does not wear the appearance of probability; yet there can be little doubt that the general results indicated by these tables are in accordance with fact.

Respecting the United States, our information on this subject is exceedingly imperfect and scanty: in only a few

States has any attempt been made to ascertain the number of the insane; and the returns from them are far from being perfect. According, however, to reports made for the States of New York, Connecticut, Massachusetts, New Hampshire, and Vermont, the average proportion of insane and idiots is one in about 500, which is supposed to be considerably less than the true one; but as there is no country in which complete accounts of the number of the insane are extant, it will serve for the purpose of comparison with other nations.

“Travellers inform us that madness is an uncommon disease in Russia, and that it prevails more in the large towns than among the peasantry. The inhabitants of China appear to be nearly exempt from this disease. Dr. Scott, who accompanied Lord Macartney in his embassy to that country, heard of only one instance. It is uncommon in Persia, Hindostan, and Turkey. Dr. Madden, in his travels in Turkey, after remarking that, in countries where the intellect is most cultivated, there insanity is most frequent, adds, ‘there is no nation where madness is so rare as in Turkey, where the people of all others think the least.’”*

All travellers concur in stating that insanity is almost unknown in savage and barbarous nations; and it appears to be nearly as rare among negro slaves in the West Indies and America. It is evident, therefore, that mental excitement must be regarded as the ultimate cause of by far the larger number of the cases of insanity that occur among us; and since this disease is often so deeply implanted as to affect a long line of descendants, such excitement ought to be most carefully guarded against.

The agitation of any great political measure, the excitement of revolutions and changes, are invariably fol-

* North American Review, No. 94.

lowed by numerous cases of insanity. Esquirol says it was frightfully increased during the first French Revolution; that even women, strongly affected by the events of that exciting time, bore children whom the slightest cause rendered insane. "So great," he in another place says, "has been the influence of our political commotions, that I could give the history of France from the taking of the Bastille to the last appearance of Buonaparte, by that of the insane in the hospitals, whose delusions related to the different events of that long period of history."

From the tables prepared at the office of the Poor-Law Commissioners, lately published, which shew the number of pauper lunatics and idiots in England and Wales, it would appear, however, that mental inactivity is more injurious to intellectual health than the excitement to which persons living in towns and manufacturing districts are necessarily exposed.

The following is a statistical account of lunacy and crime in an agricultural and manufacturing district.

The total number of pauper lunatics and idiots in England is 12,668, of whom 6,044 are lunatics, and 6,624 idiots; being in the proportion of 1 to 1,038 of the total population of England, and of 1 to 807 of Wales; of lunatics solely, the proportion is 1 in 2,166 in England, and 1 in 2,252 in Wales; of idiots solely, the proportion is 1 in 1,976 in England, and 1 in 1,258 in Wales.

For the purpose of instituting a comparison on this point between the agricultural and manufacturing population of our country, the seven counties having the largest proportion of the former, namely, Bedford, Bucks, Essex, Huntingdon, Hereford, Lincoln, and Suffolk, have been taken, and the county of Lancashire is selected as the representative of the manufacturing districts, only $9\frac{1}{2}$ per cent of its inhabitants being engaged in agriculture. The total population of the seven agricultural counties is

1,337,704, that of Lancashire is 1,336,854 ; the difference being only 850.

It has been seen that the proportion of lunatics and idiots to the total population of England is as 1 to 1,038 ; but in the above agricultural counties it is as 1 to 872, and in Lancashire only as 1 to 1,790. The proportion is as 224 to 100, or more than 2 to 1.

Separating lunatics from idiots, the number of lunatics in Lancashire is greater than that of idiots ; in the agricultural districts the reverse is the case, the proportion in the former being 100 idiots to 143 lunatics ; in the latter 174 idiots to 100 lunatics.

The general results of these facts may be thus stated : both lunacy and idiocy are more prevalent amongst the agricultural than the manufacturing population ; lunacy is the prevailing type of mental derangement amongst the latter, and idiocy amongst the former. Idiocy may be regarded as arising out of a lower average intellectual status of the population than lunacy, the latter being the unhappy concomitant of luxury and high civilisation.

It is clear from these statements, that in this country at least, the diffusion of education, and the increase of intelligence, so far from operating unfavourably upon the mental condition, tends powerfully to secure it from disease ; and thus we have an additional argument (if that were needed) in favour of both. The publication of the documents to which we are indebted for this valuable information was opportune. Occasion had been taken to prejudice the cause of national education, from the opinion of physiologists that mental derangement becomes more prevalent as knowledge and intelligence are more widely spread ; an opinion the correctness of which cannot be denied, if limited to the comparison of barbarous with civilised nations : but no one, I suppose, would wish that the human race should retrograde into barbarism, in order that

it might be free from insanity : yet any step short of this would be wholly unavailing ; for when once the great body of the people has emerged from this state, and has made any advances in knowledge, the increase of that knowledge, the elevation of their moral and intellectual nature, is directly conducive to mental health and vigour.

It is the general opinion of persons who have paid attention to the subject, that insanity is on the increase in those countries where it is already most common : this is exceedingly probable, since it is a malady more frequently transmitted than perhaps any other ; and the sources of excitement are by no means becoming fewer, or less extensive in their operation.* Persons who inherit a predisposition to this dire disease have, of course, more to fear from excitement than others ; they ought to be studiously careful to avoid whatever may tend to rouse their passions, or require great mental exertion.

And here I may revert to a subject into which I have already entered at some length—the effect of early mental culture. If, as we have seen, whatever unduly excites the mind has a tendency to produce insanity—and if the excitability depends greatly upon the condition of the nervous system, it must be evident that the premature development of the brain,—which, as I have elsewhere shewn, weakens and renders it highly irritable, and which is almost universal in America, and is by far too common in this country,—must largely contribute to the spread of insanity. The training of the young, however, ought not to consist in merely allowing the mental faculties to develop gradually—it must be of a positive kind, and be directed in the first years of life to the due regulation of

* According to a late report of the Middlesex Lunatic Asylum at Hanwell, it appears that the number of patients in that excellent establishment was 611.

the passions. In Dr. Pritchard's Treatise on Insanity, he makes the following excellent remarks on education: "There are two different points of view under which the injurious effects of wrong education may be considered. By too great indulgence, and a want of moral discipline, the passions acquire greater power, and a character is formed subject to caprice and to violent emotions: a predisposition to insanity is thus laid in the temper and moral affections of the individual. The exciting causes of madness have greater influence on persons of such habits than on those whose feelings are regulated. An over-strained and premature exercise of the intellectual powers is likewise a fault of education which predisposes to insanity, as it does also to other diseases of the brain."

Before I quit the subject of mental excitement, I will make a few observations on one cause of that evil which I have not yet mentioned:—the improper choice of professions.

Parents and friends too often forget, that in determining the future pursuits of the young under their care, it is not enough that a profession is respectable or lucrative, or one in which the youth may be expected to succeed by means of family influence: in addition to these circumstances, they ought to take into account the talents, disposition, and natural bent of the mind of the individual immediately concerned; for if this most important item be omitted in their calculations, the probability is, that if he have any individuality of character, they will seriously mar his happiness, while endeavouring to the utmost of their power to promote it.

What can exceed the wretchedness of the man compelled by such mistaken kindness to engage in a profession requiring the constant exercise of faculties which he possesses in a very limited degree? Scarcely a day passes in which the conviction of his unfitness for the performance

of his duties is not forced painfully upon his mind;—and what deep humiliation must there be in that conviction! what constant anxiety and apprehension of the discovery of his incompetency—and what despair and misery, should the discovery be made!

The injury thus inflicted upon the mind and health is incalculable; and often is the consequence premature death—suicide even.* It is therefore obviously the duty of parents and guardians, previously to fixing the destination of the young, to ascertain, as far as is possible, their fitness for the intended employment. This is by no means so arduous a task as might at first sight be supposed. A few observations may assist in the performance of it.

First, then, every vocation requires for its successful exercise certain physical qualifications—qualifications that may be comparatively unimportant to members of other professions, but essential to those of each particular profession. It might have been supposed that this truth, at least, would not be neglected—inasmuch as no abstruse analysis or patient observation is needed to ascertain, in any given case, whether the requisite physical qualifications are possessed in the necessary measure. Yet we frequently see men whom nature intended for tailors at the anvil, and blacksmiths on the shop-board; persons of active frame and sanguine temperament confined at a sedentary employment; and those whose bodies and minds are formed for quiet, tranquil labours, sent forth to encounter the terrors of the ocean. And often, indeed, in that most fitting place for the exercise of the noblest eloquence, the pulpit, do we find men who, by their

* A striking case of this kind was related a short while ago in the public prints, to the following effect:—A young man, who held a situation in a merchant's counting-house, finding himself incompetent to perform its duties, put an end to his existence!

defective, unharmonious utterance, would deprive of all force the soul-stirring outpourings of a Demosthenes or of a Cicero.

The mental qualifications of an individual may generally be accurately determined by parents and teachers. A little observation will certainly reveal the leading tendencies of his mind, which will be found to indicate his predominant talents or faculties, and ought therefore, as a general rule, to be taken as guides in the choice of a profession. Seldom, however, are they sought for, or, even if they openly manifest themselves, attended to: the considerations that determine an individual's sphere of action are of every kind except the right; and it is not always that the mistakes made by this means end so happily for the subjects of them as in the following case. The anecdote was current in the hospital at Haslar many years ago.

A gentleman having a son, whom his mother had cherished the hope of seeing arrive at distinction in the navy, in compliance with her desire sent him to sea as a midshipman, under the care of a relative. Shortly afterwards an engagement took place; the boy, who was very young, was much terrified, and during the action hid himself in the ship's copper, where he was discovered by the men, who reported him to the officer on duty. As soon as the ship returned home, the admiral dismissed him and sent him to his father; who, instead of reproving him, observed that he had displayed a good deal of cunning; and, though unfit for a sailor, would most likely make an admirable lawyer!

The important influence which the choice of a profession exerts should make parents especially careful to place their offspring in situations for which their temperament and aptitude fit them: to assist them in so doing, I shall subjoin a few brief remarks, shewing the effects of some

of the principal professions upon health, and point out the physical qualifications necessary for, and the precautions to be observed by, those who engage in them.

Naval officers are exposed to great and rapid changes of climate, and to many endemical diseases, such as the yellow fever in the West Indies, and liver-complaints in the East. But those more fearful diseases which were formerly so rife on ship-board, and which arose from ignorance or neglect of the necessary preventive measures, are now, owing to the introduction of a better system of administration, almost unknown; so that there are few professions more favourable to health than that of guiding and controlling the "wooden walls of Old England."

The military profession is one which frequently subjects its members to great and long-continued hardships; and so far it is unfavourable to health. But when in garrison, or not engaged in actual service, soldiers are placed in easy circumstances, and but for the abuse of leisure, might enjoy excellent health. Military officers are often inactive, spending their time in-doors, and living luxuriously. Old officers are generally extremely careful of their health; and, being free from anxiety and care, frequently reach a very great age.

The exposure and vicissitudes incident to service in the Navy and Army render it highly important that those who propose to enter either of these professions should possess a considerable degree of robustness and health. No one is enlisted as a private soldier without first undergoing a strict medical examination; and those who have any infirmity or physical defect, such as deafness or imperfect vision, are at once rejected. It would be well if this rule were adopted in reference to officers as well as privates; certainly it is of far more importance that they should be perfect men, capable of undergoing great hardships, and of bearing up against them. At present it fre-

quently happens that little care is taken by the military authorities to prevent weak and delicate persons from becoming officers; hence it has been remarked, that young officers are often first on the sick-list while engaged in expeditions or on foreign service.*

Persons going out from this country to reside in tropical climes, such as officers in the service of the East India Company, or civilians, are exposed to considerable danger; many valuable lives are lost every year from want of the necessary precautions to prepare the system for encountering the great change of climate. As this is a subject affecting not only this very numerous class, but, to some extent, the members of the naval and military professions also, I shall here state the more important rules for the preservation of health under such circumstances.

Strict temperance is indispensable. As soon as the warm latitudes are reached, the preparatory regimen should be begun; the principal items of which are, abstinence from fermented liquors, and a spare diet. On arriving at places within the tropics, every excess is dangerous; temperance in all things is essential to the health

* The habits of many young officers in this country are not such as to prepare them for hard service. I recollect a subaltern, who, being on the Haslar guard, had sent to him from the barracks a large dressing-case, clean linen, several pair of boots, a military cloak, a foraging-cap, a bottle of lavender-water, a large German pipe, a bundle of cigars, and—a poodle dog! All this paraphernalia was destined for the convenience of its luxurious owner during a quiet service of four-and-twenty hours! His companion on duty, the captain of the guard, an old officer in the garrison battalion, who had seen much service abroad, observed that he should like to see him bivouacked in wet weather in a turnip-field, in an enemy's country!

of persons of every age and sex: great self-denial and abstinence for a while being the best security against illness. To the neglect of these simple precautions, the fearful mortality which so generally prevails among Europeans on reaching the tropics is mainly attributable. Dr. Thomas in his *Modern Practice of Physic* recommends the plethoric and robust, on their approach to the warm latitudes, to be bled in proportion to their strength, and the use of purgatives and emetics. He tells us also, that “the effects of temperance as a prophylactic, are strikingly demonstrated by Dr. Chisholme, who observes, that while the yellow fever raged at the island at Grenada, the French inhabitants, whose mode of living compared with that of the English is temperate and regular in an uncommon degree, were almost totally exempted from the disease.”

Residents in the East or West Indies should be very careful in the choice of the situation of their dwellings: the more elevated, and the further removed from all kinds of water, the better. In such climates, exhalation takes place to an extent of which we can form but little conception; hence the atmosphere in the proximity of stagnant water and swamps is generally loaded with pernicious vapours, producing obstinate intermittent and jungle-fevers, liver-complaints, and putrid diseases. To this cause are in a great measure attributable the fearfully destructive fevers of the African coast, especially the endemic fevers of Sierra Leone, the colony which bears the awful name of “the white man’s grave.”

Those who are compelled to reside near low, marshy places should sleep from them as often as possible, the air being most vitiated at night: for the same reason, all exposure at that time should be avoided. In case of illness, the first measure to be adopted is the removal of the person from such situations into some elevated region,

where the air is pure : this alone is sometimes sufficient to effect a cure.

Exposure to wet or damp is highly dangerous ; and exertion in the sun, or during the heat of the day, not less so. Both these evils are incurred by the practice common with many officers of shooting snipes in the paddy, or rice-fields, which are covered with mud and water : the feet of the sportsmen being kept quite cool, while the upper part of the body is exposed to an Indian sun.

The abundant tiffins, or luncheons, furnished at Indian tables are very unwholesome. The lighter the morning's repast, the better ; especially as dinners in that country are late and luxurious.

By attention to these rules, the danger incurred by visiting the tropics would be much diminished ; and although nothing can entirely ward off the influence of so complete a change of climate as is encountered by natives of countries situated in the temperate zones, in going thither, it would thus be rendered far less destructive to health and life than it is at present.

It is a prevalent error in the East Indies to attribute all maladies to affections of the liver ; hence the almost universal practice of taking large doses of calomel. The ganglionic plexus of nerves of the stomach, which, as I have shewn in my other works, exerts so powerful an influence over every part of the system, is quite as frequently affected as the liver ; in which case the use of mercurry is not only wholly inefficacious, but often induces other diseases : a truth discovered by many persons on their return to this country ; and several examples of which I met with at Cheltenham a short time ago.

The profession of the law in its higher grades is one which demands great and constant mental exertion— which is too often combined with almost total muscular inactivity ; the consequences of which, having been already

sufficiently expounded, need not here be repeated. I would recommend all persons who devote themselves to close study, of whatever kind, to take regular exercise in the open air, on horseback or on foot, two or three hours a-day at the least, to be abstemious in diet, to avoid low desks and soft seats, not to study late at night nor too long at a time, and if the subject of attention be sometimes changed so much the better.

The clerical profession, in its relation to health, has many points of resemblance with that of the law. The lungs of clergymen are frequently injured by excessive exertion, and become the seat of fatal diseases. Persons having delicate lungs should hesitate before they enter any profession requiring great exercise of those organs; and having entered it, should carefully abstain from long or vehement speaking.

The members of the medical profession are exposed to many morbid influences from which other classes of the community are exempt, and in endeavouring to preserve the lives of others, often sacrifice their own: *aliis inserviendo consumuntur, aliis medeudo noxiuntur*. Mr. Thackrah seems to be of opinion, that the mortality among medical students is great; and dissents from Ramazzini, who says, that medical practitioners are comparatively free from ordinary diseases, in consequence of their good exercise, and their hilarity of mind when they go home with their fees in their pockets, "*Dum bene nuuntati, lares suos repetunt.*" Persons designed for this profession should have strong nerves, and a sufficient feeling of self-reliance to enable them to act and think independently. Not only are these qualities necessary to preserve them from the excessive anxiety too often incident to their vocation, but also to render them indifferent to the envy and hostility, both open and concealed, which, should they attain to any eminence, they are sure to encounter from their less fortunate com-

petitors. The man who turns aside to answer every cavilling objection, or to refute every malicious calumny with which he may be assailed, must necessarily pass the greater part of his time in disputes, hurtful both to his health and his prospects, with opponents who do not deserve the distinction of being noticed, and whose fittest punishment is contempt. Those who enter this profession should also be persons of somewhat robust frames and strong constitutions; since there can be no doubt that it is one requiring great bodily as well as mental exertion.

The musical profession, in its two departments, vocal and instrumental, is one which, in this country at least, is unfavourable to longevity. Its members are subjected to many unhealthy influences, and in particular to great anxiety and care, from the caprice and whims of their hearers. "Singers and persons who play much on wind-instruments are subject to pains in the chest, diseases of the larynx, œdema of the glottis, pulmonary emphysema, and spitting of blood."*

From the latter class of evils performers on stringed instruments are in a great measure free; and it is no unusual sight to see grey-headed veterans gaily pursuing their harmonious vocation. For instance, Mr. Lindley (the incomparable violoncellist) and Dragonetti (the able performer on the double bass) are both elderly men; while Mr. Nicholson, the late celebrated flute-player, died a short time ago at a comparatively early age.†

* Thackrah, p. 174.

† There have been, I am informed, several instances of performers on wind-instruments attaining a considerable age; but these are exceptions. It must also be recollected, that there is a wide difference between concert-players, whose exertions are only occasional, and musicians in a military brass band, for instance, who perform every day.

Vocalists are frequently afflicted by the nervous affection called *globus hystericus*, which completely prevents utterance. This affection, like all other nervous ones, may often be avoided by attention to the general health, and by abstaining from excesses of every kind.*

No occupation, perhaps, is more conducive to health than that of commercial travellers. They have abundant exercise in the open air, and live in plenty; and but for occasional free indulgence in fermented liquors, they might generally attain old age. In this respect, however, there has been much improvement within the last few years; the account which Mr. Thackrah has given of this respectable class is certainly not *now* applicable to them. Formerly it was no unusual thing for some of them to take twenty glasses of spirits-and-water in a day; but they are now, as a body, temperate, abstemious, intelligent, and well-informed. Although some of them are occasionally *deaf*, yet, for the most part, they have their *eyes* wide open.

But it is time to return from this digression to the subject from which it has led us.

Having shewn the bad effects of mental excitement, it may add to the force of those statements to point out the beneficial effects of mental tranquillity and relaxation.

I have in the foregoing pages more than once noticed the healthful influence of a cheerful, well-regulated frame

* The musical profession is often accused of unwillingness to devote their services occasionally to the cause of charity; but this accusation is by no means well founded. On several occasions many of its most distinguished members, both Foreign and English—among whom I may mention the inimitable Paganini—have gratuitously performed for the Royal Dispensary for Diseases of the Ear; which indeed may be thought to have a peculiar claim upon them, inasmuch as the object of its care is the organ whose office it is to convey to the mind the perceptions of harmony.

of mind upon the various functions of the economy ; this is owing to the quality of the nervous fluid, which is, as we have seen, so much dependent on the mental state. If, then, this frame of mind be habitual—if no violent passions disturb its serenity—if it be free from the vexatious cares of public life and of party—it must conduce to lengthen life, and to promote human happiness.

I may refer to the Society of Friends as a proof of the truth of these assertions. As a body, they are temperate and industrious, quiet and unobtrusive ; their lives appear to flow on in a calm, unruffled stream, and are consequently of longer duration than those of any other extensive class of the community ; as appears from the annexed statement, which was published a year or two ago.

“Inquiry has been made by the Society of Friends throughout England as to the average length of life of persons belonging to their Society, as compared with that of other individuals. The result is in general highly favourable to the superior longevity of Quakers ; but in Chesterfield particularly so, as the following plainly shews: the good effects of living with temperance and frugality could not be more clearly demonstrated. United ages of 100 successive burials in Chesterfield churchyard, ending 16th November, 1834, 2516 years 6 months ; which gives an average of 25 years 2 months : two of these persons reached the age of 80 and upwards ; and 12 reached the age of 70 and upwards. United ages of 100 successive burials of members of the Society of Friends in Chesterfield monthly meeting, ending 27th November, 1834, 4790 years 7 months ; which gives an average of 47 years 10 months : 19 reached the age of 80 and upwards, and 30 reached the age of 70 and upwards.” So that, in this particular locality at least, the proportion is nearly two to one in favour of the Quakers.*

* The author's relatives were all Quakers. When he was

Many persons will doubtless be ready to exclaim, that it is impossible to preserve a state of equanimity amid the bustle of business and the contentions of society. There is truth in the objection; I am far from thinking that, as society is at present constituted, men can place themselves in strict conformity to the laws of nature. Still, there is much unnecessary agitation and excitement; and by pointing out their evils, I shall perhaps induce some persons to reduce them to their minimum amount.

As an antidote to the residuum, I earnestly recommend frequent mental relaxation, and a participation in innocent pleasures. A short trip into the country, even for a single day, is exceedingly beneficial, by diverting the mind from the ordinary objects of contemplation, and removing from it for a time that load of anxious cares, which, if suffered too long to remain, destroys its elasticity. At least once a-year a jaunt of a week or two should if possible be taken by every one; the communications by land and water to every part of this country are now so abundant and so economical, that there are few indeed who could not afford it if they wished; in the end such expenditure would probably be the means of saving a larger sum, by improving the health, and enabling men to engage in the various occupations of life with greater energy. For a few pounds a person may visit the lakes of Cumberland and Westmorland, the mountains and lochs of Scotland, or the picturesque scenes which abound in the Emerald Isle, and inhale strength and vigour from the ocean's breeze; he may store his mind with the recollection of the beauties of nature, and of the various pleasing occurrences that befel him while absent from home; and in the midst of the crowded city, and of pressing occupations,

twelve years old, he had living, and in good health, two grandfathers, two grandmothers, his mother, and his father the late Dr. John Curtis, who died not long since at an advanced age.

he may often relieve and amuse his harassed mind by the contemplation of these intellectual images.

A visit to a watering-place offers so many charms and advantages to those who are confined in towns during the greater part of the year, and who have but a limited respite from the toils and cares of business, that the vast majority of such persons prefer it to any other mode of spending their leisure. There can be no doubt that they act wisely in so doing; but some directions will be found useful in guiding them and others to the proper choice of watering-places, which is a matter of much importance. I would here notice the fact, that many persons go year after year to the same place—Margate, Ramsgate, or Brighton—never changing their route or destination; a plan which considerably diminishes the benefit that might be derived from their trips. Change of scene and novelty are admitted to be the best restoratives for those who are suffering from mental excitement of any kind, and are therefore always to be desired. Margate, Ramsgate, and Brighton, are towns which undoubtedly deserve the popularity they have acquired; but there is no reason why they should be the only places of resort: I therefore subjoin a brief account of several other watering places, for the information of my readers.

SOUTHAMPTON, equally fitted for health and pleasure, occupies a kind of peninsula, the soil of which is a hard gravel; and as the buildings rise from the water with a gentle ascent, the streets are always clean and dry. The beauty of the neighbouring scenery, the interesting remains of antiquity which adorn the town, and the busy lively stir of the port, render Southampton a most delightful place to visit. It contains botanic spa gardens, a picture-gallery and philosophical institution, and numerous places of amusement. The baths, both warm and cold, are spacious and commodious.

The ISLE OF WIGHT has deservedly gained the name of "the garden of England." The face of the country presents all the features of picturesque scenery—woods, rocks, hills, rivers, and vales. The climate is peculiarly favourable to vegetation, and is equally propitious to health. Such is the genial mildness of the air, that myrtles, which love a soft marine exposure, grow here and flourish, without being injured by the severity of winter.

WEYMOUTH stands on the north side of the river Wey in Dorsetshire. Being sheltered by the surrounding hills, possessing a salubrious air, a fine beach of sand, and a calm bay, forming a semicircle of more than two miles, it is extremely well adapted for those who desire to recruit their health; and as a bathing-place is perhaps unparalleled.

TORQUAY, situated on the southern coast of Devonshire, lies in a retired cove looking into Torbay, and has become a well-frequented watering place, being much resorted to by winter visitants on account of the mildness as well as salubrity of its air. It possesses good hotels and lodging-houses in abundance, a library, reading-room, and warm baths, all combining to render this a desirable residence for invalids.

TEIGNMOUTH, a few miles to the north of Torquay, and fifteen miles from Exeter, is celebrated for its balmy atmosphere, which is so temperate that the geranium and the hydrangea grow there without shelter. The beach, composed of smooth sand with occasional layers of small pebbles, gradually slopes to the sea, which is generally clear and clean.

EXMOUTH, SIDMOUTH, and several other towns on the Devonshire coast, are well deserving of a visit.

TENBY, SWANSEA, and ABERYSTWYTH, on the Welsh coast, have of late years become favourite places of resort, and they are well calculated to produce beneficial effects on the health.

YARMOUTH, CROMER, LOWESTOFF, and ALDBOROUGH, on the Norfolk and Suffolk coast, are places favourably situated for sea-bathing.

SCARBOROUGH, on the Yorkshire coast, possesses the two-fold attraction of mineral springs and sea-bathing, for the latter of which its situation is one of the most delightful and convenient on the British coast. The bay is spacious and open to the sea; the water pure and transparent; the sand smooth and firm; and the slope of the beach towards the sea so gradual as to be almost imperceptible. Bathing may be enjoyed at all times of the tide, and in most weathers with perfect security.

It is sometimes advisable for those who leave town for a brief space in search of health, to avail themselves of the opportunity to visit some of the mineral springs with which our island abounds, the selection of which is of considerable importance to invalids. I therefore subjoin a short account of the principal places in this country resorted to on account of their medicinal waters.

HARROWGATE, in Yorkshire, which contains some of the most celebrated mineral springs in England, is beautifully situated, and commands a most extensive prospect. The springs are of two kinds, chalybeate and sulphureous. The former is a tonic, the latter a purgative; and its taste, according to the popular opinion, is like rotten eggs and gunpowder. It is found serviceable in most cutaneous diseases, and in various other complaints.

TUNBRIDGE WELLS have long been distinguished for the excellence of their waters, which are of the chalybeate kind. They are only thirty-six miles from the metropolis, in a charming and romantic country. The waters are useful in cases of debilitated and relaxed constitutions; but being somewhat powerful in their operation, should be taken with caution.

CHELTENHAM is situated in the fertile vale of Glou-

cester, sheltered on all sides by hills, which renders its air mild and balmy. The number of springs in and about this town is considerable, and their qualities are very diversified. The springs may be divided into two classes, saline slightly impregnated with iron, and those which are principally chalybeate. These waters are recommended for many diseases, especially those of the digestive organs and skin.

BATH is the site of the earliest-known mineral springs in England, which are used both internally and externally for a variety of disorders, chiefly those arising from dyspepsia, such as gout, bilious cholic, &c. Advice should be taken before drinking these waters.

BRISTOL and CLIFTON possess several celebrated hot mineral wells, the waters of which are efficacious in the treatment of many diseases arising from debility.

BUXTON, in Derbyshire, lies in a pleasant valley, environed by picturesque hills, and is much frequented on account of its warm baths, which have been known ever since the time of the Romans. The water is used both externally and internally for rheumatic and scorbutic affections, for the gout, and for pulmonary diseases. It appears to be of a very simple nature, its analysis yielding only minute quantities of calcareous earth, sea salt, and aperient salt.

MATLOCK lies about twenty-two miles south-east of Buxton. It is a neat, clean, and comfortable village, and is surrounded by scenes of great romantic beauty. Matlock water has a temperature of sixty-eight degrees, and is exceedingly pure, containing only a small quantity of neutral and earthy salts. It is principally used as a tepid bath.

LEAMINGTON, which has within the last half century become famous for its mineral springs, is situated in the very centre of England, about two miles from Warwick. The water is a powerful but safe aperient, and is also used for bathing. When artificially heated, it is found of re-

markable service in paralytic affections, and is said to be an almost sovereign remedy for all diseases of the skin.

MALVERN, in Worcestershire, is in the vicinity of several medicinal springs which issue from the Malvern hills, and are famous for the extreme purity of their waters, to which quality, combined with the fixed air which they contain, their efficacy is mainly attributable. They are principally used in scrofula, cutaneous eruptions, and nephritic complaints.

Some time ago, when I was labouring under the effects of too severe application to professional pursuits, my medical friends advised me to visit Aix-la-Chapelle and Spa, celebrated for the beneficial effects of their baths and mineral waters in dyspepsia and various other complaints. I followed their advice; and so great was the relief which I experienced from the pleasure of travelling, and the change of scene and occupation, that a few days after I arrived at the latter place I was perfectly well.

Our communications with the Continent are now very rapid and direct. By means of the steam-boats which start from London to Antwerp twice a-week, and of the new railroad from that place to Leige, the journey to Spa may be performed without hurry or inconvenience in thirty hours, from which place, those who have time and inclination, may easily reach the principal spas of Germany. It is of no small advantage to this crowded metropolis to be thus placed in such close connexion with those celebrated springs, formerly the resort of all Europe, and now by the influx of fashion regaining their ancient repute.

The most powerful of the mineral springs at Spa is the Pouhon, which rises in the centre of the town, and over which a building has been erected to the memory of Peter the Great, who found much benefit from drinking the waters. The Sauvenière, the Gröesbeck, the Tonnelet, and the Geronstère, have their sources at distances from the

town averaging about a mile: good roads, planted with avenues, connect them with the town; and the climb to these springs, on foot or on horseback (for which latter description of exercise there are abundant facilities, horses being numerous, and let for hire at very reasonable rates), assists, in no inmaterial degree, the beneficial effects of the waters.

I would not, however, be understood to sanction the notion, which many persons appear to entertain, that a journey or residence on the Continent is a never-failing remedy for many diseases which are supposed to be generated and fostered by our own climate. Nothing can be more futile, for example, than to send persons affected, or supposed to be affected, with consumption to Italy or the south of France; for even granting that a warmer climate might prove beneficial in such cases, there may be other circumstances of an opposite tendency. And indeed few of the parts most resorted to in Italy are so healthy as many places on our own southern coast—Hastings, for example. Pisa is perhaps the least objectionable. At Leghorn ague is prevalent. Florence is exposed to cold bleak winds.* At Naples and Rome (the atmosphere of which is affected by the volcanic soil, in the one case, and by the exhalations from the Pontine marshes in the other,) brain fevers and agues are common. In the Lombardo-Venetian states remittent and intermittent fevers are rife during the summer

* “If a man be tired of the slow, lingering progress of consumption,” says Mr. H. Matthews, writing at Naples, “let him repair hither, and the *dénouement* will be much more rapid. The *sirocco* wind,” he continues, “which has been blowing for six days, continues with the same violence. The effects of this south-east blast, fraught with all the plagues of the deserts of Africa, are immediately felt in that leaden oppressive dejection of spirits, which is the most intolerable of diseases.”—*Diary of an Invalid*.

and autumn. “It is generally very unnecessary,” says Dr. Billing, “and worse than useless, to send patients away from their friends, often at an enormous inconvenience. If they are consumptive, they will thus die in exile; and if not, they may be cured at home.”

The weekly cessation from the toils of business, which is generally observed in Christian countries on the first day of the week, is a practice at least as conducive to the welfare of the body as of the soul; and one which will be more inviolably kept, when men become better acquainted with the conditions on which their health depends. Nothing could be more inexpedient, as regards merely the present interests of mankind, than the abandonment of this practice, viewing it as a matter of political economy; for there can be no doubt that the capacity for labour is increased by occasional rest from it; and that if every day in the year were devoted to labour, the produce of that labour would be less than it is at present.

If the time thus rescued from labour were made the best possible use of, how much might it not effect for the mental and bodily improvement of mankind! It affords an opportunity for intellectual, moral, and physical training, which has not yet been turned to the best advantage.

Of the miscellaneous subjects to which we are now to direct our attention, the first that claims it, from its important influence upon health and longevity, is *marriage*, in reference to which Thomson, in a well-known passage, has said;

“But happy they — the happiest of their kind —
Whom gentler stars unite, and in one fate
Their hearts, their fortunes, and their beings blend.”

That the poet is right, there can be no doubt. The matrimonial state, when entered into at the proper time and

between suitable parties, is certainly conducive to health and happiness. It is a state for which man is formed, and in entering into which, therefore, he obeys the organic and moral laws — disobedience to which, as I have shewn, must inevitably be attended with evil of some kind or other.

This opinion, however, is not based on general principles alone, but is supported by statistical researches, the results of which were published a short time ago by Dr. Casper of Berlin, who informs us that Odier, who first set on foot exact inquiries respecting the influence of marriage on longevity, found that, in the case of females, the mean duration of life for the married woman of 25 was above 36 years; while for the unmarried it was about $30\frac{1}{2}$. At 30 there was a difference of four years in favour of the married; and at 33 two years, and so on. With regard to men, we gather from Deparcieux's and the Amsterdam tables, that the mortality of those from 30 to 45 years is 27 per cent for the unmarried, while it is but 18 for the married; and that for 41 bachelors who attain the age of 40, there are 78 married men. The difference becomes still more striking as life advances. At the age of 60 there are but 22 unmarried men alive for 48 married; at 70, 11 bachelors for 27 married men; and at 80, for the three bachelors who may chance to be alive, there are nine Benedicts. The same proportion very nearly holds good with respect to the female sex: 72 married women, for example, attain the age of 45, while only 52 unmarried reach the same term of life. M. Casper, in conclusion, considers the point as now incontestably settled, that in both sexes marriage is conducive to longevity.

That the marriage-state is favourable to mental as well as to bodily health, is strongly shewn by the fact noticed in the lecture of M. Andral from which I have already quoted: viz. that in France two-thirds of the suicides are

committed by bachelors ; and he adds that the same remark has been made in this country.

But “to make marriages answer the purpose of health, and the other objects to be kept in view in the connubial state, there ought to be a parity of station, a similarity of temper, and no material disproportion in years. It is owing to the want of some of these most essential requisites, that the married state proves so often the source of misery, instead of joy and comfort.”*

The opinions of physiologists as to the earliest age at which the contraction of marriage in this country is advisable, are various—some fixing it for the male at the age of 21, others at 25, and others even at 28 ; but most writers on the subject agree in regarding the 18th year of the female as the earliest at which it ought to take place. This, however, is a point which must depend upon a great variety of circumstances ; and though marriages entered into while the frame is still rapidly developing are undoubtedly injurious, yet varieties in constitution are so numerous and so great, that it is impossible to lay down a rule universally applicable. It may, however, be considered as certain, that marriages on the part of males before the age of 21 are hurtful.†

If we regard marriages as they affect the offspring, we must take into account many circumstances which do not affect the parties marrying.

* Code of Health.

† “The second cause of the shortness of the average duration of life during the fourteenth and fifteenth centuries, is traced to the very early age at which marriages were then solemnised. The day of nature’s trial came before the constitution had gained strength for the struggle ; and an awful proportion of females was thus prematurely hurried to the grave, whilst the offspring also shared in the weakness of the parent.”—TYLER’S *Henry of Monmouth*.

It appears to be a law of nature, that frequent intermarriages among a particular family, class, or nation, have a tendency to produce mental and bodily degeneracy ; and the more limited the circle to which they are confined, the greater is the degeneracy. This accounts for the fact that the children of cousins, or other near relations, are so often weak in intellect—sometimes even idiotic. It is well known that idiocy is by no means rare in some of the royal and noble families of Spain and Portugal, among which the practice of marrying nieces and cousins prevails.

The predominant states of mind of the mother during the period of gestation seem to exercise great influence on the character, bodily and mental, of the child. If such be the case, the following advice, given by the Margravine of Anspach in her Memoirs, deserves serious attention : “ When a female is likely to become a mother, she ought to be doubly careful of her temper ; and in particular, to indulge no ideas that are not cheerful, and no sentiments that are not kind. Such is the connexion between the mind and body, that the features of the face are commonly moulded into an expression of the internal disposition ; and is it not natural to think that an infant, before it is born, may be affected by the temper of its mother ? ”

I cannot refrain from quoting the following excellent remarks on this subject from Dr. Caldwell’s Treatise on Physical Education. “ The avoidance by females, while pregnant, of every thing that might injure them, cannot be too strict. Nor is this all. They should take more exercise in the open air than they usually do. The feeling which induces many of them to shut themselves up in their rooms for weeks and months before parturition, is an excess of delicacy—were the term less exceptionable, I would say, false delicacy—and ought not to be indulged. Their food should be wholesome, nourishing, and easy of diges-

tion, and should be taken in quantities sufficient to give them their entire strength, and maintain all their functions in full vigour. Their minds ought to be kept in a state of tranquillity. In a particular manner, the effects of frightful appearances, alarming accidents, and agitating and impassioned tales and narratives, should be carefully guarded against by them. The blighting operation of the 'reign of terror,' in Paris, on the children born during that period, furnishes fearful evidence of the influence of the distracted and horrified condition of the mother over the system of the unborn infant. An unusual number of them was still-born. Of those who were not so, a number equally uncommon died at an early age; and of those who attained adult life, an unusual proportion were subject to epilepsy, madness, or some other form of cerebral disease."

The late Dr. Curtis, who practised as an accoucheur for upwards of fifty years, used to assert, that if females when pregnant would move about and take exercise in the open air, instead of lounging upon sofas, 99 births out of 100 would be natural, and deformities would rarely occur.* Such was also the opinion of his grandfather, Mr. John Curtis, who followed the same profession.

The transmission of mental qualities may still be somewhat open to doubt, but there is the strongest proof that

* "The very easy labours of negresses, native Americans, and other women in the savage state, have often been noticed by travellers. This point is not explicable by any prerogative of physical formation; for the pelvis is rather smaller in those dark-coloured races than in the European and other white people. Simple diet, constant and laborious exertion, give to these children of nature a hardiness of constitution, and exempt them from most of the ills which affect the indolent and luxurious females of civilised societies. In the latter, however, the hard-working women of the lower classes in the country often suffer as little from a child-birth

physical qualities are in most cases communicated ; and therefore, in the words of Dr. Caldwell, as “ respects persons seriously deformed, or in any way constitutionally enfeebled—the rickety and club-footed, for instance, and those with distorted spines, or who are predisposed to insanity, scrofula, pulmonary consumption, gout, or epilepsy—all persons of this description should conscientiously abstain from matrimony. In a special manner, where both the male and female labour under a hereditary taint, they should make it a part of their duty to God and their posterity never to be thus united. Marriage in such individuals cannot be defended on moral grounds—much less on that of public usefulness. It is selfish to an extent but little short of crime. Its abandonment or prevention would tend, in a high degree, to the improvement of mankind.”

On the subject of sleep, only general rules can be given ; some persons require much more than others, and the same person more at one time than another ; no fixed rule therefore can be laid down on this point. So much each individual ought to have as experience tells him to be sufficient, and neither more nor less. Such rules as that given by Cullen, recorded by Boswell in his *Life of Johnson*, are absurd. “ I told Dr. Johnson,” says Boswell, “ that Dr. Cullen said to me, that a man should not take more sleep than he can take at once :” to which Johnson correctly replied, “ This rule, sir, cannot hold in all cases, for many people have their sleep broken by sickness ; and surely

as those of any other race. Analogous differences, from the like causes, may be seen in the animal kingdom. Cows kept in towns, and other animals deprived of their healthful exercise, and accustomed to unnatural food and habits, often have difficult labours and suffer much in parturition.”—LAWRENCE'S *Lectures on the Natural History of Man*, chap. ii.

Cullen would not have a man to get up after having slept but an hour. Such a regimen would soon end in a long sleep."* On the due regulation of sleep much depends: in a special manner the health of the eyes. In reference to this point, I have said in my "Treatise on the Diseases of the Eye," "A due portion of sleep is as essential to enable the eyes to perform their office comfortably and effectively, as a due portion of rest is to enable the limbs wearied with toil, or the mind with reasoning or other kind of exertion, to resume with alacrity their wonted offices. But sleep too long protracted, on the other hand, is perhaps hardly less destructive of accurate and healthy vision than when taken too sparingly; for as, in the one case, the organ is enfeebled by unremitting activity, without a proper degree of repose, so, in the other case, the eye, from unfrequent or insufficient exercise, becomes torpid and dull; and if inaction be persisted in, is at length unfitted for its functions."

On the use of tobacco a few remarks may here be opportune.

Tobacco belongs to the class of drugs called narcotics, and possesses many of their most noxious qualities. The excessive use of tobacco, in whatever shape it is taken, heats the blood, hurts digestion, wastes the fluids, and relaxes the nerves.

Smoking is particularly injurious to lean, hectic, and hypochondriacal persons: it creates an unnatural thirst, leading to the use of spirituous liquors; it increases indolence, and confirms the lazy in the habits they have acquired; above all, it is pernicious to the young. I am

* Bishop Ken, however, observed this regimen to his dying day, as we are informed by Hawkins in his *Life* of that venerable prelate.

therefore glad to see that well-bred young men have very generally abandoned the obnoxious and unbecoming custom, lately so prevalent, of smoking in the streets. In many German towns smoking is not permitted in the public thoroughfares.

A patient of mine, a young officer of dragoons, who was quite an amateur smoker, and used to boast of the number of cigars he could smoke in a day, produced ptyalism by his folly; and had he not abandoned the practice, he would in all probability have lived but a very short time.

The use of tobacco in the form of snuff is still more objectionable than smoking. On account of its narcotic quality, snuff is highly injurious to apoplectic persons; and not less so to those labouring under deafness, and other diseases of the head—to the consumptive, to those afflicted with internal ulcers, or subject to spitting of blood. Snuff-taking is an uncleanly habit—it vitiates the organs of smell; taints the breath; ultimately weakens the faculty of sight, by withdrawing the humours from the eyes; impairs the sense of hearing; renders breathing difficult; depraves the appetite; and, if taken in abundance, gets into and affects the stomach, injuring in a high degree the organs of digestion.

Nothing conduces more to enjoyment than the perfect exercise of the functions of hearing and sight; but as in my two small works, entitled “Observations on the Preservation of Hearing, and of Sight, with Remarks on the Choice, Use, and Abuse of Spectacles and Acoustic Instruments,” I have already given, in an accessible form, all necessary practical directions on this important subject, I shall not enter upon it here, but refer such of my readers as desire information respecting it to those works. I cannot, however, refrain from cautioning them against the use of small oval spectacles, and against the improper use of acoustic

instruments, which in many cases aggravate the complaints they are intended to remedy, and at the same time divert attention from the adoption of curative measures. What can be more absurd than a person using an ear-trumpet when labouring under incipient deafness, an affection of the head, or the second stage of otorrhœa? Each of these affections is curable when remedial means are timely adopted; though, if neglected, the first often becomes permanent, and the two latter frequently prove fatal.*

Adam Smith opens his well-known work in the following words: "The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgment with which it is any where directed or applied, seem to have been the effects of the *division of labour*." The evidence he adduces in support of this proposition is conclusive, and entitles us to assert that those arts and sciences in which the division of labour is carried to the greatest extent will always approach nearest to perfection; and that, on the other hand, those in which it has taken place in only a limited degree are generally in an imperfect and uncertain state.

The slow progress which the science of medicine has made, compared with other arts and sciences, is thus in a great measure accounted for: in it there has, until recently, been scarcely any division whatever; and even at present, the treatment of all the numerous and compli-

* The author, having paid much attention to the construction of acoustic and optical instruments, has effected several improvements in them of considerable utility. The improved acoustic instruments (which are intended for the incurably deaf only) may be had of Messrs. Philp and Wicker (late Savigny), St. James's Street, acoustic and surgical instrument-makers to the Royal Dispensary for Diseases of the Ear. The large round periscopic glasses, for the first, second, and third sight, may be obtained of Messrs. Ross and Co. opticians, 33 Regent Street.

cated disorders to which the human frame is liable, is frequently undertaken by one and the same person. Now, as a thorough understanding of many of these diseases, and of their modes of cure, cannot be obtained without the constant and uninterrupted study and practice of years, it necessarily results from this system, that such diseases are considered incurable. There is, in my opinion, no disease without its remedy; our ignorance alone prevents us curing the cholera or hydrophobia;* and the only

* As, however, prevention is better than cure, it is much to be wished that measures were adopted to extirpate as completely as may be the *causes* of these fatal diseases. The principal cause of cholera is clearly shewn, by the history of its destructive progress, to be inattention to cleanliness and ventilation. The great alarm excited by its first appearance in the metropolis has been the means of bringing about many improvements in this respect; and the changes now effecting will do much to secure us still further from any such visitation again.—Hydrophobia is a malady which owes its existence to the vices and follies of man; and may be regarded as a just retribution on him for his cruelty towards the inferior animals. Many of the uses to which dogs are put in London are directly opposed to their structure and natural habits;—that, when yoked to a large heavily-laden cart or truck, in the middle of summer, without water, they become mad, will surprise no one who considers the formation of their bodies. The Society for the Suppression of Cruelty to Animals has been highly useful in diminishing this evil; and, as it springs from benevolence, it ought to be encouraged. The imposition of a tax, or rather the exaction of that which already exists, upon dogs, would much diminish their number, especially of those kept by the poor, which are the most dangerous, being scantily fed, ill-treated, and hard worked. Excessive fondness for dogs, as well as cruelty to them, is sometimes the cause of hydrophobia: ladies especially expose themselves to this danger; by pampering and confining their unfortunate favourites, they render them irritable

method of getting rid of our ignorance, is to carry the division of medical labour much farther than has hitherto been effected. There is abundant encouragement for so doing. In those departments of the profession which have been practised as distinct occupations, the greatest and most rapid improvements have taken place within the last thirty years. Witness dental surgery, between which as it existed not very long ago and its present state, the labours of such men as Bell, Cartwright, and Dumergue, have made so great a difference, that operations which formerly were attended with pain and danger, are now performed with scarcely any suffering, and with perfect safety. The oculist and aurist have brought about results of a similar kind, by their undivided attention to diseases of the eye and ear; organs whose delicacy deterred the practitioners of former times from operating upon them, but which are now treated with as much safety and success as the strongest.

Some practitioners are averse to any division of medical labour, which they conceive is injurious to the profession: but, as Sir W. Farquhar observed on this point, we must consider the interests of the public in preference to those of any particular class of men.

Much good has also resulted from the institution of hospitals for the exclusive treatment of various diseases; such as the Fever, Ophthalmic, Small-Pox, Lock, and other Hospitals. The great and acknowledged excellence of Her Majesty's Royal Naval Hospitals is, no doubt, in

and snappish; many such persons have received their death-wounds while caressing their dogs. The case of the beautiful Lady —, who suffered her lip to be licked by her lap-dog, and died raving mad (the poison having been absorbed into the circulation), shews that such amusements are often attended with danger.

a great measure attributable to the fact, that the very numerous patients admitted into them are generally afflicted with the classes of disease peculiar to sailors and soldiers; and as the medical officers of these noble establishments are prohibited from attending private patients, their attention is mainly directed to surgical operations, and to the treatment of diseases, numerous cases of which come before them every day.* And here I may be permitted to refer to the Royal Dispensary for Diseases of the Ear, which, with the assistance of Sir Walter Farquhar, Dr. Baillie, Dr. Sims, and Mr. Cline, I founded in 1816. Its usefulness and advantages, the happy results of the labour and attention of years, are well known to the public, and have been shewn in the relief afforded by it to many thousand afflicted human beings both in the metropolis and from the country.

The advantages of the division of medical labour have been signally manifest in the results of the establishment

* The author was employed for nearly six years at the Royal Naval Hospital at Haslar, during the hottest period of the late war, namely, after the battle of Trafalgar, and during the expedition to Waleheren. Haslar Hospital is one of the largest establishments of the kind in Europe, and contained at one time 2000 patients: as many as 200 were admitted in the space of twenty-four hours, when the troops arrived from Corunna, afflicted with pneumonia and dysentery, and many of them severely wounded. The efficacy of such institutions in training up able medical men is sufficiently shewn by the following list of some of the eminent practitioners who have served there: Drs. Lynd, Hope, Maginnis, Babington (of the city), Sir J. Macgregor, Sir R. Hunter, Weatherhead, Thomson, &c., Messrs. Fitzmaurice, Dodds, O'Reily (domestic surgeon to George the Fourth), G. Vance, Price, Hardy, &c. The treatment of the patients, and the general arrangements, have always reflected the highest credit on the commissioners and medical authorities.

of this Institution. Previously to that period, diseases of the ear were considered for the most part incurable; so that hundreds of unhappy beings, whose maladies, in their incipient stages, might have been readily cured, but which being neglected became inveterate and really incurable, were consigned to deafness for life. Having for upwards of twenty years attended almost exclusively to the treatment of these diseases, and having, as Surgeon to the Royal Dispensary, had more extensive experience than has fallen to the lot of any other practitioner in this country (having, within the last few weeks, given advice and assistance to as many as 150 patients at the Dispensary in one day), I have worked out results in this branch of the profession to which I cannot refer without the highest satisfaction. Desirous that the knowledge and experience thus acquired may be as widely diffused and become as useful as possible, I have, in addition to my Treatise on the Diseases of the Ear, and my Essay on the Deaf and Dumb (both of which have been translated into German), published a Map of the Anatomy of the Ear, and a Synoptical Chart of its various diseases, with their order, seat, symptoms, causes, and treatment; and have thus put it in the power of any one to make himself acquainted with the subject. But a knowledge of the ear, and its diseases, will never be general among the profession in this country, until the Court of Examiners of the College of Surgeons insist upon an acquaintance therewith as one of the qualifications of a surgeon. I am glad, however, that the attention of the profession has of late been more directed to the important subject of deafness; and in particular that the Medical Society of London have lately given their Fothergillian Gold Medal for an essay on the subject.

I return to the consideration of the division of medical labour, only for the purpose of expressing my desire to see

more hospitals established for the reception of persons labouring under particular forms of disease. A Cholera Hospital and a Hydrophobia Hospital are desiderata, the attainment of which would, in all probability, soon bring those fearful diseases under the power of man, and enable him to apply to them efficacious remedies. Until this is accomplished—so long as individual exertion is alone employed—we shall look in vain for these desirable results.

It has often occurred to me, that the usefulness of the public hospitals already existing might be greatly increased if the medical officers attached to them were to devote all their time and attention to their duties at those institutions, as they do at the naval hospitals. There is surely enough to be done in them to occupy all the energies, the time, and the study of the most gifted: and it is to be lamented that these noble establishments, the glory of our country, and of the metropolis in particular, should not set apart an adequate portion of their ample funds to remunerate a sufficient number of competent men to devote themselves to these duties alone.

The population of London is so great, that the following remarks, which have especial reference to the health of its inhabitants, will hardly be deemed a departure from that generality which pervades this work; the more so as most of them are equally applicable to other large towns.

A dramatic writer has called London the *fons delectabilis*, but I should like to see it deserve the appellation of *fons salutaris* also; and it is gratifying to know that every change which adds to its external attractions, contributes to its healthiness at the same time. It has been said, “See Paris, and die,” as if the sight of that city were the supremest enjoyment in which man could participate;

but I would much rather have it said, "See London, and live," and live happily and joyously too. Napoleon called us a nation of shopkeepers, meaning to reproach us with a sordid devotion to mere commerce, and with incapacity for comprehending the loftier pleasures derivable from the triumphs of art: but I doubt not yet to see the time when this reproach shall be utterly inapplicable to England; already we have made great progress in a better state of things, and no limit can be set to our progression.

Many improvements have within the last few years been effected in the metropolis; all of which have added to its salubrity, and rendered it a more agreeable place of residence. As a proof of this, I have been informed that many tradesmen who used to reside at a short distance from town, have come to live in London at their places of business, whereby much time and expense is saved. Among the improvements may be mentioned the widening of streets, the opening of parks and other healthy places of public resort, and the practice of building houses round large open spaces. There is yet much to be done, however, before it can be said that London is as healthy as man can make it; and I am now about to direct the attention of my readers to some of the more important, yet easily to be accomplished, improvements of which it is susceptible.

The subject that first demands our attention is the mode in which London is supplied with water.

The Thames is the principal source of the supply; and its water, if drawn from a proper spot, would be as good as could be desired; but, strangely enough, the companies which monopolise the sale of this important element, take it from a part of the river which receives all the impurities of the mighty city, and where it is asserted that fish cannot exist. This is the first evil to be removed. The wants of the metropolis could not be supplied without

resorting to the Thames; but there is no necessity for using its corrupted waters. Why should not we go a few miles above London, and draw the needful supplies from the river before it reaches the city?*

A project recently set on foot would, if executed, do much to obviate the inconveniences of the present system: I allude to the plan for forming a vast receptacle for the contents of the common sewers, &c. &c. along the whole banks of the river; this would doubtless improve the quality of the water: the other part of the project, viz. the construction of open walks and terraces by the river-side, would also be a great change for the better, improving the appearance and increasing the healthiness of the city.

But supposing the water to be derived from an entirely unexceptionable source, much would still remain to be done. The mode of its distribution to, and of its reception in, dwelling-houses, has an important effect upon its quality. It is at present conveyed by leaden pipes either into leaden cisterns or wooden casks. Water contains carbonic acid gas; † this acting upon lead forms carbonate of lead, a white powder, which being conveyed in small

* The Chelsea Water Company appears to be exerting itself to improve the quality of the water supplied by it. Their new filtering reservoirs occupy a space of 48,000 square yards superficies, and have been constructed at an expense of 57,000*l.* But if the water afterwards passes into leaden reservoirs, this improvement will be of little utility.

† One hundred cubic inches of the New River water, with which part of this metropolis is supplied, contains 2.25 of carbonic acid, and 1.25 of common air. It contains, besides a minute portion of muriate of lime, carbonate of lime, and muriate of soda. The water of the river Thames contains rather a larger quantity of common air, and a smaller portion of carbonic acid.

quantities with the water to the stomach, acts as a slow poison, affecting first the digestive organs, producing dyspepsia, and finally terminating in nervous apoplexy, or paralysis.

If the water be received into casks, the result is not much better. Unless the casks are charred, the water decomposes the surface of the wood; inflammable air is generated; and this poison is held by the water in solution for a time, until part of it escapes in the form of gas, and the rest falls to the bottom as dirt.

It is an established fact, that the best material for forming vessels to contain water is iron. Iron tanks have for several years been used in ships, with the greatest advantage: and there is no reason why iron cisterns should not be substituted on land for lead cisterns and wooden casks.

Of whatever material the receptacles for water may be formed, they should be often emptied and carefully cleansed. The purest water must frequently contain clay and other earths; these are deposited, and in time, if suffered to remain, become animalised; hence, be the water supplied ever so pure, it must speedily be contaminated. For the same reason, it would be better that a fresh supply should be furnished every day, even though each supply were smaller than at present, rather than (as is generally the case now) only twice or thrice a-week.

There is another mode by which an abundant supply of the purest water could be obtained, at least for drinking in any form, as for making tea, coffee, &c.* which at the

* When I commenced practice in town, upwards of twenty years ago, I used to be very much annoyed with headache; and as no medicine appeared to relieve me, I consulted my friend Dr. Baillie, who asked what water I was in the habit of drinking. I told him it was the river-water: he inquired if it remained in

same time would greatly add to the beauty of the metropolis. I mean, the erection of ornamental fountains, which, giving out constant streams of spring-water, would impart an appearance of coolness which is very refreshing in the sultry summer months, and would materially assist in keeping clear the sewers, into which the superfluous water would fall. Every person who has visited the Continent must have admired the pleasing effect produced by the fountains with which most cities there abound ;* and it is truly surprising that so obvious a source of beauty and ornament has been so long neglected in this country. Let us hope that in this respect we shall soon imitate our neighbours ; who, on this point at least, have certainly set us an example well worthy of imitation.

It has been supposed that sufficient spring-water does not exist in the metropolis to supply the domestic wants

a leaden cistern. I replied in the affirmative. This he said he had no doubt was the cause of my headache ; and advised me always to drink pump-water, which I have done ever since : a plan which I should advise every one that regards his health to adopt until fountains are erected.

* The gardens of St. Cloud owe much of their enchanting beauty to the sheets of water, cascades, and jets-d'eau, which every where greet the eye ; in one place a number of jets intersect one another ; a single jet rises to the height of 97 feet. The cascades and jets-d'eau in the garden of Versailles are the noblest which France, or perhaps the world, contains. The bath of Latona is especially worthy of notice. A group consisting of Latona and her two children is in the centre, and seventy-four enormous frogs, representing the peasants of Libya, are covering them with torrents of water. The obelisk of water, formed by the union of innumerable jets ; the water-walk, composed of a succession of cascades and jets ; and the basin of Neptune, representing the triumph of that deity,—are also striking and beautiful objects.

of its inhabitants; but there appears to be no ground for this conjecture. At the Lambeth Baths, noticed in a previous part of this book, 15,000 gallons of spring-water are thrown up every hour: this fact alone might suffice to shew the incorrectness of the notion. I believe the water drawn from the wells in the city is of the very best kind: that supplied by the old Aldgate pump is famed for its excellence.

The sewerage in many parts of London is very imperfect: the public health is seriously injured by this imperfection, which, however, has of late been somewhat remedied; and will, it is to be hoped, be wholly removed when the new act of parliament on this subject comes into operation. It will enable the commissioners to compel the owners of all houses to drain the sewers as often as the public health or advantage may require them so to do. Few persons would have imagined that there was no sewer either in Cheapside or Aldersgate Street, and yet such till lately was the fact: sewers were recently, for the first time, constructed in both these leading thoroughfares. In the Old Kent Road, in Bethnal Green, and in some parts of Westminster, these indispensable requisites of a healthy residence are almost entirely wanting. The importance of draining and sewerage is strikingly shewn in the report of Dr. Southwood Smith respecting the causes of febrile affections, (which have for a considerable period been prevalent in Bethnal Green and Whitechapel,) appended to the last report of the poor-law commissioners: — “It appears,” says this report, “that the streets, courts, alleys, and houses in which fever first breaks out, and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches and ponds, gutters always full of putrifying matter, nightmen’s yards, and privies the soil of which lies openly exposed and is seldom or never removed.” We

are told that "a large portion of Bethnal Green is a swamp, hardly any part of which is drained;" and that "there is evidence derived from the history of these very localities, that the formation of a common-sewer, the filling-up of a ditch, the removal of stagnant water, and the drainage of houses, have rendered a district healthy, from which, before such measures were adopted, fever was never absent."

Another very useful improvement, and one easily effected, would be the addition of stench-traps to all the gratings in the streets leading into the sewers, such as are used in most private houses.

Many new facilities have of late years been given to persons residing in town, of enjoying exercise in the fresh air.* Through the exertions of a few spirited individuals, the parks have been rendered far more accessible to the public than they previously were; above all, that most rural of suburban resorts, the Regent's Park, has been partly opened, and every day receives many visitors in search of health. It is to be hoped that the remaining unoccupied part of this fine healthy park will shortly be thrown open to the public without reserve, so that the foot-passenger may proceed from the right of the cottage in the inner circle completely across the park towards Macclesfield Gate—this walk would be truly delightful.

Great satisfaction has been given to the lovers of outdoor exercise by the occasional playing in Kensington Gardens of the band of the Horse-guards, stationed at Knightsbridge barracks; and it is to be regretted that this amusement is so scantily furnished to the inhabitants of the metropolis. In most country towns the regimental bands

* The atmosphere of the metropolis might be much improved, if all factories, gas-works, breweries, &c., were compelled to consume the smoke generated in them.

play frequently ; and surely London ought not to be worse off in this respect than the country. It would add much to the charms of the Regent's Park, and induce many more persons to take exercise in it than at present, were the band of the regiment stationed at the park barracks directed to play in it at stated times during fine weather. The band of the regiment stationed at the Wellington barracks might, in like manner, be directed to play in the enclosure of St. James's Park. If each of these three excellent bands were to play twice a-week, from three till five in the afternoon, a most agreeable recreation would be furnished to the inhabitants of the metropolis.

Although much has been done, there is still room for improvement. On the Continent greater attention is paid to procuring places of exercise and amusement for the inhabitants of towns than in this country. There are, however, indications that give us reason for hoping that our inferiority in this respect will not be suffered long to continue.

A short time since, an honourable member in the House of Commons moved, that in all enclosure-bills provision be made for leaving open space sufficient for the purposes of the exercise and recreation of the neighbouring population. Sir R. Peel, in supporting the motion, observed that it was most desirable that the authorities of every large manufacturing town, indeed of any town having a numerous population, should have power to set apart an open space for public recreation and exercise ; and he believed that there could not be a more innocent or legitimate source of amusement—a source of amusement which would be more conducive to health, or tend more to wean the humbler classes from those habits of dissipation which they sometimes contracted from the want of such places. The honourable baronet concluded by saying, that every one was pleased with the improvements that had been effected in the parks of Lon-

don; and the same system should be extended to the large manufacturing towns. He should have no objection to a grant of public money, to the amount of 5,000*l.* or 10,000*l.*, for that purpose.

In the second edition of this work I suggested the formation of a Public Botanical Garden, with hot-houses, &c. like that at Brussels, for exotic plants, such as spice-trees, the bread-fruit tree, &c. and pointed out as a very suitable spot for this purpose the ground in the centre of the Regent's Park, then occupied by Mr. Jenkins, under Government,—one of the most delightful in the park; from the mount in which there are views hardly to be surpassed for beauty; indeed, one of them might be supposed to be a hundred miles from town.

Since the publication of that edition an institution denominated “The Royal Botanic Society of London” has been formed; and already ranks among its members and supporters many noblemen and scientific gentlemen. The object of this society is the establishment, within the confines of London, of extensive botanic gardens, library, museum, studio, hot-houses, conservatories, &c. This plan comprises an Italian garden with raised terraces, fountains, and parterres, ornamented by balustrading, vases, figures, and works of art; with a casino at one end, and a conservatory at the other. The ground selected for the gardens is the spot above pointed out as well adapted for them, which contains eighteen acres. The plan of the society appears to be well calculated to promote the study of botany in this country; but I regret to notice that nothing is said in the prospectus concerning the admission of the public to the gardens. This I conceive is an indispensable requisite.

The gardens of the numerous squares in the metropolis are not nearly so useful as they might be, owing to the exclusive spirit in which they are managed. Why

should they not be opened at stated times to the public generally, in the same way as the Temple and Lincoln's Inn Gardens? Such a measure would be of great benefit. Gardens like those of Lincoln's Inn Fields or Russell Square might become pleasant places of resort to thousands of young people who scarcely ever see a green field. I am aware that, these gardens being private property, and intended for the use of the inhabitants of the squares, this plan could only be carried into effect with the permission and consent of the parties interested: but I should hope there would be no obstacle on their part. The number of persons frequenting these grounds is very small; those at present exclusively entitled to do so appearing to neglect them altogether. There need be no fear, I think, that this indulgence, if granted, would be abused, or lead to the damage of the gardens.

There has been much talk lately, both in and out of parliament, about providing places for the recreation of the people. Would Government object to pay a small sum for the purpose of keeping in order all the gardens that might be thus opened, and for making seats and other accommodations for the public? I should also like to see the Zoological Gardens, and all the Exhibitions, opened to the public gratuitously two or three times a-year, on the anniversaries of great national events.

The salubrity of the metropolis would be increased if the practice of interring the dead within its boundaries were abandoned. For this reason, I rejoice to observe that the number of cemeteries round London is rapidly augmenting; and in a few years they will, I doubt not, entirely supersede vaults and churchyards,—a result highly desirable on many accounts. Of the *moral* benefits arising from the use of cemeteries, and the admission of the public into them, much might be said,—the advantages in regard

to health must be obvious to all.* The North London Cemetery, at Highgate, is perhaps the most beautifully laid out of any yet formed, although they are all admirable places.

In enumerating the improvements that have taken place in the metropolis as regards the health of the inhabitants, we must not omit the railroads. Some of my readers may be disposed to ask, in astonishment, what railroads have to do with health? I answer, that leaving out of view the obvious connexion between them in the facilities which railroads afford for enjoying the fresh air of the country, they have in themselves a direct influence upon health of a most beneficial nature. Dr. James Johnson, in a late number of the *Medico-Chirurgical Review*, has the following remarks on the subject:—

“ Railroad-travelling possesses many peculiarities, as well as advantages, over the common modes of conveyance. The velocity with which the train moves through the air is very refreshing, even in the hottest weather, where the run is for some miles. The vibratory, or rather oscillatory, motion communicated to the human frame is very different from the swinging and jolting motions of the stage-coach, and is productive of more salutary effects. It equalises the circulation, promotes digestion, tranquillises the nerves (after the open country is gained), and often causes sound sleep during the succeeding night; the exercise of this kind of travelling being unaccompanied by that lassitude,

* A dreadful account appeared in the public journals a short while ago, of the state of Aldgate churchyard, which it seems is so crowded with graves that not a single vacant spot is left, and hence graves are reopened before it is safe to do so: a few months ago a man, while engaged in this occupation, was deprived of life by the mephitic air arising from the grave. Many of the London churchyards are in an equally shocking state.

aching, and fatigue, which, in weakly constitutions, prevents the nightly repose. The railroad bids fair to be a powerful remedial agent in many ailments to which the metropolitan and civic inhabitants are subject.

“To those who are curious, and not very timid, the open carriages are far preferable to the closed ones, especially in fine weather. In bad weather, and particularly at first, invalids may travel with more advantage under cover. I have no doubt that to thousands and tens of thousands of valetudinarians in this overgrown Babylon, the run to Boxmoor or Tring and back, twice or thrice a-week, will prove a means of preserving health and prolonging life more powerful than all the drugs in Apothecaries’ Hall.”

So much for the *mode* of travelling; but the facilities which it will afford to pent-up citizens to migrate from their confined atmosphere, and dismal scenery of brick and mortar, into the fresh free air and beautiful expanse of the country, are still more important benefits conferred by railroads. Southampton and the Isle of Wight will be as near at hand as Richmond was in days of yore; the balmy breezes and calm bays of Devonshire will be distant but a few hours’ trip. Who *then* would deny himself the pleasure of beholding with his own eyes the beauties of his country, or pine in disease for want of healthful recreation? To a benevolent mind, the pleasure derived from travelling by railroad must be much enhanced by the consideration that the rapid, agreeable motion is produced by the action, not of sentient bone and muscle, but by that of inorganic, insensible agents.

Admirable as railroads are in most respects, it is to be deeply regretted that so many accidents, as they are termed, have occurred upon them. Most of these appear to have resulted from gross carelessness or incapacity on the part of the conductors of the engines. A situation

like this, on which so many lives depend, should be entrusted to none but men fully competent to the discharge of their duties, and of known sobriety and steadiness: it deserves to be considered, whether it would not be advisable that these engineers should be subjected to the same responsibilities as pilots of vessels; and in case of neglect be dismissed from their posts, and never afterwards employed. The Railroad Companies owe it to the public and to themselves, to pay more attention to this subject than they appear to have done hitherto. Such occurrences as the collision of the trains drawn by the engines Orion and Hercules, which happened some time since on the Liverpool and Manchester line, the effects of which I witnessed, by which the engines were dashed in pieces, the trains overthrown, the banks broken down, the road stopped up for a considerable time, and great alarm spread for many miles, — such occurrences, I say, cannot fail to do much injury to railroad companies. On this occasion they were luggage-trains, containing merchandise only, and thus few or no lives were lost. Had they been first-class trains, the loss of life would in all probability have been awful. Since the above remarks were first published, more care appears to have been taken on railroads; in consequence of which accidents have been of much less frequent occurrence.

The innumerable steam-boats plying on the river are another comparatively recent means of securing health to the metropolitans. The benefit derived from a trip for thirty miles down the river on a fine summer's day, is very great. The lively bustle of the river, the beautiful scenery on its banks, and the swift motion of the vessel through the water, all tend powerfully to alienate, for a time, the mind of the business-pressed citizen from his daily thoughts; and the refreshing breeze which is almost always on the river has a most healthful effect. By these con-

veyances a person may visit the sea and return to his home the same evening.

By bringing men of different countries more into contact with one another, and by promoting the more complete interchange of opinion and community of feeling between the inhabitants of the same country, steam-conveyances contribute to the health by giving rise to kind mutual feelings consequent on better acquaintance with mankind, and on the dispersion of prejudices. How such a state of mind operates upon the animal economy must be sufficiently obvious to the readers of this book.

No other city in Europe can boast such establishments as the first-rate hotels in London—the Clarendon, Mivart's, Grillion's, &c., which have entertained even crowned heads, and contain every article of convenience and luxury that the most noble and wealthy can require. But the great influx of visitors from the country to the metropolis that may be expected to be occasioned by the rapid means of communication when the railroads are completed, will require additional accommodation to be furnished for them in London. We have no such establishments for the generality of travellers as Maurice's Hotel at Paris, La Belle Vue at Brussels, Le Grand Laboureur at Antwerp, or Holt's Hotel in New York. To supply this want, a company is forming for the purpose of erecting a metropolitan family hotel, in the construction of which every attention will be paid to the health and comfort of its visitors.* The architect intends this edifice to be on a much larger scale than any other of the kind in this country, to furnish complete accommodation to professional and commercial men and their families, and to blend the strictest economy with the greatest comfort. It will

* It is intended that the site of the hotel shall be in one of the projected new streets at the west end of the town.

be so constructed as to have an interior court-yard, with a large fountain of spring-water in the centre. Arrangements will be made to dine 1200 per day. The library and reading-room will be provided with all the principal foreign and domestic papers and periodicals. Great care will be taken to ventilate the building properly. A deep well is to be dug on the premises, from which every bed-room will be furnished with a constant supply of spring-water, by means of a steam-engine. Hot and cold baths will be provided. It is also intended that the company shall import the wines used in the establishment; and that every article of provision shall be inspected by a competent person, to prevent the possibility of adulteration. Carriages will run from the hotel to the London *termini* of all the railroads.

I wind up this chapter by observing, that the period of maturity is the only one which admits of prolongation. Infancy, childhood, and youth, have each certain limits, which are seldom come short of or exceeded: in a given number of years the human being arrives at the highest development of which it is capable, and art can do but little to hasten or retard the arrival of that epoch. So it is with old age—it cannot endure beyond a certain time, but speedily leads to the grave. The period of manhood—the period in which all the powers, both mental and bodily, are in the highest perfection, is alone capable of extension; and it is so capable almost indefinitely. What a strong motive does not this consideration afford for taking care of the health—for studying the natural laws, on which health depends—and for putting ourselves, as far as possible, in conformity with those laws! And how clearly does this shew that longevity is a good—a real, a substantial good, the attainment of which is well worth striving for, and the possession of which must contribute largely to happiness!

CHAPTER IV.

OLD AGE.

*Inde senilis hiems tremulo venit horrida passu,
Aut spoliata suos, aut, quos habet, alba capillos.—OVID.*

THOUGH the arrival of old age may, by attention to the natural laws, be long deferred, yet it is inevitable. Sooner or later the signs of decaying vitality appear; and constantly increasing in number and force, they speedily prepare man for tenanting the grave.

This is a critical period—one in which the slightest error or accident may extinguish the feeble spark of life, and one, therefore, in which the greatest care is necessary. It will be my object to furnish such general rules as may enable those who have reached old age to enjoy it as long as possible, and to guard against whatever might endanger their safety; for though thus precarious, the existence of the aged may yet, by proper attention, be rendered so comfortable and happy, as to be still worth some pains to preserve it; indeed to many this period of life is that in which the largest amount of the truest happiness is experienced.

Extremes meet. The physiological condition of the infant and that of the aged are in many respects alike. The organs of the infant are undeveloped, or have not acquired strength; those of the aged have either wholly decayed, or have lost their former vigour; the result is almost identical; consequently the treatment of the young is in many cases suitable for the old.

But there are also important differences between the two extreme periods of life. The period of infancy is one of rapid growth, of great vital and nervous activity: that of old age, on the contrary, is one of decay, one in which all the functions are slow; the circulation of the blood is carried on languidly, digestion proceeds with difficulty, the mind loses its acuteness, the senses their vigour. While the characteristics of infancy mark it distinctly as one of increase and progression, those of old age plainly declare it to be the last act of man's eventful history.

These physiological differences render needful corresponding changes of treatment.

And first as to food.

The organs of mastication are imperfect, or wholly wanting, in both the extreme periods of life; in both, the digestive organs are weak and liable to derangements. Hence most of the rules laid down as to the diet of the young are applicable here.

Broths and other liquid food, with sufficient farinaceous matter, should be taken by the aged; and all their nourishment should be of the most digestible kind. A moderate proportion of the safest condiments may be used; for the appetite, becoming more languid, may with advantage be now and then gently stimulated by something piquant. In regard to drink, the use of fermented liquors, more especially wine, is allowable now, when the system requires an additional stimulus.

But spirituous liquors, always injurious, are peculiarly so to the aged. "If they do appear at first to strengthen those who fly to them for relief, it is but to bring them to a state of weakness almost incurable. Their use should be forbidden at the board where we wish temperance and health to preside. Their flavour may be exquisite; but they owe it to essential oils, or other principles which have a most pernicious influence over the human frame. Thus,

then, with the exception of some cases of sudden debility, to dispel which a brisk stimulant is necessary ; or some slow disorders, whose treatment requires that nature should be powerfully urged ; in a word, excepting some habitual dispositions of a sluggish temperament, where life languishes when no longer kept up by artificial stimulants,—I say, with these exceptions, the use of spirituous liquors is useless, dangerous, and even fatal.”* They ought, as I have already said, to be regarded as medicines ; and therefore their use should be regulated by physicians.

All mixtures of food, or variety of dishes at meals, are to be shunned by persons advanced in years, as well as those articles to which they have not been accustomed, or which do not agree with them.

Pork, and perhaps beef, is to be avoided ; but mutton, poultry, game, and fish, are well calculated for the aged ; and the variety they afford is amply sufficient.

Butter and cheese are difficult of digestion. If eaten to excess, or if not of the best kinds, they increase the costiveness to which old persons are subject.

Fruits, when thoroughly ripe, are harmless ; well-cooked vegetables should form a large part of the food of the aged.

During meals, weak malt liquor is better suited for them than wine.

It is certainly more healthful for old people to eat three or four times a-day, than to make one full meal only. They should not eat animal food oftener than once in the day. The stomach will digest a dinner, when breakfast and supper have been light ; but if the digestion of one meal be not completed before another is taken, there is little chance of either being properly disposed of.

A few remarks on the adulteration of the following

* Salgues' Rules for Preserving the Health of the Aged.

articles of general consumption will be of service to the aged, by putting them on their guard against what may be comparatively harmless to the youthful, but often proves highly injurious to those who are feeble or in bad health.

And first of bread.

In large towns the goodness of bread is judged of by its colour, and even the cheaper sorts are required to be very white. Now unless the best flour is used, bread cannot be made of such a colour without using alum; which bleaches the flour, and thus gives to bread made of inferior or damaged wheat the appearance of the better quality. The quantity of this salt employed is comparatively small; but it is notwithstanding sufficient to induce constipation in the weak, either very young or very old, and to aggravate it when already existing; persons thus circumstanced should therefore abstain as much as possible from eating baker's bread, using in its stead home-made or brown bread.*

Beer is the favourite beverage of the immense majority of the English people; and if no other ingredients were used in its composition than those which the law permits,

* The Parisian bakers are said to adulterate their bread with gypsum; and the Germans make use of an article called mountain, or bread-meal, which consists of the silicified remains of the *Campy Lodiscus Clypeus* for the same purpose, as was conclusively shewn by Mr. Ross by means of his achromatic microscope, a few evenings since, at the Royal Institution. These animaleculæ were discovered by Professor Ehrenberg, and have been extensively used in Germany to adulterate bread. They are not wholly destitute of nutritive matter, the gelatinous substance of the animal in some few specimens not being greatly changed; but a very large proportion of the material thus introduced into this essential article of food is pure silica, a mineral which is something worse than so much finely powdered glass.

viz., malt and hops, it would be a nourishing and wholesome as well as favourite liquor. But this unfortunately is not the case. Beer is mixed with a large proportion of water, and a great number of drugs, more or less deleterious, are employed to make the mixture resemble genuine beer in its sensible qualities, at a smaller expense than malt and hops can be obtained for. One of these ingredients is a composition of extract of quassia and liquorice-juice, which goes by the name of "multum," and is very extensively employed. Of a worse description than this are those adulterations which are intended to make the beer *heady*, and thus give to weak liquor the appearance of strength. For this purpose a variety of narcotics is used, such as *cocculus indicus*, *nux vomica*, &c. In addition to these, several other substances are employed in the adulteration of beer; for instance, sulphate of iron, wormwood, capsicum, &c.* It should be observed, that the greater number of these illegal adulterations are supposed to be perpetrated not by wholesale brewers, but by the publicans, who in many cases retail the beer at a lower rate than they purchase it wholesale. It is to be feared that, in spite of the numerous heavy fines imposed upon persons found guilty of such practices, they are still carried on to a considerable extent; at least, it is difficult, if not impossible, in some parts of London to procure good genuine beer. I may mention as a proof of the extent to which the adulteration of beer is carried, that there is a class of men called brewers' druggists, whose business it is to prepare the compounds for brewers and publicans.

Ale is made of pale malt, and is frequently adulterated with several of the articles used for porter, as well as with opium, tobacco, grains of paradise, &c. Stale or sour

* Accum.

ale is converted into mild ale by the admixture of prepared chalk, soda, or carbonate of potash ; and to give new all the appearance of old liquor, oil of vitriol is employed.

Now there can be no doubt that a beverage containing even minute quantities of such articles as those above enumerated, must be detrimental to health ; and as the law has hitherto proved unequal to the task of preventing their employment, all who regard their health, especially invalids, should drink home-brewed beer, or procure their porter direct from the brewers. And here I cannot but observe that the abolition or reduction of the malt-duty would be a great boon to the community. The inducements to adulterate malt liquors would thereby be much diminished, and private persons would then be better able to brew their own beer, and thus escape the hazard of consuming what is frequently little better than a slow poison. It has been frequently noticed of late, that London porter is becoming worse and worse ; yet we seldom hear of convictions for the offence of adulteration. Some strenuous measures ought to be forthwith adopted for the repressions of the evils in question.

Few articles are more commonly and largely adulterated than wine. Being a foreign product, many of those who consume it in this country are unable to distinguish the adulterated from the genuine. Many of the substances used in doctoring wine (as it is termed) are of the most pernicious nature, and cannot fail to prove highly injurious. Of this truth, not a few striking and appalling proofs have from time to time occurred. Port and sherry, the wines commonly drunk in England, are those most liable to adulteration, and unless known to be genuine, should not be taken by the aged. What, indeed, can be expected of port wine sold for a guinea a dozen ? which it not unfrequently is at public auctions. Port is mixed with water, and adulterated with alum, oak-bark, and other astringents,

for the purpose of imparting the flavour of the genuine wine; and with logwood and alkanet root, as the means of colouring it. Spirit of wine is also employed to give strength to the compound. Sour sherry is adulterated with acetate of lead, for the purpose of neutralizing its acidity; and when thick, is fined by gypsum, and is then often passed off as good, genuine wine. Other foreign wines are frequently adulterated in various ways, which chemical analysis alone can detect. Our home-made wines, such as grape, currant, or gooseberry, if properly made, with sufficient quantities of fruit and sugar, and kept long enough, are far superior to the common Spanish and Portuguese wines as made up for the London market. In my opinion, the most wholesome wines, both on account of their original qualities, and because they are comparatively little adulterated, are the light French and German wines. The reduction of the duty on these wines is much to be desiderated—at present they are too expensive for general consumption; so that many are compelled to put up with an unwholesome, and at the same time high-priced beverage, or with the home-products of ardent spirits, on which latter a tax of the same amount as those removed from malt, hops, and wine, might very beneficially be imposed. Meanwhile, let the aged drink moderately, and of the best description of wines.

Perhaps few articles are more adulterated than brandy, rum, and gin. A false strength is frequently given to weak liquor by infusing in it cayenne pepper, which imparts to brandy or rum an extremely pungent taste; burnt sugar is also employed to colour these two liquors. Gin is adulterated by the mineral acids, and is frequently quite poisonous.

Tea, it is well known, is frequently mixed with the leaves of the sloe, ash, or elder; in the preparation of which, various hurtful substances are employed. Log-

wood is used to die a counterfeit black tea; and the substitute for green tea is coloured by means of Dutch pink and verdigrise, the latter a deadly poison.

The principal cause of the general adulteration of tea, is undoubtedly its high price, which is mainly to be attributed to the fact that the Chinese are the only people from whom it can at present be procured, the wayward arbitrariness of whose government renders our commerce with them exceedingly uncertain and precarious. A statement has recently been made public, which gives us hopes that we shall soon cease to be entirely dependent upon China for our supplies of this luxurious necessary. It appears that in 1835 it was discovered that the tea-plant is indigenous in Upper Assam, a country bordering on the Himalaya mountains, and forming part of our recent acquisitions from Birmah. Whole forests of tea have been found there; which have been surveyed by order of the Indian government, and some of their produce has been actually received in this country; a sample of which I have tasted, and considering the rude manner in which it is said to have been prepared, it appears to be of very good quality. With the assistance of Chinese tea-cultivators and manufacturers, there is every prospect of being furnished with a portion, at least, of our consumption of tea, freed from the trammels to which our intercourse with China is subjected by its jealous government, and at a much lower price.

Coffee is adulterated with ground beans and peas, and sometimes also with fine gravel.

The best way to ensure genuine tea and coffee, is to purchase them at respectable houses, and to pay the higher prices for them. If any articles are adulterated, it may be taken for granted that they are the cheaper sorts. As to coffee, it should be purchased unground; it cannot then so well be adulterated.

Confectionery, fish-sauces, oil, pepper, mustard, pickles, vinegar, &c. are frequently adulterated, the latter two with sulphuric acid, which renders them highly injurious to the coats of the stomach.

It may here be observed, that the evils of adulteration are much increased by the use of copper utensils in preparing many articles of food.

Drugs are frequently adulterated, especially those most extensively used, such as rhubarb, bark, jalap, valerian, &c. It is not unusual for the drug-grinder to return a much larger quantity than he received. Professor Thomson, in his examination before the Select Committee on the Poor-Law Amendment Act, stated that frauds are often practised in the drug-market. Among other examples he mentioned that calomel often consists of little more than sulphate of barytes, which is an inert substance; that in scammony the adulteration is even more remarkable, an immense quantity of chalk being found in it, so that the active ingredient it contains often varies from $8\frac{1}{2}$ to $81\frac{1}{4}$ per cent; and that Peruvian bark, as it comes from the hands of the drug-grinder, consists of charcoal, with Venetian red, Carthaginian bark, lignum vitæ, and satinwood; which mixture was sold about forty years ago by the Apothecaries' Company; and it was also sent to the army as Peruvian bark. He also said, it was known that, on one occasion, twenty chests of the genuine article having been sent to a drug-grinder, he put eighteen chests of extraneous matter to two of the pure bark, and sold the remaining eighteen genuine chests to his own profit. From the same authority it appears that ginger is adulterated with 50 per cent of capsicum, sawdust, satinwood, and flour—and sometimes the article sold does not contain more than 30 per cent of ginger; that milk of sulphur often contains one-half its weight of stucco; that aloes, gum arabic, capsicum, cubebs, euphorbium, guaiacum, and storax, are commonly mixed with extraneous substances

to the extent of 14 per cent; that opium is adulterated with extract of senna; that jalap is frequently mixed with twenty-eight pounds of barley-meal per cwt., and lignum-vitæ dust is sometimes used; and that the article sold for rhubarb often contains no more than one-half of its weight of rhubarb. The doctor concludes by observing that very little of the genuine article ever reaches the consumer!

Few adulterations are more reprehensible or produce worse consequences than that of drugs. Life is constantly dependent on the prompt application of powerful agents; and if the druggist vends medicines not genuine, the best prescription must prove inefficacious.

The extent to which adulteration of food is carried is one of many proofs of the necessity for a medical police, whose duty should be the prevention of every thing detrimental to the public health. It is strange that England, whose people have the reputation of being excessively cautious respecting their health, should be the only country in Europe where such an institution is unknown, and where consequently we are exposed to constant danger from the adulteration of food, the vending of unwholesome meat* and fish,† the sale of quack medi-

* It is said that butchers frequently wash stale meat with chloride of lime, which gives it the appearance of freshness; though when dressed it is almost wholly deficient of nutriment, and must be prejudicial to health.

† The inhabitants of the metropolis are, to a considerable extent, protected from the consumption of bad fish by the admirable regulations of Billingsgate, at which market, according to a statement recently made to the Lord Mayor by the clerk of the market, there were seized during last year 170,687 single fish, 221 bushels of shell-fish and sprats, and 508 gallons of shrimps. By these measures much disease was prevented; and the immense public benefit that may be effected by a few able and active officers is in this instance strikingly shewn.

cines, &c. ; evils which our continental neighbours in a great measure guard against. If we cannot have a medical police, perhaps some good might be effected by the establishment of a Society for the Prevention of the Adulteration of Food, and for the detection and punishment of offences against the life and health of the people.

Persons in high life, and especially those advanced in years, who are in the habit of going to dinner-parties, &c., should set apart one or two days in each week to rest, quiet, and abstinence. It is reported of a late well-known alderman, that he used to have what he called one banyan day per week.

“La vieillesse,” says Rochefoucauld, and says truly, “est un tyran, qui défend, sur peine de la vie, tous les plaisirs de la jeunesse.”—“Old age is a tyrant, which prohibits, under the penalty of death, all the pleasures of youth.” Habits which might be indulged in with comparative impunity when the system was in its highest vigour, are productive of immediate evils to the weak frames of the aged : whatever I have reprobated, in the previous pages of this book, as hurtful to the young or the mature, is especially to be avoided by the aged. Others may, with some appearance of reason, hope to escape the penalties of their imprudence ; but for those who are on the brink of the grave, and whom the slightest departure from the dictates of reason may precipitate into it, to cherish any such delusive expectations, is inexcusable : such vain dreams must speedily be dissipated by the stern realities of retributive suffering.

“Discern of the coming on of years,” says Lord Bacon, “and think not to do the same things still ; for age will not be defied. Beware of sudden change in any great point of diet ; and if necessity enforce it, fit the rest to it. To be free minded and cheerfully disposed at hours of

meat, and of sleep, and of exercise, is one of the best precepts of long lasting.”

Having already pointed out the physiological reasons for cleanliness, and for a constant provision of pure air,—reasons which prove that attention to these things is indispensable at every period of life ;—I have here only to shew that their importance is not less to the aged, but rather greater, than to those in the earlier stages of existence.

The whole system of the aged being one of decay, it may easily be believed that the refuse matter ejected from it is more impure, and therefore more likely to be hurtful, if suffered to remain in contact with the body, than in the time of youth ; hence frequent ablution is desirable. It will not only prevent diseases of the skin, but impart freshness and elasticity to the whole economy.

Baths of any kind are so powerful in their operation, that they ought not to be taken by the aged without the concurrence of their medical advisers. Where, however, they are permitted, tepid baths are productive of the most grateful effects ; “they restore softness and elasticity to all the parts, and assist the play of the joints : they are peculiarly suited to old persons of a dry, irritable constitution, or sedentary habits. Phlegmatic old men, those who expectorate much, or are troubled with painful cramps, will also derive much benefit from them.

“On quitting the bath, certain precautions should be used, a neglect of which might cause very different results from those sought. Every attention should be used to preserve the skin from the effects of the atmosphere, to which it is at this moment very sensible and susceptible. To gain this end, the body should be dried as quickly as possible, and speedily and warmly clad. Dry rubbing

over the whole body, before the fire, will assist the good effects of the bath. Strict attention to these points is especially to be observed in cold damp weather.”*

The lungs are excreting organs, and perform the same kind of office as the skin; hence, for the reasons above given, there is a great difference between the pure breath of the young and that of those advanced in years; so that there is a greater necessity for a constant supply of fresh air being admitted into the rooms of the aged; who ought, for this reason among others, to be much in the open air; for even if unable to engage in active exercise, they may at least often enjoy with safety this attendant advantage.

In relation to clothing and temperature at this period of life, I have little to say that has not been already said on those subjects in the chapter on infancy. The natural heat of the aged is small, and easily diminished. Their dress, therefore, should combine warmth with lightness. Woollen stuffs are best adapted for them; they preserve the animal heat, which is ever escaping; they concentrate it about the body, whilst they excite its development in a greater or lesser degree. They have also the great advantage of exciting perspiration, and of maintaining its regularity.

Sitting constantly near the fire is a hurtful practice to both old and young; and the habit of standing or sitting with the back to it is still more so. Obstinate nephritic complaints have frequently been brought on by this means.†

* Salgues on the Health of the Aged.

† A case of this kind lately came under my own observation. A merchant, whom I was attending for a disease of the eyes, used to sit with his back to the fire, in order to avoid its glare: a nephritic complaint was the consequence, respecting which medi-

From the diminished force of the circulation, a common complaint of the aged is coldness of the extremities; nothing will tend more to remove this evil than stout woollen hose, which should be worn all the year round, and warm and thick, yet soft and easy shoes. Tight shoes and boots, by preventing the free circulation of the blood, are the causes of many evils in every period of life; especially they produce corns, bunions, &c. which not only inflict pain, but prevent the taking of exercise.

The bed-clothes of old persons should be of considerable warmth; from neglect of this they sometimes, in very cold weather, have been found dead in their beds.

All parts of the dress should fit loosely; let not attention to fashion induce those who may safely disregard it, to compromise their health or life by bandaging the body with close-fitting garments. Especially should the upper parts be free from pressure. A high and tight stock has often caused apoplexy; costiveness is frequently produced by tight belts and waistbands. Persons subject to headaches should take off their stocks, and all other close-fitting articles of dress, as soon as they return home.

The practice of wearing tight Mackintosh coats is injurious to health, as they impede the carrying off of the perspiration, which condenses on the inner surface of the dress, and, cooling, gives rise to colds and rheumatism.

All vicissitudes of temperature are carefully to be avoided. In changing the winter-dress the utmost caution is requisite. The alteration must not be made until there is no longer any probability of a sudden variation of tem-

cal advice had in vain been obtained; but which speedily disappeared, when, having been informed of its cause, he discontinued the habit which produced it.

perature ; and the warmer clothing should be resumed as soon as the summer has departed.

By observing these precautions, colds, which are exceedingly dangerous to the aged, may generally be avoided. But the best preventive measure is *attention to the general health*. Healthy persons seldom catch cold ; many never air their linen, and are quite regardless of damp sheets, or wet boots, with complete immunity from those consequences which would inevitably result to the unhealthy and delicate. Some classes of labouring men, such as brickmakers, &c., are exposed to all the inclemency and vicissitudes of our climate, and yet scarcely ever suffer from catarrh. Indeed, I am of opinion, that “colds” comparatively seldom arise from mere exposure to wet,—the cause to which in this country they are almost universally referred. If such exposure does produce this consequence, it is because there was some predisposing cause in the system of the individual attacked. The French, in consequence of being much in the open air, rarely catch cold, and frequently manifest surprise when they hear Englishmen express their fear of colds, and inquire what this dreaded calamity is—so little acquaintance have they with it.

Cold winds, damp vapours, fogs, &c., are exceedingly hurtful to the aged ; and hence it is improper for them to go abroad early in the morning, or at night, except in the midst of summer, when the cheerfulness and freshness of nature may render an early walk highly beneficial.

Exercise being, as I have fully shewn, of first-rate importance to the preservation of the health of every preceding period of life, it is not to be supposed, notwithstanding the great changes that have taken place in their frames, that it is useless to the aged. Exercise proportioned to the powers of the body is as essential to the

health of the old, as to that of the robust and active youth.

There is little fear that the voluntary exertion of the aged will exceed the requisite quantity; on the contrary, they are too prone to discontinue all exercise, and remain shut up in warm rooms, as if they imagined the least movement would be fatal.* Such habits cannot fail to produce many diseases. Sir John Sinclair truly observes, that “whoever examines the accounts handed down to us of the longest livers, will generally find that to the very last they used some exercise, as walking a certain distance every day, &c. This is commonly mentioned as something surprising in them, considering their great age; whereas the truth is, that their living to such an age without some such exercise would have been the wonder.”†

Walking is the kind of exercise best fitted for old persons. It is gentle—it calls into play all the muscles, and may easily be regulated according to the wants of the system.

Carriage-exercise is comparatively inefficient. Hung on perfectly elastic springs, and rolling over smooth and level roads, but little of the motion of a carriage is com-

* Cicero constantly spent a portion of every day in walking; and Milton, when no longer able to take exercise by himself on account of his blindness, had a machine constructed in his room in which he used to be swung.

† It has been said, that houses are the graves of the living; and certainly, if this is true, a very large portion of our countrymen and women are buried alive. The French ridicule our in-door propensities, by saying that our principal amusement, especially on Sundays, consists in staying at home and looking out of the windows.

municated to the bodies of those it contains. Persons riding in carriages for exercise should sit upright, and not loll at full length, as is too much the practice, especially with ladies.

When the state of the weather will not permit out-door exercises, there are many in-door exercises that may be beneficially taken. Sir Walter Farquhar informed me that when precluded by age from going abroad, he used to walk five miles a-day in his own house.

But great exertion is far from being advantageous to the aged. It causes a rapid loss of heat, exhausts the vital powers, and often gives rise to aneurismal affections. Those who, in their old age, are compelled to labour for their subsistence, are soon cut off. This is the season of *rest*; during which, in a well-constituted state of society, there would be no necessity for action of any kind, except such as the health requires.

Persons advanced in years are prone to taciturnity; and it is to this circumstance that the diseases of the lungs, which so often carry them off, are in a great measure to be ascribed. The lungs need exercise as well as the muscles; and by reading aloud, by singing, and conversation, they may be preserved in a state of health. The advanced age of schoolmasters, and other public speakers, may perhaps be attributed to the exercise given to their lungs. Hence the importance to the aged of preserving an erect posture, to give their lungs full play.

During this period of life much sleep is needed; the nervous powers, easily exhausted, must be renewed; and nine or even ten hours of sleep may be allowed, except to the corpulent, for whom a less period must suffice. If there is any difficulty in procuring sleep, friction will, in most cases, remove it. Too many persons, under these circumstances, seek relief from opiates, and thereby hasten their long sleep.

The hours of retiring to rest should be early and regular. It has been said, that if a man takes the proper quantity of sleep, it is of little consequence at what time it is taken; and some persons in high life, acting upon this false maxim, often rise at three in the afternoon, and go to bed at four in the morning; and consequently rarely see the sun for months together. Few plans can be imagined more effective than this for shortening life.

Theatres, concerts, and late evening parties, are to be eschewed. Attendance at them is, on many accounts, highly destructive to the aged. The vitiated air, the sudden and great change of temperature, to which it exposes them, act upon them with a vastly greater power than upon the younger and more vigorous. Even young persons should not go into company every night; the excitement and late hours to which they expose themselves by so doing soon change their youth into the appearance of old age; for no constitution can long endure such treatment. A London season in high life, constantly spent in company, is generally sufficient to undermine the health of young ladies on first coming out, if they are not very careful: they should therefore make a point of having two or three days of rest and quietness in each week. Music and dancing are very well in their way; but when indulged in to excess are highly injurious both to mind and body.

The choice of a dwelling is a matter of great importance to every one, but especially so to the aged. An elevated, yet sheltered situation, removed from large bodies of water, and from marshes and other wet grounds, is to be preferred.

M. Quetelet, in his work entitled *Statistique du Département de l'Ain*, has obtained the following as the result

of his inquiries respecting the influence of situation upon health and life :

	One Death annually in	One Marriage annually in	One Birth annually in
In the mountainous parts .	38·3 inhab.	179 inhab.	34·8 inhab.
On the banks of rivers .	26·6 —	145 —	28·8
On the level parts sown with corn	24·6 —	135 —	27·5
In parts interspersed with ponds and marshes . .	20·8 —	107 —	26·1

This table clearly shews the fatal effects of the proximity of marshes and stagnant waters.*

Writers are divided upon the relative advantages of a town and of a country residence ; some ascribing to one all necessary good qualities, and others asserting the direct contrary. There are, doubtless, inconveniences attending either ; but I am inclined to think that for the aged the suburbs of a town are preferable to the exposed country.

Pomfret, in his well-known poem entitled “ The Choice,” has happily expressed the more important points to be attended to in the selection of a dwelling : and as his “ choice” in this respect is peculiarly fitted for the aged, I shall extract the passage :

* Of the increased mortality produced by such neighbourhoods, M. Villermé cites the following example :—In the Isle of Ely, in Cambridgeshire, during the interval from 1813 to 1830 inclusive, out of 10,000 deaths which occurred between infancy and the most advanced period of life, 4,731 were before the completion of the age of ten ; whilst there were only 3,005 throughout all the other agricultural districts of England. In the Isle of Ely also there were 3,712 deaths between the ages of ten and forty, out of 10,000 which took place between the age of ten and extreme old age, and only 3,142 in the other agricultural districts, which are not marshy like the Isle of Ely.

“ Near some fair town I’d have a private seat,
 Built uniform ; not little, nor too great ;
 Better if on a rising ground it stood,
 On this side fields, on that a neighb’ring wood ;
 A little garden, grateful to the eye,
 And a cool rivulet runs murmuring by ;
 On whose delicious banks a stately row
 Of shady limes or sycamores should grow ;
 At th’ end of which a silent study placed,
 Should be with all the noblest authors graced.”

All round London there are situations where the advantages of a town and country residence may be enjoyed together ; and London is, doubtless, the healthiest city in the world. When I say this, I of course do not mean every part of London ; there is a wide difference between Brick Lane in the City, or Maze Pond in the Borough, and the elevated situations near Grosvenor Square, Oxford Street, and the Regent’s Park. An old military friend of mine prefers London to any other place of residence, and gives the following reasons for his preference : — In winter London is warm, in spring it is gay, in summer it is shady, and in autumn it is quiet.

The last subject to be noticed is, the regulation of the mind in this period of life.

The mental faculties partake of the decay of the corporeal powers ; and the exercise of the intellect in old age must be of the most gentle and unexciting kind. It is no longer equal to the performance of hard labour ; if it is compelled to toil, as in its time of perfection, it soon breaks down beneath the imposition, and refuses any longer to serve a master so inconsiderate.

The aged should abstain from engaging in any enterprise, whether commercial, political, or literary, which may require much mental labour or occasion anxiety. They should eschew all causes of excitement with a deter-

mination not to be shaken, founded on the knowledge that they tend directly to shorten life, and often bring on insanity.*

Happily for man, when old age arrives, his passions lose much of their strength, and seldom disturb the serenity of the soul. Where this is not the case, the most vigorous exertions should be made to weaken their violence, and reduce them into subjection to the reason.†

What can be more pitiable than to behold a human

* These observations apply to persons in the more vigorous periods of life, as well as to the aged; as the following passage from Sinclair's Code of Health well shews:—"The engrossing and harassing nature of their pursuits, and, in Great Britain, perhaps the unseasonable hours at which legislative business is carried on in Parliament, seem to wear out life. A retrospect of the last thirty years presents us with a list of not fewer than seven distinguished statesmen who have sunk, almost in the prime of life, under the turmoil and anxieties of their public duties, viz. Pitt, Fox, Whitbread, Romilly, Liverpool, Castlereagh, and Canning." The resumption of the early habits of our ancestors in all our affairs, whether of business or amusement, would be productive of great benefit to the general health.

† Indulgence in any passion is often fatal to the aged; by determining too large a quantity of blood to the brain, it not unfrequently occasions apoplexy. Anger is perhaps the passion most common to the aged; its destructive effects are strikingly exemplified in the following case. An old naval officer went on one occasion to visit his son; and when, being about to return home, he took up his hat, he found it filled with stones, the work of his mischievous grandson. This circumstance threw him into a great passion, which was increased by the laughter in which his son and daughter indulged at the *mauvaise plaisanterie* of their hopeful heir: he fell down in an apoplectic fit; and though prompt medical aid was procured, he died a few days afterwards, the victim of passion.

being, whose life is scarcely worth a year's purchase, still immersed in the pursuits of business, still striving to amass wealth, and neglecting the enjoyments which a long life of labour has placed at his command, that he may add a little more to the hoard from which he must so soon be for ever separated !

Worse even than this sad spectacle is that of the hoary voluptuary, who, in spite of the warnings which his blunted senses are constantly forcing upon him of approaching dissolution, even at the eleventh hour pursues his sensual gratifications with an eagerness which seems to say, " I must soon leave the world of sense ; but before I depart, I will glut myself with its enjoyments !"

Such men are beyond hope — they have no hopes, no conceptions above the low and debasing round to which their ideas have ever been confined ; and it is not to be regretted that they must, by their follies or crimes, soon rid the world of their presence.

The moderate exercise of the intellectual and moral faculties conduces much to the happiness and health of the aged. The pleasures of music, poetry, and painting, may yet confer on them many delightful hours ; and in the bosom of their families, in the midst of their friends, they may yet find objects for the kindly feelings of their nature ; and though death is near, they may still indulge in a harmless gaiety of spirit, and thereby keep alive the glimmering lamp of life.

The aged are sometimes inclined to melancholy, enmity, timidity, distrust, and fear of death. Such depressing emotions act most injuriously upon those who are subject to them ; those who surround the old, and are charged with the care of ministering to their comforts, can do no greater service to them than keeping their sensibility constantly in play, and placing it in the most pleasing and consoling situations. It is also the duty of

those thus afflicted to cast off such sentiments. Those only whose youth and manhood have been passed in obedience to the dictates of a pure and elevated morality can reasonably expect such an old age as that of *Adam* in Shakspeare's *As you like it*, who, when "almost fourscore," could describe himself thus:—

" Though I look old, yet I am strong and lusty:
 For in my youth I never did apply
 Hot and rebellious liquors in my blood;
 Nor did not with unbashful forehead woo
 The means of weakness and debility:
 Therefore my age is as a lusty winter,
 Frosty, but kindly."

Act ii. Sc. 3.

I have in the foregoing pages described old age as it is generally presented to our observation; not as I think it might and ought to be.

There is in reality nothing in this period of life to occasion gloom and despondency, provided the preceding periods have been passed in accordance to the laws of God and of nature. Those persons whose conduct has been beneficent, whose motives have been pure, and whose habits have been temperate, may safely look forward to an old age of happiness: respected by their juniors, free from the strifes and cares of the world, and happy in the recollection of a well-spent life, they enjoy a calm peacefulness which more than compensates for the loss of some of the pleasures of youth. And how gratifying a sight is it to see the white-headed, venerable patriarch displaying the kindness and cheerfulness of the young, and diffusing around him joy and happiness! It has been my privilege to be personally acquainted with some such old men. The late Sir Isaac Heard, Garter King-at-Arms,—the Earl of Harcourt,—and Viscount Carlton,—all advanced in years, were yet of lively, cheerful dispositions, as I had many

opportunities of observing during my professional attendance upon them. And two old ladies of my acquaintance, one of them aged 79, and the other 87, have better spirits than many young ladies in their teens.

The following account of persons remarkable for longevity will appropriately conclude this book, and may perhaps be interesting to those who desire to attain old age.

Cardinal de Salis, aged 110 years.

In February 1786 died, at the age of 110 years, in the full enjoyment of every faculty except strength, Cardinal de Salis, archbishop of Seville. He used to tell his friends, when asked what regimen he observed, "By being old when I was young, I find myself young now I am old. I led a sober, studious, but not a lazy or sedentary life. My diet was sparing, though delicate; my liquors the best wines of Xeres and La Mancha, of which I never exceeded a pint at any meal, except in cold weather, when I allowed myself a third more. I rode or walked every day, except in rainy weather, when I exercised for a couple of hours. So far I took care of the body; and as to the mind, I endeavoured to preserve it in due temper by a scrupulous obedience to the Divine commands, and keeping, as the apostle directs, a conscience void of offence both towards God and man. By these innocent means I have arrived at the age of a patriarch, with less injury to my health and constitution than many experience at forty."

Mr. Robert Raurman, aged 118 years.

In 1823 died Mr. Robert Raurman of Irthington, near Carlisle, at the age of 118 years. From early youth he had been a laborious worker, and was at all times healthy and strong, having never taken medicine, nor been visited with any kind of illness, except the measles when a child,

and the hooping-cough when above 100 years of age. During the course of his long life he was only once intoxicated, which was at a wedding; and he never used tea or coffee, his principal food having been bread, potatoes, hasty-pudding, broth, and occasionally a little meat. He scarcely ever tasted ale or spirits, his chief beverage being water, or milk and water mixed. His vigour never forsook him till far advanced in life, for in his 108th year he walked one day 16 miles without the help of his staff. On the day before his death, he was seized with illness; the next day he grew weaker and weaker as the day declined, but experienced no sickness, and died peaceably in the evening.

Peter Garden, aged 131 years.

He was a native of Aberdeenshire. He lived in that country, and died on the 12th January, 1775. Little is known of his history. He was employed in agricultural labours nearly until his death; and preserved his looks so well, that he appeared, it is said, to be a fresher and younger man than his son, when both were advanced in years.

The Countess of Desmond, aged upwards of 140 years,

Was daughter of the Fitzgeralds of Drumona in Waterford; and in the reign of Edward IV. married James, fourteenth earl of Desmond. She lived to the age of some years above 140, and died in the reign of James I. It appears that the Countess retained her full vigour in a very advanced period of life: the ruin of the house of Desmond reduced her to poverty, and obliged her to take a journey from Bristol to London, to solicit relief from the court, at a time when she was above 140. The Countess is mentioned by Sir Walter Raleigh in his History of the World, and by Bacon in his work on Life and Death.

Thomas Parr, aged 152 years,

Was born in Shropshire, in 1483, in the reign of Edward IV., and died in the Strand, London, in 1635. He lived in the reigns of ten kings and queens, and was buried in Westminster Abbey. He seems to have been a man of a somewhat different constitution from the rest of the human species; for a person who had seen him describes him thus :

“ From head to heel his body had all over
A quickset, thickset, nat’ral hairy cover.”

A short time before his death he was brought up to London by the Earl of Arundel, and carried to court. The king (Charles I.) said to him, “ You have lived longer than other men : what have you done more than other men ? ” He replied, “ I did penance when I was a hundred years old.”

His rules for longevity are these : “ Keep your head cool by temperance, your feet warm by exercise ; rise early, and go soon to bed ; and if you are inclined to be fat, keep your eyes open, and your mouth shut ; ” or in other words, “ Be moderate both in your sleep and diet.” If Parr practised the recommendations here expressed, it is not altogether surprising that he attained so great an age ; inasmuch as they are in strict accordance with physiological principles ; and it will be seen that they embrace some of the most important truths enunciated in this book.

When his body was dissected, all his inward parts appeared so healthy, that, if he had not changed his diet and air, he might probably have lived a good while longer. An account of the person and dissection of Parr was written by the celebrated Harvey.

Henry Jenkins, aged 169 years.

The birth-place of Jenkins is unknown, but there is

satisfactory evidence of his great age. When between ten and twelve he was sent to North Allerton with a horse-load of arrows, previous to the battle of Flodden, which was fought on the 9th of September, 1513. He died on the 8th day of December, 1670. He had been oft sworn in Chancery and in other courts to above 140 years' memory; and there is a record preserved in the King's Remembrancer's Office in the Exchequer, by which it appears that Henry Jenkins of Allerton-upon-Swale, labourer, aged 157, was produced and deposed as a witness. This deposition was taken in April 1665, at Kettering.

Little is known of his mode of living, excepting that towards the last century of his life he was a fisherman, and not only used to wade the streams, but actually swam rivers after he was full 100 years of age. When he could no longer follow the occupation of a fisherman, he went begging about Bolton, and other places in Yorkshire. His diet is said to have been coarse and sour.

Sarah Rovin, aged 164, and John Rovin, aged 172.

The only account we have of this venerable pair is an inscription upon a picture of them, dated August 25th, 1725, which states that they had been married 147 years, and were both born and died at Hadooia in Temeswaer Banels (Hungary); that their children, two sons and two daughters, were all then alive: the younger son was 116 years of age, and had two great grandsons, one in the thirty-fifth, and the other in the twenty-seventh year of his age.

Petratsch Tortan, or Czartan, aged 185.

In a Dutch dictionary, intituled, "Het algemeen Historich Woonderbok," &c., there is an account given

of this ancient personage, of which the following is a translation.

“Czartan was born in 1537 at Kofrock, a village four miles from Temeswaer, in Hungary, where he had lived 180 years. When the Turks took Temeswaer, he kept his father's cattle. A few days before his death, he walked, with the assistance of a stick, to the post-house of Kofrock, to ask charity of the travellers. He had but little sight, and few of his teeth remained. His son, 97 years of age, was born of his third wife. Being a Greek by religion, the old man was a strict observer of fasts, and never used any food but milk and cakes, together with a good glass of brandy. He had descendants in the fifth generation, with whom he sometimes sported, carrying them in his arms. He died in 1724. Count Wallis had a portrait taken of him, having fallen in with him some time before his death. The Dutch envoy, then at Vienna, transmitted this account to the States-General.”*

Thomas Carn, aged 207 years.

Of this venerable individual the following account is given in Taylor's Annals of Health and Long Life. “The most remarkable instance of longevity which we meet with

* I have in this chapter, as my readers will perceive, quoted frequently from the Code of Health of the late Sir J. Sinclair, with whom I had the pleasure of being personally acquainted, and who, a short time before his death, presented me with a copy of his work, accompanied with a letter, in which he speaks in flattering terms of my Treatise on the Eye. The worthy baronet's Code of Health is almost the only work of importance in our language which contains much information on the health of the aged; and he has collected in it many curious and interesting facts, some of which I have thought would not be unacceptable to my readers.

in British history is that of Thomas Carn, who, according to the parish register of St. Leonard, Shoreditch, died on the 28th of January, 1588, at the astonishing age of 207 years. He was born in the reign of Richard II., anno 1381, and lived in the reigns of twelve kings and queens; namely, Richard II., Henry IV., V., and VI., Edward IV. and V., Richard III., Henry VII. and VIII., Edward VI., Mary, and Elizabeth. The veracity of this statement may be readily ascertained by any person who chooses to consult the above register."

It is remarkable, that of these ten persons only two belonged to the higher ranks of society, all the rest being dependent for their subsistence on their own labour. Judging from this fact, it would appear that a condition of toil and of comparative poverty is more favourable to longevity than one in which there is no demand for exertion, and in which temptations to disobedience of the natural laws abound. But it is by no means necessary that the possession of wealth should be destructive of life. On the contrary, it certainly would, if properly employed, conduce much to the prolongation of life; and the fact that it does not generally do so, only proves how much ignorance and heedlessness there must be on the subject of health among the rich.

The following is a list of some of the most celebrated individuals who have attained what, according to the average duration of life, may be termed old age:—

Madame Dacier 69	Locke 73
Vendramini 70	Dugald Stewart 73
Linnæus 71	Lopez de Vega 73
Seneca 71	Dr. Curtis 74
Bishop Van Mildert 71	Johnson 74
Bourdaloue 72	Jenner 74
Robertson 72	Mrs. Chapone 75

Haller	75	Franklin	84
Scaliger	75	Herschel	84
Usher	75	Sir J. Sinclair	84
Leonardo da Vinci	75	Talleyrand	84
Mrs. Bowdler	76	Newton	85
Mrs. Siddons	76	Anacreon	85
Baxter	76	Mirabeau	86
Sir Everard Home	77	Halley	86
Roger Bacon	78	Dr. Young	86
Galileo	78	C. Hutton	86
Swift	78	Cassini	87
La Place	78	Lord Eldon	87
Cullen	78	Lady R. Russell	87
Galen	79	Rowland Hill	89
Massillon	79	Mrs. Hannah More	89
Samuel Parr	79	Elizabeth Baxter	89
Euripides	79	Lord Stowell	90
Harvey	80	Sophocles	90
Thucydides	80	Sir C. Wren	91
R. Bentley	80	Hobbes	91
Juvenal	80	Bishop Bathurst	92
Buffon	81	William Hutton	92
Plato	81	Adam Fergusson	93
Count Ludolf	82	Sir Hans Sloane	93
Pestalozzi	82	Titian	94
Tintoretto	82	Simonides	98
Goethe	83	Zeno	98
D'Aubenton	83	Herodian	100
Chas. Butler	83	Fontenelle	100
Bentham	84	Gorgias	107
Sir J. Soane	84	Hippocrates	109

In conclusion: the fact that some men have attained an age beyond 150 years in length, is sufficient to prove that the human frame is not formed for a short term of existence, and that human life may reasonably be expected to be much prolonged by attention to the laws which regulate

health. It is a vulgar error to suppose that men are less strong and vigorous, and therefore shorter lived, now than in former times. All the evidence we possess upon the subject goes to establish the cheering fact, that the human race has not degenerated, but that, on the contrary, the average term of existence has kept on increasing; and that every discovery in science and art tends, in some way or other, to ameliorate the condition and add to the years of mankind. Dr. Southwood Smith says: "It appears that towards the close of the 17th century, the duration of life was considerably less in England than in France; less even than in Holland nearly a century earlier. Thus the nominees of the tontine of France, between the years 1693 and 1745, at the age of fifty, according to M. de Parcieux, fell short of the maximum longevity by 133 weeks; the public annuitants of Holland, seventy-eight years before, namely, between the years 1615 and 1740, according to M. Kersseboom, fell short of the maximum longevity by 186 weeks; whereas the nominees of the tontine of England, between the years 1693 and 1775, according to Mr. Finlaison, fell short of it by 269 weeks, a difference nearly double that of Holland, and quite double that of France, in persons of the corresponding rank in society. Since that period, surprising changes have taken place in all the nations of Europe; but in none has the change been so great as in England. From that period, when its mortality exceeded that of any great and prosperous European country, its mortality has been steadily diminishing; and at the present time the value of life is greater in England than in any other country in the world. Not only has the value of life in England been regularly increasing until it has advanced beyond that of any country of which there is any record, but the remarkable fact is established, that the whole mass of its people now live considerably longer than its higher classes did in the seventeenth and eighteenth

centuries.”* Nothing can more clearly shew the value of knowledge, and the direct influence which its diffusion and extension exert in adding to the sum-total of happiness.

A knowledge of the circumstances on which health depends has, in an especial manner, this influence. Without a certain degree of health, all other advantages are unable to confer happiness. The condition of the body is intimately connected with that of the mind; and it is a truth too much disregarded, that the most valuable intellectual attainments and moral qualities can produce their full and legitimate results, both upon the individual possessing them and upon others, only when the physical powers are fully developed, and, by proper training, rendered the fit instruments of the mind. It is forgotten, also, that the mental qualities themselves depend greatly upon those of the body; that when the body is affected, the mind is generally involved in its misfortune: so that, in reality, physical education is an essential part of mental education. This important truth is now beginning to be recognised; and we may confidently look forward to the time when “how to take care of his health will be one of the leading parts of the moral and intellectual education of man.”†

* Philos. of Health, vol. i. p. 145. † Mill on Education.

THE END.

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