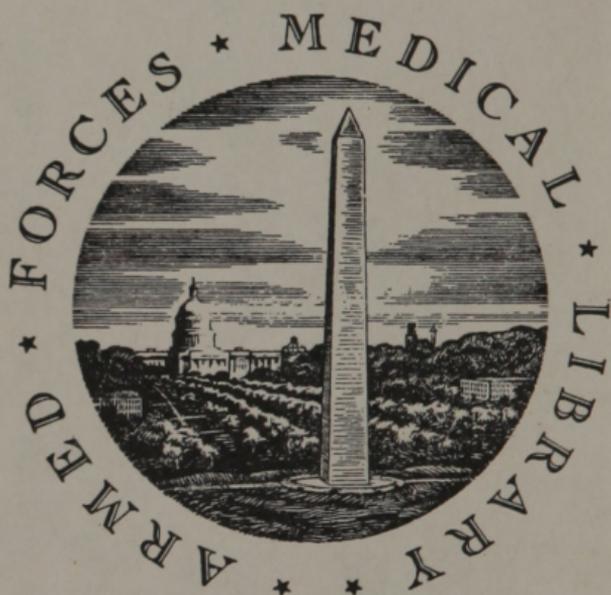


UNITED STATES OF AMERICA



FOUNDED 1836

WASHINGTON, D.C.

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LECTURES

ON

DIET AND REGIMEN:

BEING

A SYSTEMATIC INQUIRY

INTO THE MOST RATIONAL MEANS OF PRESERVING
HEALTH AND PROLONGING LIFE:

TOGETHER WITH

PHYSIOLOGICAL AND CHEMICAL EXPLANATIONS,

CALCULATED CHIEFLY

FOR THE USE OF FAMILIES,

IN ORDER TO BANISH THE PREVAILING ABUSES
AND PREJUDICES IN MEDICINE.

BY A. F. M. WILlich, M. D.

Qui stomachum regem totius corporis esse
Contendunt, vera niti ratione videntur:
Hujus enim validus tenor firmat omnia membra;
At contra ejusdem franguntur cuncta dolore.

SERENUS SAMMONICUS,
De Medicina Præcepta saluberrima.

VOL. I.

The First Boston, from the Second London, Edition.

Corrected and improved, with considerable Additions.

BOSTON:

PRINTED BY MANNING & LORING,
For JOSEPH NANCREDE, No. 49, Marlbro'-Street.

1800.

THIS WORK
IS DEDICATED,
*TO THOSE MOTHERS AND GUARDIANS
OF FAMILIES,*
WHOSE
GREATEST PRIDE AND HAPPINESS IT IS,
TO REAR
HEALTHY AND VIRTUOUS CHILDREN;
AND
*TO THOSE FRIENDS OF SOCIETY AND
THEMSELVES,*
WHO ARE SOLICITOUS
TO PRESERVE THEIR HEALTH,
AND TO ADOPT
THE PARENTAL HINTS OF NATURE,
RATHER THAN SUBMIT TO
THE PALLIATIVE RELIEF OF ART.

ADVERTISEMENT

TO THE BOSTON EDITION.

TO prevent disease by so simple and intelligible an expedient, as a due attention to *Diet* and *Regimen*, should become the most universal as it surely is the most rational pursuit of every man who values health, and is desirous of prolonging life. A judicious book, calculated to assist him in that pursuit, is therefore entitled to preeminence in every man's library.

Books are not wanting which profess to teach us how to become our own physicians, when we are sick :—Indeed were we to credit implicitly the numerous *nostrums* and *specifics*, so strongly commended by many writers on medical subjects, we might almost venture to question the ordinary principle of human infirmity, or man's mortality. Authors of that description have given great encouragement to art, by discountenancing the suggestions of nature ; and have furnished the means of creating diseases, instead of assisting in the purpose of *cure* or *prevention*. Before the present, no author had expressly undertaken to instruct mankind in the faculty of shunning disease by means so simple as the regulation of Diet. This omission has probably been owing to an opinion, that the subject is too trivial and ordinary to authorize

grave discussion, and that a man must first be acquainted minutely with the animal functions, before he should hazard an attempt to preserve them in order, or to rectify their derangements. The fallacy of such an opinion is most clearly exposed in the present production; and we may here be convinced, that the best and most effectual means of prolonging life, and securing the blessings of health, are not only comprehensible, without the aid of great investigation, but practicable without the necessity of great inconvenience or restraint. The rules contained in the present volumes are deduced from the most simple and obvious view of the subject; and although they may exhibit nothing very mysterious or abstruse, we presume they are not therefore entitled to less credit or attention. In these sentiments, we would not be considered to doubt the profundity of the healing art; we only admire the simplicity of our author's plan, for rendering the intervention of that art superfluous and unnecessary.

It is true, indeed, the brute creation have no factitious guide to direct them in the performance of their animal office; but nature, their only monitor, hath long since ceased to be the guide of man. She forsook him when he abandoned her, to pursue the enjoyments of society, on the road of excess and intemperance.

In the present highly improved state of society, when the efforts of talents are on the stretch, to discover new pleasures, new

gratifications, it is not surprising that the line of sober enjoyment should be overlooked.* Custom fortifies itself by appetites; it therefore requires no small degree of sagacity to discern, and firmness to abstain from those excesses, where reason, already seduced by the allurements of new dainties, readily yields to the fascinating form in which they are presented to our senses. If it be an object of magnitude to correct the present perverted taste of mankind, and to re-vest pain with the power of self-defence, against a numerous train of mere artificial maladies, then may we venture to declare, that this work is justly entitled to more encomiums than we have faculty

* Much time, learning, and talent has been bestowed on the researches, made into the causes of the late epidemic or endemic, or contagious fever, which has for a few years past desolated the capitals of the United States. Hypotheses were broached, opinions formed, parties raised, but no cause found. What would the American faculty think, if, after so many inquiries, this mighty cause should be found resolvable in the *vicious diet* and *incautious regimen* peculiar to the Americans? Such are however the grounds of a very judicious treatise, written in French, and sent to the President of the United States, that he might render it public. The author, who has resided several years in America, paints in strong colours the abuses of *American diet*, compares it minutely with the mode of living of other nations, especially those who live in the same latitudes, attributes all the autumnal diseases of the Americans, and namely their yellow fever, to that cause; and is surprised that it does not produce still greater and more frequent evils, in the capitals of America, where the abuse cannot be exceeded. Nor is the conclusion rash, when we find all foreigners, who visit this country, Frenchmen, Germans, and even Englishmen, exclaiming against *our copious and everlasting dinners*. Not that feasts and sumptuous entertainments are unknown in Europe, at which the rules of sobriety are trampled upon, but they are given on particular occasions only, whereas the ordinary of an American is an every day feast. Americans who have travelled abroad, know the truth of this observation. To indulge in a party, where excess must follow, once or twice a month, may hurt us; but to overload the stomach every day, must kill us in a very short time.

to bestow. Our Author, unlike many others of his profession, seems to have been less desirous to discover the occult properties of the various articles of sustenance, than to determine their effects, when applied to the human constitution.

It is, moreover, a circumstance, adding not a little to the value and utility of these volumes, that they are furnished with a minute and copious index, referring particularly to almost every substance, vegetable or animal, in use among men, so that the reader may discover, almost by a single glance, the best rules by which to control his appetite, and the precise limits within which the inclination of his senses may be indulged with impunity.

SUBSCRIBERS' NAMES.

BOSTON.

A.

AMORY Jona.
 Adie Alexander
 Avery, jr. John
 Andrews John
 Avers Mary-Ann
 Archbald Azor G.
 Adams Ebenezer
 Alexander Jeduthan
 Athears George
 Alexander William
 Austin John S.
 Ayers Lemuel
 Anins Sally
 Allen Mrs. Betsy
 Andrews William
 Allen James
 Andrews William

B.

Blake George
 Blake Nathaniel
 Binney John
 Blake Martin
 Billings Samuel
 Baker Luke
 Bowers Samuel
 Blake Thomas
 Blagge Samuel
 Buffey Benjamin
 Beale Robert
 Blair, jr. Victor
 Brodarys Priscilla
 Barnes Benjamin
 Bangs Elisha
 Barker Moses
 Bordman William
 Barrett Francis

Blake Edward
 Bowman Edmund
 Burr Peter
 Burrill James
 Baxter Daniel
 Bafs Joseph
 Babcock Edward
 Bullard Jabez
 Benn Abraham
 Butterfield Abraham
 Bayley Moses
 Blaney Aaron
 Badger Thomas
 Bray John
 Bancroft John
 Brown Aaron
 Boynton William
 Bellows Darius
 Benjamin Daniel
 Brazer William
 Blake Edward
 Bernard Samuel

C.

Claxton, jr. John
 Clarke Humphrey
 Cornish John
 Cooper Samuel
 Clarke John. Bryant D.
 Coverly Samuel
 Cushing Henry
 Cazneau Samuel
 Canterbury Jacob
 Cunningham Robert
 Clarke Nathaniel
 Coates Benjamin
 Caswell Richard
 Crosby Aaron

SUBSCRIBERS' NAMES.

Chamberlin Samuel
 Cheever Sarah
 Carnay Daniel
 Carrel Jared
 Conning Martin
 Campbell James
 Churchill Lemuel
 Cutter William
 Cheney, jr. Samuel
 Coleworthy Nathaniel
 Chandler William
 Cunha Joao
 Crosby William
 Cushing Saml. Nichols
 Clarke Lemuel

D.

Davis, jr. J. 8 copies
 Debassayns Henry
 Davis John
 Davis Isaac P.
 Dillaway, jr. S.
 Dix Joseph
 Dexter William
 Dyer John D.
 Devotion Lewis
 Dodd William
 Drew Job
 Dean, jr. John
 Ditson Joseph
 Dall William
 Davis, jr. Amasa
 Dorr Samuel
 Davis Joshua
 Davis Charles

E.

Everett D.
 Ellifson James
 Evans Robert
 Eaton Joshua
 Edes Edward
 Emmons Thomas
 Ettinger Martin
 Easte Caleb

F.

Frazier J. Curley
 French Zadock
 Francis Ebenezer
 Fisher John
 Flanagan William
 Farnham Henry
 Farmer William
 Fennelly Robert
 Frothingham Thomas
 Fitton Abraham

G.

Gay Martin
 Grew John
 Gurley J. W.
 Gould Samuel
 Greenwood Nathaniel
 Goodwin Timothy
 Gay Willard
 Gardner Joseph
 Gay Jane Mrs.
 Garaut Francis
 Gustine Joel
 Greenwood Wm. P.
 Gragg Jacob
 Glover Oliver
 Gay Ebenezer

H.

Hunnewell Richard
 Hancock John
 Hawkins Samuel
 Howard John D.
 Harris Leach
 Hastings Henry
 Homes Robert
 Howe Joseph. Hayden John
 Hewes Nathaniel P.
 Hagger Benjamin K.
 Hunnewell Jonathan
 Harris Samuel
 Hemmenway John
 Homes William
 Hoffman John

- | | | |
|-----------------------|----------------|------------------------------|
| Heard John. | Howard John C. | Leach William |
| Hovey Margaret | | Laugieur Mrs. H. |
| Heard J. & W. | | Lord Richard |
| Hodgdon, jr. Benjamin | | Lyon Uriel |
| Howe Thomas | | Lewis Ebenezer |
| Hunt William. | Harris John | Lillie Thomas |
| Holbrook Abel | | Learned Elisha |
| Hard Nathaniel | | Loring Matthew |
| Hill, jr. William | | Loring, jr. Caleb |
| | J | Loring Joseph |
| Jackfon John | | Lincoln, jr. Levi |
| Johnson, jr. John | | M. |
| Jones Joseph | | Moulton Ebenezer |
| Jackfon Thomas | | Micklefield William |
| Johnston Benjamin | | Messinger Henry |
| Jackfon Edward | | May Samuel |
| Johnston Edward | | M ^c Kean William |
| Jones Thomas K. | | Murphy Henry |
| Jennings William | | Mackay Mungo |
| Julien | | Mafon Jonathan |
| | K. | M ^c Farlane John |
| Kneeland William | | Meacham William |
| Kingsbury Ruth | | Maxwell James |
| Knowlton Abraham | | Mann Ralph |
| Kuhn, jr. George | | Mariarty John |
| Knower Daniel | | M ^c Intosh Peter |
| Knower Benjamin | | M ^c Clench Joseph |
| Kirkwood James | | Martin William P. |
| Kuhn John | | Morton Andrew |
| Kirkland J. T. | | Morton Perez |
| | L. | N. |
| Lodge Matthew | | Nelson Hannah |
| Lee N. C. | | Nickerfon Elijah |
| Loving Joseph | | Nickels John H. |
| Lane J. M. | | Noyes Joseph |
| Lewis Jonathan C. | | O. |
| Lucas Isaiah | | Osborn John |
| Laken David | | Otis H. G. |
| Loring C. | | Odiorne Ebenezer |
| Lawrence Afa | | Ockman Ebenezer |
| Low William | | P. |
| Leonard Catherine | | Porter Jacob |

Pickman William
 Phillips Margaret
 Perkins Isaac
 Perkins James
 Phelps Charles P.
 Palmer Joseph
 Perkins Samuel
 Paine Charles
 Phillips John
 Prince H. B.
 Pearce, jr. David
 Perkins Jabez
 Pierpont Joseph
 Pierpont Robert
 Powel Joseph
 Pelham Thomas
 Perkins James
 Payne William
 Plumback John G.
 Peirce Nahum
 Pierce Erasmus
 Popkin Thomas
 Porter Charles

Q.

Quincy Edmund
 Quiner William
 Quincy Abraham

R.

Roulstone Michael
 Rogers Robert
 Ransford Josiah Collins
 Richards Eliakim
 Robbins Samuel
 Ridgway James
 Read Joseph
 Robinson Robert
 Richards John S.
 Robins Joseph
 Ray A. Howard
 Rofs John
 Roulstone John
 Ruggles Samuel

Richardson Robert
 Roberts John L.
 Ruggles Nathaniel
 Rice N.

S.

Selfridge Thomas
 Shelton Charles
 Sumner Josiah
 Sigourney, jr. Charles
 Smith Michael
 Sargent Daniel
 Shaw R. G.
 Stephenson William
 Salisbury Samuel
 Story W.
 Stimpson William
 Stackpole William
 Sumner Benjamin
 Snow Joshua
 Stetson Lewis
 Salter, jr. Richard
 Scholtz John G.
 Stevens Joseph
 Spear Samuel
 Smith Harry
 Scholfield Isaac
 Swift Henry
 Smith Joanna L.
 Swett Benjamin J.
 Stillman John M.
 Sumner Miss Hannah
 Starr Mrs.
 Stetson Barzillai
 Sanborn Reuben
 Sargent J. T.
 Simson Polly
 Swett Samuel
 Stoughton Don Juan
 Seaver Ebenezer

T.

Turner William
 Todd, jr. William

Tucker Beza	West Samuel
Tucker Richard D.	Wentworth Edward
Tyler David	Warne William
Thompson, jr. B.	Wheelwright Lot
Thayer Elisha	Whitney John
Taylor William	Williams Elijah
Todd Samuel	Wells Ebenezer
Tyler Joseph	Waterman Foster
Tuckerman John	White Benjamin
Trask John	Winthrop John
Taylor Levi	Williams John
Tyler Belcher	Williams Elijah
Townsend David	Weld Daniel
Thomson James	Weller George
Tufts Frances	Whiting George
Thayer Nathaniel	Whipple Benjamin
Tuck Samuel J.	Watson Ebenezer
V.	Wilton Nathaniel
Vose Elisha & Joshua	Wendell Henry
Vose Isaac	Wright Jonathan
Villiers T. C. (not Monf.)	Wheeler George
Vinal David	Wheeler Samuel S.
W.	Warren John
West N. P.	Webb Rufus

A.	Bromfield John, Billerica
AUSTIN Josiah, Salem	Baker David, Roxbury
Allen, jr. Edward, do.	Burrill Jerusha, do.
Abbot, jr. Moses, Andover	Brewer Ebenezer, do.
Andrew Nathaniel, Salem	Belknap Charles, do.
Andrews Catherine, do.	Bangs Samuel, Brooklyne
Andrews Jonathan, do.	Bigelow Levi, Pultney, V.
Atkinson Joseph, Newbpt.	Brown James, Danvers
Atkinson William, Newbury	Briggs Elijah, Salem
Akerman Walter, Portsm.	Balch Benjamin, do.
Adams Zabdiel B. Charlefst.	Brooks Asa, do.
Adams James, Cambridge.	Butman Eliphalet, do.
B.	Bares Peter, do.
Brinley Robert, Tyngsb'ro.	Barnard Samuel, do.
Blake Francis, Rutland,	Brooks Samuel, do.
(Worcester County)	Bray John, do.

Buffum Samuel, Salem	Chefholm William, Salem
Brown Nathaniel, do.	Cliff Peter, do.
Beckford John, do.	Clarke, jr. Daniel, do.
Barnes Thomas, do.	Cross Ralph, Newburyport
Briggs Lemuel, do.	Coffin, jr. David, do.
Buffum Caleb, do.	Curtis Henry, do.
Barnard Thomas, do.	Coffin Lemuel, do.
Bartlett Cornelius, do.	Choate Ebenezer, do.
Brooks Seth, do.	Curtis Samuel, do.
Bray Aaron, Newburyport	Carter Benjamin, do.
Brockway Pardon, do.	Chafe Samuel, do.
Boardman Benjamin G. do.	Challis Timothy, Amesbury
Bass, jr. Edward, do.	Cutter William, Portsmouth
Boardman Offin do.	Coffin Peter, do.
Brown Abraham, do.	Clark George, do.
Balch Benjamin, do.	Cutts Samuel, do.
Burbank David, do.	Clark Joseph, do.
Bradbury George, do.	Chadwick Ebenezer, do.
Bartlett Samuel, do.	Coffin William, do.
Bass Edward, do.	Cotton Samuel, do.
Bartlett Joseph, Amesbury	Crosby Ziba, do.
Brackett Joshua, Portf. N. H.	Clap Otis, Charlestown
Badger John, Portsmouth	Carver Reuben, do.
Bass Joseph, do.	Curtis Stephen, do.
Brown Jacob, Charlestown	Call Jonathan, do.
Barker Josiah, do.	Clarke Charles, Cambridge
Bacon John, Medford	Craigie A. do.
Burridge John, do.	D.
Brooks J. do.	Dunham Josiah
C.	Dodge Pickering, Salem
Crate Stephen, Newton	Davis Joseph, Roxbury
Carter Joshua, Newburyport	Donnison James, do.
Clap John, Roxbury	Daniels David, Danvers
Curtis Hannah, do.	Doggett Elisha, Salem
Cummings William, do.	Derby John, do.
Chandler W. Salem	Dale Philip, do.
Cleveland, jr. William, do.	Derby Samuel, do.
Crombie Benjamin, do.	Dole Matthew, Newburypt.
Chafe Abner, do.	Dupeton Poyen, do.
Clarke Daniel, do.	Dana Daniel, do.
Cheever Samuel, do.	Dudley Elias, do.
Chafe Henry, do.	Dwight Josiah, Portsmouth

Day James, do.	Gardner, jr. John, Salem
Dame, do.	Gardner Jonathan, do.
Dexter George B. Charlestown.	Gavet Jonathan, do.
E.	Glover Ichabod, do.
Elkins H. Salem	Gotter Betsey, do.
Ely A. do.	Gould Solomon, do.
Epes Samuel & William, do.	Gwinn Thaddeus, do.
Eaton Daniel, Portsmouth	Gerrish Mayo, Newburyport
Evans Susanna Mrs. do.	Gerrish, jr. Enoch, do.
Evans John, do.	Goodwin John, do.
Emes Robert, Charlestown	Gunnison Ebenezer, do.
F.	Goddard Jonathan, Portsmouth.
Fillebrown John, Salem	Gilman Ward, do.
Fisher James Abfalom, do.	Garland William, do.
Fletcher R. Esq. Amherst	Greenleaf John, do.
Fisk, jr. William, Roxbury	Gardner William, do.
Faxon Eleb, do.	Goodwin Edw. Charlestown.
Farley Abel, do.	Goodwin David, do.
Frances John, do.	H.
Foster Abraham, Salem	Hall George H. Brattleboro ^s
Frye Daniel, do.	Hunt Ebenezer, Northamp.
Felt Mary, do.	Howe George, Roxbury
Fenno Joseph, do.	Hutchings William, do.
Felt Benjamin, do.	Harriman Moses, do.
Frothingham Nathaniel, do.	Hathaway Elisha, do.
Floyd Gilbert, do.	Haraden Andrew, do.
Fitz Aaron, Newburyport	Hastings Simon, do.
Fowler Samuel, Amesbury	Hastings Seth, Mendon
Fulton John, Portsmouth	Holman, jr. Samuel, Salem
Foster Charles, do.	Hacker Isaac, do.
Foster James, do.	Hathorne, jr. William, do.
Folsom Josiah, do.	Haraden Jonathan, do.
Farley John, Charlestown	Hook Elias, do.
Floyd James T. Medford	Howard John, do.
Foster Bessinger, Cambridge	Hovey Thomas, do.
G.	Hutchinson Benjamin, do.
Gardner John, Milton	Hale Enoch, Newburyport
Gilman Arthur, Newburypt.	Hunt Woodbridge G. do.
Greenleaf John, do.	Howard Nathaniel, do.
Gore Samuel, Roxbury	Huse Joseph, do.
Glover Joseph, Salem	Hale Samuel, do.
Goodale Joshua, do.	Hodge Michael, do.

Hale Thomas, Newburyport	Kimball Nancy, Salem
Hoyt Joseph, Amesbury	King Daniel, Danvers
Ham George, Portsmouth	Knapp Benoni Eaton, Salem
Hamilton Jonathan, do.	Knapp Silas, Newburyport
Hill John B. do.	Knowlton John, do.
Hall E. do.	Knapp Nathaniel, do.
Hyde T. do.	L.
Huntrefs George do.	Lyman Wm. S. Northfield
Harris Job, do.	Lamson John, Charlestown
Hill Samuel, do.	Lee William O. Salem
Ham Samuel, do.	Lamson Samuel, do.
Harris, jr. Robert, do.	Low Caleb, Danvers
Hart R. do.	Lang, jr. William, Salem
Hardy Charles, do.	Lufcomb William, do.
Hardy William R. do.	Lawrence Abel, do.
Holden Oliver, Charlestown	Lucas Richard, do.
Homes Melzar, do.	Lane Nicholas, do.
Hall Benjamin, Medford	Lunt Silas, Newburyport
Hall Richard, do.	Lunt William Pike, do.
Hall Isaac, do.	Le Breton Peter, do.
Hall Bradshaw, do.	Long Robert, do.
Hall Elijah, do.	Lunt Benjamin, do.
Hall Willis, do.	Little Josiah, do.
Hayden John, Cambridge	Little Jacob, Newbury
Hovey Josiah & P. do.	Little Stephen, do.
J.	Lovering Richard, do.
Jones William, Concord	Long Nathan, Amesbury
Jones Ebenezer, Westminster, County of Worcester	Lord Nathan, Somersworth
Johnson Edward, Salem	Langdon John, Portsmouth
Jones William, Danvers	Lock, jr. James do.
Johnson William, do.	Leverett Benjamin, do.
Johnson Jedidiah, Salem	Little Stephen, do.
Jackson Nancy, Salem	Libbey Elias, do.
Jones Samuel, Newburyport	Langdon H. S. do.
Johnson John B. do.	Lloyd David, do.
Johnson, jr. Eleazer, do.	Laighton Luke M. do.
Johnson, jr. Nicholas, do.	M.
Jones William, Portsmouth	Mann Elias, Medfield
Jack David, Charlestown	Mansfield Stephen, Roxb.
K.	Marshall Job, Salem
Knox Gen. Henry, St. Georges	Messer Afa S. Danvers
	Mead Samuel, do.
	Marston Jonathan, Salem

M'Intire Samuel, Salem	Perley Jonathan, Salem
Morong John, do.	Page John, do.
Mills Levi, Newburyport	Peirce Afa, do.
Merrill Orlando B. Newb'y	Peabody John, do.
Merril Melatiah, Salisbury	Peabody Samuel, do.
Moulton Thomas, Portsm.	Perley William, Rowley
M'Intire Neil, do.	Pope Ebenezer, Salem
Meloon Mary, do.	Pettingell Joseph, do.
March John, do.	Peele Robert, do.
Manning Isaac, Charlestown	Phippen William, do.
Mead Nathaniel, Medford	Perkins Jacob, Newburyp't
N.	Pettingell Benjamin, do.
Nichols, jr. Ichabod, Salem	Pearson Isaac G. do.
Noyes Simeon, do.	Peabody John, do.
Noyes, jr. Enoch, Newbpt.	Pierce Nicholas, do.
Norton Benjamin, do.	Peirce Enoch, do.
Newman Joseph, do.	Pearson David, do.
Noble Joseph, Portsmouth	Peirce Jonathan, do.
Neil Charles, do.	Parley Ebenezer, Salisbury
Newell Abner, do.	Pearson Ebenezer, do.
Nelson John, do.	Parry Martin, Portsmouth
O.	Plaisted George, do.
Osborn Richard, Danvers	Dame & Penhallow, do.
Orne J. Salem	Pickering William, do.
Oliver William, Salem	Pollard Levi, Medford
Osgood John, do.	Pearson Pro. Eliphalet, Cam.
Osborn Henry, do.	Q.
Oliver Thomas F. Salem	Quinby Henry, Newburyp't
Osgood Alfred, Newburypt.	R.
P.	Rumrill Thomas, Roxbury
Payne Nathaniel, Worcester	Russell Samuel, do.
Pike Nicholas, Newburyp't	Ruggles Patty, do.
Pratt William, Roxbury	Rosseter Erastus, Richmond
Poignand D. do.	Robbins Thomas, Salem
Perkins Joseph, Salem	Ropes Nathaniel, do.
Pearson Eliphalet, do.	Richardson jr. Josiah, do.
Pool Ward, Danvers	Ravel Mary, do.
Pool Fitch, do.	Roberts Isaac, do.
Proctor Ebenezer, Salem	Rolfe Samuel, Newburyport
Payson Lemuel, do.	Rogers, jr. Samuel, Newbury
Prescott S. J. do.	Rogers Daniel R. Portsm.
Putnam Ebenezer, do.	Richards George, do.

Rinard Frances, Medford	Stanwood William, do.
Rowson Sufanna, do.	Shapley Reuben, do.
S.	Shapley John, do.
Savels John, Dorchester	Sherburne Jonathan, do.
Smith Eleazer, Roxbury	Sherburne John Samuel, do.
Smith Ralph, do.	Sevey Mark, do.
Sparhawk Edward, do.	Simes Thomas, do.
Stetson Jesse, do.	Sweetser Isaac, Charlestown
Sumner Madam Eliza. do.	Sabels Thomas, Medford
Smith Jonathan, Randolph, (Vermont)	Symmes Daniel, do.
Silver William, Salem	T.
Sprague, jr. Eben. Danvers	Thayer Stephen, Salem
Stevens Benjamin, do.	Tucker Gideon, do.
Smith Eliza, do.	Todd William, Newburyp't
Shove Squiers, do.	Titcomb, jr. Jonathan, do.
Safford Ebenezer, do.	Toppan Benjamin, do.
Shillaber Robert, do.	Toppan Abner, do.
Symonds Charles W. do.	Toppan Daniel, Newbury
Snelthen John, Salem	Toppan Stephen, do.
Southwick John, do.	Thompson Thomas, Portsm.
Secomb Ebenezer, do.	Tarlton John, New-Castle
Sweetser Samuel, do.	Thompson Samuel, Portsm.
Smith Joseph, do.	Thomas Rebecca, Charlest.
Stevens Nathan, do.	Turner Nathaniel, do.
Sanderfon Elijah, do.	Tufts James, Medford
Stuart Henry H. do.	V.
Swett Jacob, Newburyport	Valpey Joseph, Salem
Smith Michael, do.	W.
Savory Ebenezer, do.	Walley, jr. Thomas, Roxb.
Swett Edmund, do.	Watson Nathan, do.
Stanwood Abel, do.	Williams Stephen, do.
Steele Ebenezer, do.	Waldo Joseph, Richmond
Stanwood Nathaniel, do.	Winchester Jacob B. Salem
Sawyer Jeremiah, do.	Weston John, do.
Spalding Oliver, do.	Williams Mehitabel, do.
Swett William, Amesbury	Winn Joseph, do.
Spalding Lyman, Portsm'th	Whitmore James, do.
Sheaf James, do.	Wait Aaron, do.
Stanwood William, do.	Wing Cornelius, do.
Stavers John, do.	Wain Gamaliel H. do.
	Wyatt Josiah, Newburyport

Walleigh Edward, Newbpt.	Warren Isaac, Medford
Wheelwright Ebenezer, do.	Wylly Alexander C. do.
Willson Peter, Portsmouth	Wade John, do.
Waldron, jr. Isaac, do.	Williams, jr. Gershom, do.
Wendell George W. do.	
Walch Keyran, do.	Y.
Wentworth Daniel, do.	Young Israel, Newburyport.
Wheeler Josiah, do.	Young Jonathan, do.
Wiley William, Charlestown	Yeaton, jr. Robert, Portsm.

[The following Names were received too late to take their places in the previous Arrangement.]

	A.	
Alden Jonathan		Watertown
	B.	
Brattle Thomas		Cambridge
Bowen Daniel		Little Cambridge
Babcock Samuel		Watertown
	C.	
Cushing Bela		Boston
Cobb John		do.
Capen Samuel		Little Cambridge
Cromwell Daniel		Watertown
	D.	
Dana Isaac		Watertown
Dunlap, jr. Andrew		Boston
	E.	
Everett Aaron		Watertown
Emerson Timothy		do.
	F.	
Farrar Ephraim		Watertown
Fessenden Thomas		
	H.	
Hill Joseph		Cambridge
Houghton Oliver		Boston
	L.	
Lankester William		Boston
	M.	
Makepeace Royal		Cambridge
	N.	
Norcrofs John		Cambridge
	P.	
Patten Isaac		Watertown
	R.	
Redman Thomas		Boston
	S.	
Stone Timothy		Newton
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Analytical TABLE of Contents.

VOLUME FIRST.

	Page
I NTRODUCTION	1
State of Medicine, as a Science founded on facts	<i>ib.</i>
Observations on the general laws of Nature	4
Necessity of applying to the study of natural causes	5
Difference of opinions on medical subjects	6
The origin and causes of diseases investigated	9
Cow-pox, a preventive of the Small-pox	13
Remarks illustrating the doctrine of temperaments	14
The absurdity and dangerous tendency of Patent or Quack Medicines pointed out	22
Mr. James Parkinson, on Quack Medicines	24
The nature of fashionable complaints defined	30
The source of them investigated	31
The function of the skin explained	34
The necessity of bathing inculcated, as the best sub- stitute for universal remedies	41
The nature and properties of Cosmetics examined	43
The only effectual substitutes for them recommended, and injunctions relative to the improvement of the skin	46
Strictures on the physical education of children	49
Frequent bathing, an useful practice in infancy	53
The proper temperature of the Bath, and its general effects	<i>ib.</i>
The cold Bath frequently dangerous to children	<i>ib.</i>
The lukewarm or tepid Bath far preferable	<i>ib.</i>
Directions to use this Bath with advantage	56
The utility of the <i>Air Bath</i> pointed out	57
Shortness of Sight and weakness of the Eyes	58
Importance of spacious nurseries, and airing	59
Hufeland's picture of a child properly managed, with respect to washing, airing, and bathing	60
Anecdote of a Russian postillion	62
Feather-beds and cumbersome Dresses condemned	63
The origin of a <i>sweating Skin</i>	<i>ib.</i>
A proper Couch for Children described	64
Cleanliness, a cardinal virtue in domestic life	<i>ib.</i>

Rickets, cured by cleanliness alone	- -	64
How the head and breast should be covered	- -	65
Historical anecdote from Herodotus	- -	<i>ib.</i>
Sudden improvements not successful	. -	66
There is no perfect and permanent state of health		68
Quotation from Cicero	- - - -	<i>ib.</i>

CHAP. I. *On the Means of preserving Health
and prolonging Life* - - - 69

Definition of a good state of health	- -	<i>ib.</i>
Reasons for being satisfied with our present state	- -	70
To avoid or cure diseases, we ought to be acquainted with the economy of the human frame	- -	<i>ib.</i>
The pretended purpose of <i>Nostrums</i> explained	- -	71
Man has always more or less valued a long life	- -	<i>ib.</i>
The method of prolonging life adopted by the <i>Oriental</i> s		72
The same plan prescribed by Boerhaave	- -	73
The inefficacy of it demonstrated	- - -	74
The Egyptians resorted to Sudorifics and Emetics		76
The Greeks employed natural means	- -	77
The great advantage of <i>Gymnastic Exercises</i> considered		78
Modern methods of bracing the body	- - -	80
Excellence of the Grecian method	- - -	<i>ib.</i>
Plutarch's golden precepts	- - -	81
Review of the barbarity of the middle ages	- -	82
The Alchemists in search of <i>original matter</i>	- -	83
The Tincture of Gold introduced	- - -	84
Sketch of the Goldmakers, Rosencrucians, &c.	- -	85
Productions of Alchemy shorten life	- -	87
They impair the <i>susceptibility</i> , or power of receiving <i>vital supplies</i>	- - -	88
Theophrastus Paracelsus, an insurer of lives	- -	<i>ib.</i>
The world of spirits is summoned to assist	- -	89
The professors of <i>Astrology</i> begin their impositions		90
The noted Thurneisen appears at Berlin	- -	91
Exposition of that <i>occult science</i> , Astrology	- -	<i>ib.</i>
Cornaro shows the absurdity of resorting to supernat- ural means, by his illustrious example	- -	94
<i>Bloodletting</i> came into general use	- -	98
In what cases Venesection may be of advantage		100
Definition of the <i>Art of prolonging Life</i>	- -	<i>ib.</i>
The nature of the <i>Blood</i> investigated	- -	<i>ib.</i>

	<i>Page</i>
Libavius discovers the transfusion of the blood -	102
A short account of the <i>Paracelsian Theosophists</i> -	103
The process of <i>Transfusion</i> described - -	104
Lord Bacon deviates from the true path of inquiry	106
He advises the repetition of powerful laxatives every two or three years—his theory controverted -	107
Modern method of computing the duration of life	109
<i>Medical imposture</i> still prevalent in our enlightened age	112
Perkins' Metallic Tractors exploded - - -	<i>ib.</i>
The fanatical system of Jacob Böhmen - - -	<i>ib.</i>
Messmer appears, with his <i>Animal Magnetism</i> -	113
An account of his artful proceedings - - -	<i>ib.</i>
His advertisement extraordinary - - -	116
He imposes upon the French government - - -	117
— realizes a princely fortune in Paris - - -	118
— is at length proved to be either a fanatic or impostor	119
Lavater's <i>Animal Magnetism</i> and <i>Somnabulism</i> -	120
Messmer's system exploded - - -	121
St. Germain's Tea for prolonging life - - -	<i>ib.</i>
D'Ailhoud's deleterious Powder - - -	122
Cagliostro, an impostor with his <i>Balm of Life, &c.</i>	<i>ib.</i>
Father Gassner ascribes all diseases to diabolical agency	123
Count Thunn, a German fanatic, obtains no credit	124
All specifics and plans for prolonging life rest upon erroneous principles - - -	125
Conditions requisite to attain a long life - - -	<i>ib.</i>
1. Bodily and mental disposition to longevity -	<i>ib.</i>
2. A sort of hereditary disposition - - -	126
3. A child's perfect birth, and mother's proper conduct	<i>ib.</i>
4. A gradual culture of the physical and mental fac- ulties - - - - -	127
5. A constant habit of brooking and resisting the va- rious impressions of external agency - - -	129
6. A steady and equal progress of life - - -	131
7. A sound state of digestion - - -	<i>ib.</i>
8. Equanimity of mind—avoiding violent exertions	132
Concluding remarks on the subject of <i>Longevity</i>	133
On the symptoms of actual <i>Dissolution</i> - - -	134
Account of a new Institution in Germany - - -	135
Cases in which death can be clearly ascertained -	136
Symptoms where death is less certain - - -	137
Children and young persons should not too hastily be considered as dead - - - - -	138

	Page
Summary account of a <i>Dietetic System</i> - - -	139
Explanation of the <i>Six Non-naturals</i> - - -	140
Present mode of living compared with that in a state of nature - - -	141
Many writers misled by partial inquiries - - -	142
Illustrations relative to a <i>Dietetic System</i> - - -	143
CHAP. II. <i>Of Air and Weather</i> - - -	
Of Air in general— <i>Respiration</i> - - -	ib.
Definition of Air and Atmosphere - - -	ib.
Pressure of Atmosphere incumbent on our bodies	148
Component parts of the Atmosphere - - -	149
Concise History of Oxygen - - -	ib.
Properties of Oxygen, and its effects on respiration	ib.
----- Azote - - -	151
----- Carbonic Acid Gas, or Fixed Air	ib.
----- Inflammable Air - - -	152
Specific gravity of the different Airs - - -	153
Noxious effects of mephitic gases - - -	ib.
----- the vapours of Lead - - -	154
The chemical process in improving and restoring At- mospheric Air described - - -	155
General Remarks relative to the advantages to be de- rived from a systematic view of <i>Dietetics</i> - - -	156
Effects of warm and cold air on the body - - -	157
----- damp or moist air - - -	158
----- dry and cool air - - -	159
----- sudden changes of air - - -	ib.
----- the different winds - - -	160
On the relative salubrity of the different Seasons	ib.
Effects of strongly scented bodies - - -	162
----- dwelling on lakes, marshes, and rivers	163
Which is the most wholesome air to live in - - -	164
<i>Of the improvement of Air in Dwelling-houses</i> - - -	165
Situation of a house in point of health - - -	166
Criterion of a damp and unwholesome air - - -	ib.
The most proper situation of a sitting-room - - -	167
Different strata of Air in a room - - -	ib.
Modes of purifying the air by ventilators - - -	ib.
Rules respecting the admission of fresh air - - -	168
----- in moist and cold air—moist and warm air - - -	169
----- in hot and dry air - - -	ib.

	<i>Page</i>
Effects from exhalations of green plants and flowers	171
———— large trees with thick foliage	172
———— the burning of candles	<i>ib.</i>
———— the steam of cooked provisions	<i>ib.</i>
———— exhalation of green fruit, oil, tallow, &c.	173
———— the vapours of charcoal	<i>ib.</i>
———— impure wool, oil, colours, &c.	174
———— keeping wet substances in dwelling-rooms	<i>ib.</i>
General effects of <i>Heat and Cold</i>	175
———— sudden transitions	<i>ib.</i>
Of the proper dress for the season	176
Of heating rooms in autumn	<i>ib.</i>
Of exposing the body to the bracing effects of cold	177
Precautions respecting changes of temperature	178
CHAP. III. <i>Of Cleanliness</i>	180
Extent of this domestic virtue	<i>ib.</i>
Rules for practising it, as to the body, face, neck, &c.	181
—— with respect to Eating and Drinking	183
<i>On the Management of the Teeth</i>	<i>ib.</i>
Advantage of cleaning them at night	<i>ib.</i>
Precautions in removing the Tartar from the Teeth	184
The use of Dentifrices examined	<i>ib.</i>
Rules for preventing the Tartar settling on Teeth	185
How to remove the Tartar, when settled	<i>ib.</i>
Some of the best remedies for the Tooth-ach	186
Treatment of scorbutic Teeth and Gums	187
Directions for preserving the Teeth—Tooth-powders	<i>ib.</i>
———— cleaning them properly	188
<i>Of the Use of Baths</i>	189
Bathing forms the basis of domestic cleanliness	<i>ib.</i>
Effects of the Bath in general	190
Division of Baths—Effects of the warm or tepid Bath	191
Of bathing in Rivers	193
Historical narrative of the practice of bathing	194
The nature, properties and effects of the cold Bath	196
Drs. Currie and Franklin quoted	199
Rules for the use of the cold Bath	203
Cases in which the cold Bath is injurious	204
The <i>Shower-Bath</i> recommended—Substitutes for it	205
Advantages of the Shower-Bath	<i>ib.</i>

	Page
Account of the <i>Aërial</i> or <i>Air-Bath</i> - -	207
Friction of the body—cutting the hair—washing and shaving the head recommended - -	208
Friction of the soles, and bathing of the feet - -	209
Of Pomatums for making the hair grow - -	<i>ib.</i>
Of Corns, how to prevent and cure them - -	<i>ib.</i>

CHAP. IV. *Of Dress* - - - 211

Substance and Form of Dress - - -	<i>ib.</i>
The general properties of a good Dress - -	212

Of the Materials used for Articles of Dress.

Proper Colour and Surface of substances considered - -	<i>ib.</i>
Of Animal Wool, Linnen, Silk, Wax-Cloth - -	213
Of Cotton and Furs - - -	<i>ib.</i>
Attention to be paid to the Season, Climate, &c. - -	215
On the immediate Covering of the Skin - -	<i>ib.</i>
Advantages of Animal Wool or Flannel explained - -	216
The objections against Flannel answered - -	217
Salutiferous effects of Flannel, worn next the Skin - -	219
Of <i>Stockings</i> —proper substances for them examined - -	222

Of Dress, as to its Form.

On the most proper method of covering the Head - -	225
Of Shirts, Coverings for the Neck, &c. - -	229
Of laced Stays, &c. - - -	232
Of narrow Sleeves in Gowns - - -	233
Of Breeches and Pantaloons - - -	234
Of Braces—Drawers for females, and Garters - -	235
Of the form of Stockings and the size of Shoes - -	236
Of the substance for Shoes, and the manner of rendering them water-proof - -	237
Of changing the Shoes from one foot to the other - -	243

CHAP. V. *Of Exercise and Rest* - - - 245

The advantages and disadvantages of Exercise - -	245—263
Of Friction of the body - - -	265
On the conduct proper to be observed after Exercise - -	267
How to satisfy Thirst after Exercise, &c. - -	268—272

CHAP. VI. *Of Sleeping and Waking* - - - 274

Necessity of this alternation - - -	275
A concise theory of Sleep - - -	276

	<i>Page</i>
An inquiry into the nature of Dreams, &c.	277—284
Of Sleep - - - - -	285—293
On the most proper Couches and Coverings	296
Disadvantages of Feather-Beds, &c. - - -	298—301

VOLUME SECOND.

CHAP. VII. <i>Of Food and Drink</i> - - -	13
INTRODUCTORY remarks on the nature and effects of Food and Drink - - - - -	<i>ib.</i>
<i>Of Food in particular</i> - - -	17
Rules relative to the quantity of food - - -	<i>ib.</i>
On the different kinds of <i>appetite</i> - - -	18
Remarks on the quantity of aliment—on the nature of digestion and nutrition—mode and time of taking food - - - - -	20
On the propriety of sleeping after dinner - - -	28
A discussion on the general effects of animal food	34
<i>Of Animal Food</i> - - - - -	<i>ib.</i>
The properties of game - - - - -	<i>ib.</i>
Different methods of dressing victuals investigated	<i>ib.</i>
Digestibility of animal and vegetable substances -	36
On preternatural hunger - - - - -	38
Of animal jelly—the flesh of different animals compared as to its salubrity - - - - -	<i>ib.</i>
On the properties of Veal, Beef, Pork, smoked Hams, Sausages, Bacon, Lard, Sheep, Lamb, House-lamb, Goats, Deer, Venison, and Hare	41—49
On the properties of the Lungs, Liver, Heart, Kidneys, Fat, Blood, and Milk of Animals	50, 51
Directions for making <i>artificial Ass's Milk</i> - - -	54
Properties of Cream, Butter, Butter-milk, and Cheese	57
Cheese forms the strongest cement yet contrived	<i>ib.</i>
On the relative wholesomeness of Birds in general	59
----- Bird's Eggs - - -	62
On the various methods of preserving Eggs - - -	63
An account of Mr. Donaldson's Patent - - -	<i>ib.</i>
The properties and effects of Fish, amphibious Animals, Lobsters, Crabs, Oysters, and Turtles	64, 65
The legs of Frogs used as food - - -	<i>ib.</i>
On the properties and effects of Snails and Muscles	67

	<i>Page</i>
<i>Of Vegetable Aliment</i>	68
Division of the vegetable articles of nourishment into five orders	<i>ib.</i>
1. The farinaceous Vegetables :—Bread, its nature and properties reviewed	<i>ib.</i>
Rice, Oats, Barley, Millet, Mannagrass	72, 73
2. The leguminous productions, as Beans, Peas, &c.	74
Green Peas	75
3. The various Salads and Herbs used for cooking	76
Asparagus—Artichokes	77
Of Salads—Spinage—Sorrel	<i>ib.</i>
— Red and White Cabbage— <i>Sauer Kraut</i>	<i>ib.</i>
— Lettuce	79
4. The esculent roots used at table	<i>ib.</i>
Of Carrots—Turnips—Beet-root	81, 82
Of Parsley, Smallage, Celery, Parsnips, &c.	<i>ib.</i>
Scorzenera, Skirret-root, Salsafy	83, 84
Of Onions, Garlic, Shallot, Chives, and Radishes	<i>ib.</i>
Arrow-root	85
5. Fruit, or the production of trees and shrubs	<i>ib.</i>
Sago—Of Cherries	87
Of Plums, Peaches, Apricots, Pears	89
— Tamarinds, Apples, Quinces	89—92
— Lemons, Oranges, Limes, &c.	<i>ib.</i>
— Raisins	94
Vegetable Acids excellent correctors of Opium	93
Of Currants, Goosberries, Grapes, and Strawberries	95
Strawberries, a preventive against the Stone in the Kidneys	96
Of Cucumbers and Melons	<i>ib.</i>
— Gourds, Olives	97
— Almonds, Walnuts, Hazlenuts, and Nuts in general	<i>ib.</i>
— Mushrooms	98
<i>Of Drink in particular</i>	99
I. With respect to the <i>quantity</i> and <i>time</i> of Drinking	100
II. With respect to its <i>quality</i>	103
Of Spring, Well, River, and Lake-Water	104
— Rain, Snow, Hail-Water, and Dew	105
Various methods of correcting bad Water, and preserving it when fresh	106
Division of <i>Wines</i> into five principal Classes	107
Of Cyder and Perry	108

	<i>Page</i>
How to guard against too frequent excretions -	156
Necessity of water-closets and other precautions	161
<i>Of Urine</i> - - - -	162
Of the quality and quantity of this discharge -	<i>ib.</i>
Of the prognostics from its appearance -	163
Of the nature and origin of urinary complaints	164
<i>Of Insensible Perspiration</i> - -	166
The nature and great importance of this function	167
Circumstances suppressing and affecting perspiration	169
----- tending to promote it - -	170
Distinction between perspiring and sweating -	<i>ib.</i>
Effect of Cold on insensible perspiration - -	171
----- of Food and Drink on the same -	172
----- of the depressing passions and emotions	<i>ib.</i>
How too violent perspiration should be treated	173
On the common treatment of Colds - - -	174
On excessive bleedings in general - - -	<i>ib.</i>
Of the Saliva--smoking Tobacco censured -	<i>ib.</i>
Of the mucus of the nose--the habit of taking Snuff, and its dangerous consequences - - -	176
The <i>acromatic belts</i> and <i>sneezing powders</i> of a certain empiric animadverted upon - - -	177
Of the wax in the Ears - - - -	179
Of Hemorrhages ; the menses, hemorrhoids, &c.	<i>ib.</i>
Of the retention of the <i>Milk</i> - - -	180
CHAP. IX. <i>Of the Sexual Intercourse</i> 182	
On the important consequences attending the exer- cise of this function - - - -	<i>ib.</i>
Conditions under which it is conducive to the well- being of the individual - - - -	183
In what cases it is detrimental to Health -	186
Observations relative to the loss of semen -	189
Situations unfavourable to the Sexual Intercourse	191
Nature and constituent parts of the seminal fluid	192
On the proper time for this intercourse, &c. -	193
Of the proper time and requisites to a married life	198
On the general effects of too great abstinence	199
----- means of restoring the impaired energy, <i>aphro-</i> <i>disiacs</i> - - - -	201
----- means of diminishing the desire of venery	202
View of the principal theories of Generation	204

	<i>Page</i>
Of <i>Panspermia</i> — <i>generatio æquivoca</i> - -	204
Hammon discovers animalculæ in the semen -	206
Buffon's opinion on this subject refuted -	207
The theory of <i>Evolution</i> reviewed, &c. -	208
Haller's and Bonnet's theories examined -	210
Remarks on the origin of the chicken in the egg	<i>ib.</i>
Swammerdam's and Spallanzani's discoveries	<i>ib.</i>
Singular story of a miller's wife - -	211
<i>Epigenesis</i> , or the theory of gradual formation	212
Blumenbach's definition of the <i>Nifus formativus</i>	<i>ib.</i>

CHAP. X. *Of the Passions and Affections of the Mind* - -

214

Origin of the passions - - -	<i>ib.</i>
Kaimes's distinction between affections and passions	215
Influence of the passions on the body—they are either of an agreeable or disagreeable nature	216
General effects of <i>Joy, Gaiety, Cheerfulness, &c.</i>	218
Sanctorius's advice to the passionate - -	219
Definition of <i>Laughter, Hope, Love, &c.</i> -	219—222
Of the effects of <i>Weeping</i> - - -	224
The desire of returning home, common among Swifs	225
The <i>Nervous Fever</i> described by Manningham	<i>ib.</i>
Of extravagant <i>Love</i> —Of <i>Jealousy, &c.</i>	226—228
Of the origin of <i>Envy, Fear, &c.</i> -	229—236
Pythagoras's advice to avoid passions and desires	239

CHAP. XI. *Of the Organs of Sense*

242

A short analysis of Sensation - - -	<i>ib.</i>
Sœmmering's hypothesis of the seat and operation of the Soul - - -	<i>ib.</i>
Definition of the external and internal Senses	244
Specification of the Five Senses, and conjectures respecting a Sixth - - -	248
The Sense of <i>Touch</i> analyzed - - -	<i>ib.</i>
Description of the integuments of the body -	249
Of the <i>Epidermis</i> , or scarf-skin, &c. -	249—253
The Sense of <i>Sight</i> analyzed - - -	<i>ib.</i>
Curious assertion of Baron Trenck - - -	<i>ib.</i>
Far-sightedness and Short-sightedness -	256
Cautions how to place children in bed -	257
The phenomenon of Sneezing explained -	<i>ib.</i>

	<i>Page</i>
Of the Sense of <i>Hearing</i> - - -	259
Substitutes for common ear-trumpets suggested	261
Of the Sense of <i>Smell</i> , and its mechanism -	262
Different size of the nerves in man and animals	264
On the improvement of the Sense of <i>Smell</i> -	<i>ib.</i>
Anecdote of Leonhard Zollikofer's dog -	265
Of the Sense of <i>Taste</i> —its mechanism and functions	<i>ib.</i>
Remarks on animal motion, or muscular action	268
Summary of the powers inherent in the human body	<i>ib.</i>
Description of a <i>Muscle</i> - - -	<i>ib.</i>
Account of the <i>Bursæ Mucosæ</i> - - -	271
Remarks on the variety of <i>Temperaments</i> -	273
CHAP. XII. <i>On the treatment and preservation of the Eyes</i> - - -	274
I. Importance of a proper care of these organs	276
II. Of Short-sightedness, and the reverse -	277
Directions for preventing short-sightedness in children	<i>ib.</i>
————— for the use of concave spectacles -	278
Of Far-sightedness in particular - - -	<i>ib.</i>
III. General Rules for the preservation of the Eyes	279
IV. Of the conduct to be observed in weak Eyes	281
On the use of <i>Candles</i> , &c. - - -	282
How to manage the Eyes in the morning, &c.	285
Best situation of a sitting-room and desk -	286
Cautions relative to the Eyes - - -	287
————— respecting candle-light in the night, &c.	288
Remarks on the common Eye-cases -	289
On the advantage of bathing the Eyes in cold water	290
V. Dietetical Precepts respecting the Eyes in general	292
Facts related by Montaldus and Russell -	296
VI. Some additional Rules for the use of Eye-glasses	297
In what cases Eye-glasses may be used to advantage	<i>ib.</i>
How to choose Spectacles properly - - -	298
Green glasses, when to use them - - -	299
Reading-glasses condemned - - -	<i>ib.</i>
Spectacles, when proper, and how to be chosen	300
<i>Conclusion</i> - - -	303—310
General Reflections—On Moderation, &c.	303
<i>Corollary</i> - - -	311
POSTSCRIPT - - -	312

LECTURES

ON

DIET AND REGIMEN.

INTRODUCTION.

On the present State of Medicine as a Science.

WE apparently live in an age, when every branch of human knowledge is reduced to a popular system; when the most important sciences lay aside the garb of pedantry and mysticism; when, in short, the sources of information are open to every rank, and to both sexes. An improvement, which is so conspicuous, must ultimately be attended with the most desirable and extensive effects.

Among other beneficial pursuits to render the comforts of life more numerous and permanent, we have occasion to observe, that Natural Philosophy and Chemistry contribute a principal share in spreading useful knowledge among all ranks of society.

Since Medicine, considered as a science, which rests upon practical rules of experience, is in a great measure founded upon Natural Philosophy and Chemistry, it will be allowed that with the daily progress of the latter, Medicine also must necessarily partake

of their improvements, and continually receive accessions conducive to its further perfection.

With the progressive increase of refinement and luxury, a certain weakness and indisposition, whether real or imaginary, has infested society in the character of a gentle epidemic. It cannot properly be called a disease, but rather an approximation to an infirm state, which almost involuntarily compels man to reflect upon the relative situation of his physical nature, to acquire correct ideas on health, disease, and the means of prevention or relief, and thus imperceptibly to become his own guide.

Every individual of any penetration now claims the privilege of being his own physician: It is not unfashionable to form a *certain* system concerning the state of our own health, and to consider it as the criterion, by which we may judge of ourselves and others, of patients and their physicians.

Formerly, people were not accustomed to think of the physical state of their body, until it began to be afflicted with pain or debility: In which case, they intrusted it to the practitioner in Physic, as we deliver a time-piece to a watchmaker, who repairs it according to the best of his knowledge, without apprehending, that its owner will be at the trouble of thinking or reasoning upon the method, which he judged to be most proper.

In our times, we frequently undertake the charge of prescribing medicines for ourselves:

And the natural consequence is, that we seldom are able to tell, whether we are healthy or diseased; that we trust as much, if not more, to ourselves than to the physician, who is only sent for occasionally; and that we cannot conceive him to be perfectly free from the systems of the schools, from self-interest or professional motives. Thus, by an acquaintance with medical subjects, which of itself is laudable, not only the skill of the physician is frequently thwarted, but the recovery of the patient unhappily retarded, or at least rendered more difficult.

No disease is now cured without demonstration; and he who can neither discover nor comply with the peculiar system of health adopted by his patient, may indeed act from motives dictated by reason and humanity; but his success as a *practical physician*, in the common acceptance of that phrase, must ever remain problematical. Yet this general propensity to investigate medical subjects, if it were properly directed and gratified might be attended with very happy effects. For the medical art ought not to be subject to an imperious and fascinating demon, whose labours are chiefly carried on in the dark recesses of mystery, whom we know only from his baneful influence, as he spares no objects of prey, and holds his votaries in a perpetual state of dependence!

“The veil of mystery,” says a modern popular writer, “which still hangs over Medicine, renders it not only a conjectural, but even a suspicious art. This has been long ago

removed from the other sciences, which induces many to believe, that Medicine is a mere trick, and that it will not bear a fair and candid examination. Medicine, however, needs only to be *better* known, in order to secure the general esteem of mankind. Its precepts are such as every wise man would choose to observe, and it forbids nothing but what is incompatible with true happiness."

Observations on the general Laws of Nature.

IF we reflect upon the admirable uniformity which prevails through the works of nature, both in the production and dissolution of matter, we find that she invariably moves in a circle; that in the perpetual construction, as well as in the subsequent demolition of bodies, she is always equally new and equally perfect; that the smallest particle, though invisible to our eyes, is usefully employed by her restless activity; that death itself, or the destruction of forms and figures, is no more than a careful decomposition and a designed regeneration of individual parts, in order to produce new substances, in a manner no less skilful than surprising. We further observe, that in the immense variety of things, in the inconceivable waste of elementary particles, there nevertheless prevails the strictest economy; that nothing is produced in vain, nothing consumed without a cause. We clearly perceive that all nature is united

by indissoluble ties; that every thing exists for the sake of another, and that no one thing can exist without its neighbour. Hence we justly conclude, that man himself is not an insulated being, but that he is a necessary link in the great chain, which connects the universe.

Nature is our safest guide, and she will be so with greater certainty, as we become better acquainted with her operations, especially with respect to those particulars which more nearly concern our physical existence. Thus, a source of many and extensive advantages will be opened; thus we shall approach to our original destination—namely, that of living long and healthy.

On the contrary, as long as we move in a limited sphere of knowledge; as long as we are unconcerned with respect to the causes which produce health or disease, we are in danger, either of being anxiously parsimonious, or prodigally profuse of those powers, by which life is supported. Both extremes are contrary to the purpose of nature. She teaches us the rule of just economy:—we, being a small part of her great system, must follow her example, and expend neither too much nor too little of her treasures.

Although it be true that our knowledge of nature is still very imperfect, yet this circumstance ought not to deter us from investigating the means which may lead to its improvement.

We are assisted by the experience of so many industrious inquirers, of so many sound

philosophers, that we may flatter ourselves with the hopes of discovering some of her hidden secrets, and of penetrating still further into her wonderful recesses. This, however, cannot be accomplished, without much patience and perseverance in the student.

All men, it is true, have not sufficient time and opportunities to acquire an accurate and extensive knowledge of nature; but those are inexcusable, who remain entire strangers to her ordinary operations, and particularly if they neglect to cultivate a proper acquaintance with the constitution of their own frame. If, indeed, we were fixed to the earth like the trees by their roots, or if from mere animal instinct we were stimulated to inquire into the causes of our physical life, we then should vegetate, or live like plants or irrational animals. But, in the character of creatures, who ought to choose and to reject agreeably to the dictates of reason, a more assiduous and minute study of nature, as well as of our own frame, is indispensable; because the human body cannot subsist, unless we second her intentions and co-operate with her beneficent efforts.

Difference of Opinions on Medical Subjects.

It is not unfrequently objected, that Medicine itself is an uncertain, fluctuating, and precarious art. One medical school, for instance, considers the mass of the fluids as the

primary cause of all diseases ; another ascribes them to the irregular action of the solids, and particularly the nerves ; some again consider that as the cause of the disorder, which many are inclined to represent as the effect. Thus, different schools propagate different tenets relative to the origin of diseases ; though ultimately, with respect to matters of fact, they must all necessarily agree. Nor is this diversity of opinions in the least degree detrimental to the practical department of Medicine ; provided that we do not regulate the mode of treatment altogether by hypothetical notions. Of what consequence is it to the patient, whether his physician imagines the nerves to be fine tubes, filled with a subtle fluid, or not ? whether he believes that catarrhs arise from noxious particles floating in the air, or from catching cold ?—or whether he is prejudiced in favour of this or that particular theory of fevers ?—It is a sufficient security to the patient, if his physician be thoroughly acquainted with the symptoms of the disease, and be able to distinguish them from those of any other malady. In this respect, the medical art is truly excellent, and without a rival ; for the nature of diseases remains invariably the same. The accurate observations made by Hippocrates, two thousand years ago, on the progress and symptoms of diseases, recur to the medical practitioner of the present day, in a manner sufficiently regular and uniform.—And, in fact, how should it be otherwise ; when nature always pursues the same path,

whether in a healthy or diseased state of the body?

Here again it will be asked, whence does it happen that two physicians seldom agree in opinion, with regard to the case of the same patient? This question may be briefly answered, by claiming the same right for the medical profession, which is assumed by theologians in contested points of divinity; by lawyers in arguing any part of their code, which is not perfectly plain; and by philosophers who maintain different opinions on the same subject in metaphysics; for instance, that of *space* and *time*. But there are more forcible reasons which enable us, in some measure, to account for this diversity of opinions in Medicine. One of the physicians, perhaps, is in the habit of visiting fifty patients in a forenoon, so that he has not sufficient time to investigate minutely the nature and origin of the disease; while another of less extensive practice is enabled to do more justice to his patients, by attending to their complaints with proper leisure and accuracy. One of them shall distinguish some of the leading symptoms, and without hesitation pronounce, that he has discovered the true seat of the malady; but as many diseases of a different nature are attended with similar and common symptoms, there is no small danger of confounding the one with the other. Another shall enter the patient's room with a pre-conceived opinion on the subject of some prevailing epidemic, or with his head probably full of the case which occupied his

attention in the last visit. With these impediments, how difficult will it be to institute a cool and unbiassed inquiry? If, again, both should happen to be called in at different stages of the disorder, each of them would prescribe a different method of cure, and the judgment of him who was last consulted, would in all probability be the most correct. Or lastly, a physician may be sent for, who, having commenced his studies about the middle of this century, has not (from want of time or inclination) sufficiently attended to the more recent discoveries of this inquisitive age; how can it then be expected, that he should agree in opinion with those, whose knowledge has been improved by the numberless new facts and observations lately made in physics, particularly in Chemistry?

Origin and Causes of Disease.

MAN is subject to the same destructive agents from without, by which the lower animals are affected; but there is no doubt, that he is more easily and frequently exposed to diseases than these. *First*, The inferior creatures are unquestionably provided with a more active instinct, by which nature teaches them, from their very birth, to avoid every thing that may prove hurtful, and to choose whatever may have a salutary influence on their mode of living. Few traces of this beneficial instinct can be discovered in

the human race. Our own experience, or the instructions of others, which are likewise founded upon experience, must gradually teach us the wholesome or pernicious qualities of the objects of the material world.— Reason, indeed, that peculiar faculty of man, indemnifies him, in a great measure, for the want of this instinct; it directs his choice in pursuing what is useful, and in avoiding what is injurious. Yet at the same time, the want of instinct in man, is the source of many sufferings in the earlier years of his life.— He is born without covering, to withstand the effects of climate; without arms, to defend himself in his helpless state, and without instinct, if we except that of sucking. He remains much longer incapable of providing for his self-preservation, and stands in need of the assistance of his parents for a much greater number of years, than any other animal with which we are acquainted. Although his parents, in general, acquit themselves of this charge with much greater sollicitude and tenderness than the lower animals, yet our imperfect instinct is productive of much mischief to children, from ignorance and ill directed tenderness in parents and nurses. Children are frequently furnished with articles of food and dress which, at a more advanced age, nourish the seeds of disease and dissolution. Thus, many infants are indebted for their obstructions in the mesentery, and the consumptive habit attending them, to their uninformed and over anxious parents or friends, who commit daily errors.

with regard to the quantity and quality of the aliment, which in many instances they so liberally administer to the objects of their care; even though it be of an indigestible nature.

In the *second* place, it is a fact universally admitted, that mankind, especially in large and populous towns, have much degenerated in bodily strength, energy of mind, and in their capacity of resisting the noxious agency of powers which affect them from without.

The progressive cultivation of the mind, together with the daily refinements of habits and manners, are ever accompanied with a proportionate increase of luxury. But as this change, from a robust to a more relaxed state of life, has produced no difference in the *causes* generating disease, to which we are even more subject than formerly, we must necessarily suffer by the concomitant *effects*. For though luxury has assisted us in preventing the temporary effects of external agents, such as cold, heat, rain, &c. and we can occasionally guard ourselves against their severity, we are, upon the next return of them, attacked with much greater violence, than if we had been more habituated to their influence. And this state of things has imperceptibly introduced the use of many articles, both of dress and aliment, which in their consequences often prove detrimental to health. Hence we find, that in proportion as the refinements of luxury increase in a nation, the number and variety of diseases also

increase. On the contrary, the more uncivilized a people continue, and the more their habits and customs approximate to a state of nature, the less are they affected by the causes of disease.

In the *third* place, we observe among the human race a greater number of prevailing passions, and man is more violently, and, for the time of their duration, more obstinately governed by them, than any other living creature. These emotions variously affect the human body. But the most noxious and oppressive than any other of all the passions, are *terror* and *grief*: The former of which is sometimes so violent as to threaten immediate destruction. Controlled by their powerful influence, and hurried away by the impulse of the moment, the mind is rendered incapable of judging, and of properly selecting the means of allaying those passions.—Hence the remedies, to which we have recourse during the prevalence of passion, and which then appear to us the most proper, frequently lay the foundation of innumerable disorders, both of body and mind.

A *fourth* source of diseases among mankind, are various specific contagions; and perhaps the greater number of these originate in the atmosphere which surrounds us. This is highly probable, at least with respect to marshy exhalations, and the effluvia of regions rendered unwholesome by different manufacturing processes. Another class of contagious miasmata consists of those which cannot be traced to any certain origin. In-

deed, we daily observe their migrations; we perceive them moving from one individual to another, without fixing any stationary residence: Yet they have hitherto frustrated every attempt made towards their extirpation. Of this unsettled nature are, the small pox, the measles, the hooping cough, the influenza, and many other epidemics. The first of them, namely the small pox, has of late years been very successfully treated; and it is well known that some of the most ingenious practitioners in Italy and Germany are, at this moment, employed in a serious attempt, wholly to extirpate this contagion from the Continent of Europe; an object which has formerly been accomplished in the cases of the plague and leprosy.*

* The means employed by our ancestors, in subduing the violence of these malignant disorders, consisted chiefly in separating every infected person from the healthy, and preventing all intercourse between them. For this purpose, many thousand houses of reception were then established and supported at the public expense, in every country of Europe; the diseased were instantly and carefully removed to those houses, and not permitted to leave them till perfectly cured. A measure somewhat similar to this has lately been proposed, and laid before the Plenipotentiaries of the Continental Powers assembled at Rastadt, by Professor Junker, Dr. Faust, and other German Physicians. This proposal, however, differs essentially from the former method of extirpating contagious disorders: as, according to the modern plan, we understand every individual, whether willing or not, must submit to be inoculated for the small-pox.

To deprive this loathsome disease of its destructive power, another method, perhaps more plausible and less compulsory, has been lately attempted in this country, and strongly recommended by Drs. JENNER, PEARSON, WOODVILLE, and other practitioners. I allude to the inoculation for the *cow-pox*. It is sincerely to be wished, that their humane efforts may be crowned with success: and if it

On the Doctrine of Temperaments.

SINCE it is established by numberless facts, that the temperaments, as well as the diseases, of whole nations, are in a great measure influenced by their ordinary articles of food, it will no longer be doubted, that the most important consequences result from our aliment, whether of food or drink.

As the *doctrine of temperaments* is in itself highly curious and interesting, I think this a proper place for introducing some practical remarks, tending to illustrate that subject, and presenting a concise view of it, chiefly derived from the learned annotations of the celebrated Professor Sömmering of Mayence.

“The doctrine of temperaments,” says he, “in the general acceptation of that term, must be allowed to have greatly misled the ancient physicians, and particularly those who lived before the time of *Galen*. We are not, however, to infer from this, that

be true that persons inoculated for the cow-pox are *forever* exempt from the infection of the *small-pox*, and that this artificial translation of morbid matter from the brute to the human subject is not attended with danger, it is of little consequence whether the cow-pox originate from any cutaneous disease of the milker, or from the grease of horses. For my part, I am not very sanguine in my expectations, which have often been disappointed on similar occasions; and till I can persuade myself of the perfect analogy subsisting between the two diseases, nay of their homogeneous nature, I shall patiently wait for a greater number of facts tending to confirm the truth of the hypothesis. This, however, in my opinion, can be decided only, when the *small-pox* should appear as the *prevailing epidemic*.

the doctrine itself is without foundation.— They erred not, by admitting the existence of temperaments ; for that seems now to be fully established ; but by too great a fondness for *generalization* ; by limiting the number of them to *four*, and fixing their attention in this division simply on the nature and composition of the blood, instead of regarding the whole animal economy. Thus, for instance, they knew many parts of the human body scarcely by their names, and were little, if at all, acquainted with the great influence of the nerves ; while our modern physicians pay an almost extravagant homage to these fashionable co-operators in diseases, and frequently forget, in their attention to their favourites, the more important, at least more obvious, parts of the fluids.

“ There is a certain line observable in all the more perfect animals, by which nature is regulated in performing the functions of body and mind ; in preserving or impairing the health, and in exerting all those energies of life, on which the happiness of the creature depends. This line is various in different individuals, and the variety cannot be completely explained on the principle of the ancients, by a difference in the qualities of the blood alone ; though a human body of moderate size contains not less than thirty pounds weight of that fluid. Other terms must therefore be substituted for their *sanguine, choleric, phlegmatic, and melancholy* temperaments ; but before we attempt them, it

will be necessary to take a more extensive view of the economy of man.

“ The causes of the difference of temperaments are various: *First*; a difference in the nervous system, with respect to the number of the nervous fibres, their strength, and sensibility. A large brain, coarse and strong nerves, and great general sensibility, have always been found to be the marks of a *choleric* or *choleric-sanguine* disposition. Hence proceeds the quickness of perception and capacity of knowledge in persons of this class, accompanied with great acuteness and strength of judgment, from the multitude of their ideas of comparison. These qualities are, however, in some measure counterbalanced by a violent propensity to anger, and impatience under slight sufferings of body or mind. Medicines ought, therefore, to be cautiously administered to them, and in small quantities only. A diminutive brain and very delicate nerves have generally been observed to be connected with dull senses, and a phlegmatic languor—sometimes with a taint of melancholy. To affect the organs of such persons, the impression of external objects must be strong and permanent. Their judgments are often childish from the want of ideas, and hence they are seldom able to make great progress in science. They are, however, more fit to endure labour, and the injuries of climate; consequently their medicines should be strong, and administered in large quantities.

“ *Secondly* : Difference of irritability is another cause of difference of temperament. When the fibres are excited by the slightest stimulus to quick and permanent contraction, we may justly infer the existence of a choleric disposition ; while a phlegmatic temper displays itself by opposite symptoms ; the muscles being slowly contracted, and excited with difficulty by the most powerful stimulus.

“ *Thirdly* : The fibres and membranes of a phlegmatic person are remarkably soft to the touch ; those of a melancholic person hard and dry, with greater tone and facility of contraction.

“ *Fourthly* : There appears to be sufficient reason for the opinion, that an *electric* principle is dispersed through the atmosphere, which is communicated to the body, in different degrees, by respiration ; which supplies the fibres with their natural tone ; gives a more lively motion to the vessels ; and increases the serenity of the mind. This principle does not exist in the atmosphere in equal quantities in all countries, nor even in the same country at different seasons or hours of the day. Thus, during the influence of the *Sirocco* in *Sicily*, all the fibres are oppressed by languor ; but when the air becomes more serene and elastic, the natural energy of body and mind returns. All men do not inspire this electric matter in equal quantities, and thus a remarkable difference of temperament is produced.

“*Fifthly*: To these causes must be added the different nature and quantity of the blood. Thus, when the blood is highly stimulant, the heart is excited to more violent action; an increased secretion of bile promotes the vermicular motion, and a superfluity of mucus disposes to catarrh, &c. From these considerations it is evident, that there are causes sufficiently powerful to produce, at a very early period of life, an unalterable predisposition to a certain temperament. That a complete change is ever effected, from a choleric habit, for instance, to a phlegmatic, cannot be consistently admitted, at least while the laws of nature remain unalterable. I will, however, admit that the temperaments, though not completely changed, may be modified;—that the vehemence of some, and the languor of others, may to a certain degree be lessened; but this must be done by remedies suited to the class of the causes productive of a particular temperament. Of these the principal are:

“1. A different regimen. Thus animal food imparts the highest degree of strength to the organs, enlivens the senses, and often occasions a degree of ferocity; as is evident in cannibals, in carnivorous animals in general, in butchers and their dogs, in hunters, particularly when aided by the frequent use of spices, wines, and stimulating medicines. Vegetable diet, on the contrary, diminishes the irritability and sensibility of the system;

in a word, renders it phlegmatic.—Some authors indeed have considered potatoes as being the means of contributing to that end; but I am not inclined to subscribe to this doctrine; since I have had occasion to observe the lively temperament of the common people in Ireland.—Yet attention to this is highly necessary in those, who have the charge of children; as by the use of animal food, additional energy may be given to the fibres, and when their irritability is too great, it may be diminished by an opposite regimen.

“ 2. Education, both physical and moral, is another cause of alteration in the temperament of man. Its power is almost unbounded, especially in the more early periods of life; and hence it often happens, that whole nations seem to possess one common temperament.

“ 3. Climate, in its most extensive sense, comprehending atmosphere and soil, is a third cause of alteration. The activity and acuteness of a choleric habit are seldom to be found in a region of perpetual fog; as for instance, in Holland. They are the natural produce of a warm climate, and require a gentle elevation of surface, with a moderately moist soil, and a serene, equal atmosphere.

“ 4. I have often observed an astonishing degree of activity communicated to the whole system, by an ardent desire of learning; so that the temperament seemed to receive new life from every accession of knowledge.

“ 5. The want of the necessaries of life, on the one hand, or possession of the means of luxury on the other, variously modify the disposition;—and the liveliness of the temperament is also observed to rise or fall, according to the degree of political freedom.

“ 6. Age, company, and professional duties greatly affect the temperament. Hence we seldom find any one who, at 56 years of age, retains the activity of that choleric or sanguine habit which he possessed at 36.

“ Those who follow nature, and not a plausible hypothesis, will be sensible how difficult it is to classify and fix the characteristic marks of the different temperaments; and it is rather a matter of doubt, whether the following rude sketch will be more successful than the attempts of others.

“ All the modifications of temperaments appear to be varieties of the *sanguine* and *phlegmatic*.

“ 1. The sanguine is variable. It is marked by a lively complexion; the vessels are full of blood; and persons of this habit are seldom able to bear great warmth; they are predisposed to inflammations, and possess a high degree of irritability and sensibility. All is voluptuous in this temperament. They are fickle in every thing they undertake; are affable, and soon become acquainted, but as soon forget their friends, and are suspicious of every body. Whatever requires industry they abhor, and hence make little progress in science, till they advance in age.

“ 2. The sanguineo-choleric enjoys all the health and serenity of the sanguine, with all the perseverance of the choleric.

“ 3. In the choleric, the body is soft and flexible, without being dry and meagre as in the melancholic; the skin has a taint of yellow; the hair is red; the eyes dark and moderately large, with a penetrating expression, and frequently a degree of wildness; the pulse full and quick; the muscular contractions in walking, speaking, &c. are rapid; the bile is copious and acrid, and hence the vermicular motion is active, and the body not liable to costiveness. Persons of this class are particularly fond of animal food. They possess great magnanimity, are fitted for laborious undertakings, and seem born to command.

“ 4. He whose temperament is hypochondriacal, is a burthen to himself and others. Persons of this class are subject to diseases of the liver, and hence have a fallow complexion. They are never content with their situation, and are a prey to envy and suspicion.

“ 5. The melancholic temperament is marked by a gloomy countenance, small, hollow, blinking eyes, black hair, a rigid or tough skin, dry and meagre fibres. The pulse is weak and languid, the bile black, the vermicular motion slow. The perceptions of persons of this disposition are quick; they are fond of contemplation, and are slow in the execution of labour, which they patiently undertake. They bear with resolu-

tion the troubles of life ; and, though not easily provoked, are nevertheless vindictive.

“ 6. The *Bæotic* or rustic temperament has many of the qualities of the sanguine, in common with many of those of the phlegmatic. The body is brawny, the muscles have but little irritability, the nerves are dull, the manners rude, and the powers of apprehension weak.

“ 7. The gentle temperament is a combination of the sanguine, choleric, and phlegmatic. Universal benevolence is the distinguishing character of this class. Their manners are soft and unruffled. They hate talkativeness ; and if they apply to science, their progress is great, as they are persevering and contemplative. Lastly,

“ 8. The phlegmatic class is marked by a soft, white skin, prominent eyes, a weak pulse, and languid gait. They speak slowly, are little hurt by the injuries of the weather, submit to oppression, and seem born to obey. From their little irritability, they are not easily provoked, and soon return to their natural state of indifference and apathy.”

On Patent or Quack Medicines.

ALTHOUGH there is but one state of perfect health, yet the deviations from it, and the genera and species of diseases, are almost infinite. It will hence, without difficulty, be understood, that in the classes of medical re-

medies there must likewise be a great variety, and that some of them are even of opposite tendencies. Such are both the warm and the cold bath, considered as medical remedies. Though opposite to each other in their sensible effects, each of them manifests its medical virtue, yet only in such a state of the body as will admit of using it with advantage.

It is evident from these premises, that an universal remedy, or one that possesses healing powers for the cure of *all* diseases, is in fact a nonentity, the existence of which is physically impossible, as the mere idea of it involves a direct contradiction. How, for instance, can it be conceived, that the same remedy should be capable of restoring the tone of the fibres, when they are relaxed, and also have the power of relaxing them when they are too rigid; that it should coagulate the fluids when in a state of resolution, and again attenuate them when they are too viscid; that it should moderate the nerves in a state of preternatural sensibility, and likewise restore to them their proper degree of irritability, when they are in a contrary state.

Indeed, the belief in an universal remedy appears to lose ground every day, even among the vulgar, and has been long exploded in those classes of society, which are not influenced by prejudice, or tinged with fanaticism. It is, however, sincerely to be regretted, that we are still inundated

with a flood of advertisements in almost every newspaper; that the lower and less enlightened classes of the community are still imposed upon by a set of privileged impostors, who frequently puzzle the intelligent reader to decide, whether the boldness or the industry with which they endeavour to establish the reputation of their respective poisons, be the most prominent feature in their character.*—It was justly observed by the sagacious and comprehensive Bacon, “that a reflecting physician is not directed

* To illustrate this proposition farther, I shall quote the sensible remarks of a late writer, Mr. JAMES PARKINSON, who expresses himself, in his “*Medical Admonitions*,” when treating on the subject of Catarrh, in the following pertinent words:

“Most of the Nostrums advertised as *cough drops*, &c. are preparations of opium, similar to the paregoric elixir of the shops, but disguised and rendered more deleterious, by the addition of aromatic and heating gums. The injury which may be occasioned by the indiscriminate employment of such medicines, in this disease, may be very considerable; as is well known by every person possessing even the smallest share of medical knowledge.

“It would undoubtedly be rendering a great benefit to society, if some medical man were to convince the ignorant of the pernicious consequences of their reliance on advertised Nostrums: but, unfortunately, the situation in which medical men stand is such, that their best-intentioned and most disinterested exertions for this purpose would not only be but little regarded, but frequently would be even imputed to base and invidious motives. Those to whom they have to address their admonitions are unhappily those on whom reason has least influence. “Prithee, Doctor,” said an old acquaintance to a celebrated empiric, who was standing at his door, “how is it that you, whose origin I so well know, should have been able to obtain more patients than almost all the regular-bred physicians?”—“Pray,” says the Quack, “how many persons may have passed us whilst you put your question?”—“About twenty.”—“And, pray, how many of those do you suppose possessed a competent share of common sense?”—“Perhaps one out of twenty.”—“Just so,” says the Doctor; “and that one applies to the regular physician, whilst I and my brethren pick up the other nineteen.”—P. 327 and 328.

by the opinion which the multitude entertain of a favourite remedy ; but that he must be guided by a sound judgment ; and consequently he is led to make very important distinctions between those things, which only by their name pass for medical remedies, and others which in reality possess healing powers.”

I am induced to avail myself of this quotation, as it indirectly censures the conduct of *certain* medical practitioners, who do not scruple to recommend what are vulgarly called Patent and other Quack medicines, *the composition of which is carefully concealed from the public.* Having acquired their ill-merited reputation by mere chance, and being supported by the most refined artifices, in order to delude the unwary, we are unable to come at the evidence of perhaps nine-tenths of those who have experienced their fatal effects, and who are now no longer in a situation to complain.

The transition from *Panaccas*, or universal remedies, to *Nostrums* or *Specifics*, such, for instance, as pretend to cure the *same* disease in *every* patient, is easy and natural. With the latter also, impositions of a dangerous tendency are often practised. It will probably be asked here, how far they are practically admissible, and in what cases they are wholly unavailing. It is not very difficult to answer this question. In those diseases, which in every instance depend upon the same cause, as in agues, the small-pox, measles, and many other contagious distempers, the possibility of

specifics, in a limited sense, may be rationally, though *hypothetically*, admitted. But in other maladies, the causes of which depend upon a variety of concurrent circumstances, and the cure of which, in different individuals, frequently requires very opposite remedies, as in the Dropsy, the various species of Colic, the almost infinite variety of Consumptions, &c. &c. a specific remedy is an impudent burlesque upon the common sense of mankind. Those who are but imperfectly acquainted with the various causes from which the same disorder originates in different individuals, can never entertain such a vulgar and dangerous notion. They will easily perceive, how much depends upon ascertaining with precision the seat and cause of the affection, before any medicine can be prescribed with advantage or safety:—even life and death, I am concerned to say, are too often decided by the *first steps* of him, who offers or intrudes his advice upon a suffering friend.

The following instances will shew the danger attending the precipitate application of the same medicine in similar disorders.—A person violently troubled with the colic took a glass of juniper spirits, commonly called Hollands, from which he received almost instantaneous relief, as the affection proceeded from flatulency. Another person, who found himself attacked with similar pains, was induced by the example of his friend to try the same expedient; he took it without hesitation, and died in a few hours after.—No wonder that the consequences here were fatal,

as the colic in the latter case was owing to an inflammation in the intestines.—A third person was afflicted with a colic, arising from poisonous mushrooms, which he had inadvertently swallowed; the immediate administration of an emetic, and after it, some diluted vegetable acid, restored him to health. A fourth person had an attack of this malady from an *encysted hernia* or inward rupture. The emetic, which relieved the former patient, necessarily proved fatal to the latter; for it burst the bag of inclosed matter, poured the contents within the cavities of the abdomen, and thus speedily terminated his existence. Again, another had by mistake made use of arsenic, which occasioned violent pains, not unlike those of a common colic. A large quantity of sweet oil taken internally was the means of his preservation; whereas the remedies employed in the other cases would have been totally ineffectual. Here I willingly close a narrative, the recital of which cannot but excite the most painful sensations. To lengthen the illustration would lead me too far beyond my prescribed limits: for cases of this nature happen so frequently, that it would be easy to extend the account of them, by a long catalogue of interesting but fatal accidents.

What is more natural than to place confidence in a remedy, which we have known to afford relief to others in the same kind of affection? The patient anxiously inquires after a person who has been afflicted with the same malady. He is eager to learn the remedy

that has been used with success. His friend or neighbour imparts to him the wished-for intelligence. He is determined to give it a fair trial, and takes it with confidence. From what has been stated, it will not be difficult to conceive, that if his case does not exactly correspond with that of his friend, any *chance remedy* may be extremely dangerous, and even fatal.

The physician is obliged to employ all his sagacity, supported by his own experience, as well as by that of his predecessors; and, nevertheless, is often under the temporary necessity of discovering from the progress of the disease, what he could not derive from the minutest researches. How then can it be expected, that a novice in the art of healing should be more successful, when the whole of his method of cure is either the impulse of the moment, or the effect of his own credulity? It may be therefore truly said, that life and death are frequently intrusted to chance.*

From what has been premised, it may be confidently asserted, that a nostrum or an universal remedy is as great a *desideratum* as

* The late Dr. HUXHAM, a physician of great celebrity, in speaking of *Aesclepiades*, the Roman empiric, says: "This man from a *claimer* turned *physician*, and set himself up to oppose all the physicians of his time; and the novelty of the thing bore him out, as it frequently doth the *Quacks* of the present time; and ever will, *whilst the majority of the world are fools.*"

In another place, Dr. Huxham thus curiously contrasts the too timid practice of some regular physicians, with the hazardous treatment, which is the leading feature of *Quacks*: "The timid, low, insipid practice of some, is almost as dangerous as the bold, unwarranted empiricism of others; time and opportunity, never to be regained, are often lost by the former; whilst the latter, by a *bold push*, sends you off the *stage* in a moment."

the philosopher's stone. The absurd idea of an universal medicine can only obtain credit with the weak, the credulous, or the ignorant.

One of the most unfortunate circumstances in the history of such medicines, is the insinuating and dangerous method, by which they are *puffed* into notice. And as we hear little of the baneful effects which they daily must produce, by being promiscuously applied, people attend only to the extraordinary instances, perhaps not one in fifty, where they have afforded a temporary or apparent relief. It is well known, that the more powerful a remedy is, the more permanent and dangerous must be its effects on the constitution; especially if it be introduced like many Patent-Medicines, by an almost indefinite increase of the doses.

There is another consideration, not apt to strike those who are unacquainted with the laws of animal economy.—When we intend to bring about any remarkable change in the system of an organized body, we are obliged to employ such means as may contribute to produce that change, without affecting too violently the *living powers*; or without extending their action to an improper length. Indeed, the patient may be gradually habituated to almost any stimulus, but at the expense of palsied organs, and a broken constitution.*

* An Italian Count, uncommonly fond of swallowing medicines, found at length that he could take no more. Previous to his death he ordered the following inscription to be placed on his tomb:

"I was once healthy; I wished to be better; I took medicine, and died."

Such are the melancholy effects of imposture and credulity! Were it possible to collect all the cases of sacrifices to this mysterious infatuation, it is probable that their number would exceed the enormous havoc made by gunpowder or the sword.

A popular writer, Dr. BUCHAN, makes the following just remark on the subject in question: "As matters stand at present," says he, "it is easier to cheat a man out of his life, than of a shilling, and almost impossible either to detect or punish the offender. Notwithstanding this, people still shut their eyes, and take every thing upon trust, that is administered by any pretender to Medicine, without daring to ask him a reason for any part of his conduct. Implicit faith, every where else the object of ridicule, is still sacred here."

Analysis of Fashionable Complaints.

If these abuses of medicine be of consequence, how much more so are certain manners, habits, and customs, which the united efforts of the Faculty will never effectually remove or suppress, unless assisted by the female guardians of helpless infancy. That I may not be misunderstood with respect to the real intention of this address to the fair sex, I beg leave previously to observe, that the following remarks apply chiefly to certain classes of the community, among whom a due degree of attention is but rarely paid to the skin of their offspring.

The greater number of our fashionable complaints and affections are nearly related

to each other. The gout, formerly a regular but rare disease, which attacked only the external parts of persons advanced in years, has now become a constitutional indisposition, a juvenile complaint, torturing the patient in a thousand different forms. The famous *Podagra* and *Chiragra* of our ancestors are now nearly obsolete, and instead of the gout in the *feet* or *hands*, we hear every day of the nervous gout, the gout in the *head*, and even the fatal gout in the *stomach*. No rank, no age, no mode of life seems to be exempt from this fashionable enemy.—The next and still more general malady of the times, is *an extreme sensibility to every change of the atmosphere; or rather, a constantly sensible relation to its influence*. We are not only more subject to be affected with every current of air, every change of heat and cold, but the feelings of some are so exquisitely delicate, that in a close apartment, nay in bed, they can determine with accuracy the state of the weather, as well as the direction of the wind. By consulting their bodily sensations, these *living barometers* announce more correctly than the artificial ones, not only the present, but even the future changes of the weather. I could never have believed, that this additional sense, which is only of modern origin, could be so much improved, had I not frequently witnessed the sensations of certain patients, when a cloud is floating over their heads:—a talent so peculiar to our age, that it would undoubtedly excite surprise, but no envy, in our less refined forefathers. In a climate, where the weather

changes every day, and almost every hour, it may be easily imagined, how dependent, frail, and transitory, must be the health of the wretched possessors of this *new* sense; and that beings so organized cannot warrant, for a single hour, their state of health, their good-humour, or their physical existence. Is it not then very probable, that many strange and inconsistent events of our days may have their secret foundation in this dependence on the weather?—In judging of man and his actions, we ought first to observe the state of the barometer; as our more superstitious ancestors made the celestial constellations the criterion in their prognostics.

Not less characteristic of the present generation, but more painful, are the fashionable nervous and hypochondriacal diseases. These are formidable, insidious tormentors, which not only destroy our physical well-being, but also envenom our tranquillity and contentment, and cloud our fairest prospects of happiness. Without depriving us of life, they render it an insupportable burthen; without inducing death, they make him a welcome visitor.

It is unnecessary to detail the diversified shapes, in which these maladies present themselves. Let it suffice to observe, that however intimately the mind appears to be connected with these phenomena, we can nevertheless account for them from physical causes. They have rapidly increased with the propagation of the gout, and experience shews, that they frequently alternate with it, in the same in-

dividual patient. It is highly probable, therefore, that they are of a similar nature with the gout; and that they originate from the same source, which is peculiar to our age. Closely connected with the gout, and likewise with the hypochondriasis, how frequently do we observe the hæmorrhoids, formerly a disease of the aged, now the companion of youth, and almost a general complaint.

The last class of our fashionable diseases includes all those affections of the skin, which are known by the name of *eruptions, discolorations, efflorescences, scorbutic taints, &c.* Of late, these have alarmingly increased, and appear daily to spread every where, like noxious weeds. Even in the higher ranks, where neither a poor diet, nor want of attention to cleanliness, can be assigned as causes, we frequently observe persons, whose skin announces bad health, and on whom medicine can have no effect. Physicians of different countries complain of new and unheard-of cutaneous disorders, of an extremely malignant tendency; and if the spreading of them be not checked in time, Europe will perhaps once more be visited with that malignant and filthy disease, the Leprosy.

It is however not sufficient to give a bare catalogue of these singular affections. I shall, therefore, attempt to trace them to their source; to shew that they can be easily prevented; and to point out the most likely means by which so desirable an event may be accomplished.—It is to you, guardians of future, and I hope hardier races, that I now ap-

peal—it is your aid I solicit in so important a measure of national and domestic policy.

On the Nature and Functions of the Skin.

Much as we hear and speak of *bathing*, and of the great attention at present paid to cleanliness, I am bold to affirm, that the greater number, if not the whole of our fashionable complaints, originate from the want of care and proper management of the *skin*. Through unpardonable neglect in the earlier part of life, especially at the age of adolescence, the surface of the body is so unnaturally enervated by constant relaxation, that it oppresses, and, as it were, confines our mental and bodily faculties; promotes the general disposition towards the complaints above alluded to; and, if not counteracted in time, must produce consequences still more alarming and deplorable.

We often hear people complain, that *their skin is uneasy*; a complaint, which I fear is but too prevalent among those, who give themselves little trouble to inquire into its origin.—But how is it possible, I hear many persons ask, that the skin, which is a mere covering of the body, to shelter it from rain and sunshine, can have such influence over the whole frame? I shall venture to explain this problem, and hope to impress such as are inclined to be sceptical, with more respect for that part of the human body.

The skin unites in itself three very essential functions. It is the organ of the most exten-

five and useful sense, that of *touch* ; it is the channel of *perspiration*, the principal means which Nature employs to purify our fluids ; and through the most admirable organization, is enabled to *absorb* certain salutary parts of the surrounding atmosphere, and to guard us against the influence of others of an injurious tendency. For this purpose, innumerable nerves and vessels are dispersed throughout the skin, which are in the continual act of feeling, and at the same time of secreting and volatilizing noxious particles, and absorbing those containing vital principles. It has been proved by accurate calculations, that the most healthy individual daily and insensibly perspires upwards of three pounds weight of superfluous and hurtful humours. It may therefore be confidently asserted, that no part of the body is provided with so many and important organs, by which it is connected with almost every operation performed in animal life, as the skin. It is this, which places us in the most immediate connexion with the surrounding atmosphere, which through that channel particularly affects us, and exerts its influence on our health :—we further feel, directly through the skin, the qualities of the air, heat, cold, pressure, rarefaction, &c. : and hence we experience, at least in their influence, other much more subtle and less known qualities, of which I shall only mention the electric and magnetic fluids. From the spiritual and highly penetrating nature of these fluids, we may easily conjecture, how considerable a share they must have in the princi-

ple of vitality, and of what important use the organ is, through which they affect us.

Important as the skin is to external life, it is no less so to the internal economy of the body, where it appears to be peculiarly designed to preserve the great equilibrium of the different systems, by which the human frame is supported in its vital, animal, and sexual functions.—If any stagnation, accumulation, or irregularity arise in the fluids, the skin is the great and ever-ready conductor, through which the superfluous particles are separated, the noxious volatilized, and the fluids, stagnating in their course, set at liberty; a canal being at the same time opened for the removal of those humours which, if they should get access to the vital parts, such as the heart and the brain, would cause inevitable destruction. By the proper exercise of this organ, many diseases may be suppressed in their early stages; and those which have already taken place may be most effectually removed. No disease whatever can be removed without the co-operation of the skin. The nature and constitution of this organ most certainly determine either our hope or apprehension for the safety of the patient. In the most dangerous inflammatory fevers, when the prospect of recovery is very faint, a beneficial change of the skin is the only effort, by which Nature, almost overcome, relieves herself, and ejects the poison in a surprising manner, frequently in the course of one night. The greatest art of a physician, indeed, consists in the proper management of this extensive or-

gan, and in regulating its activity, where occasion requires. To mention only one circumstance; it is well known to those who have experienced the beneficial effects of a simple blister, that its stimulus, like a charm, has frequently relieved the most excruciating pains and spasms in the internal parts.

Cleanliness, flexibility and activity of the skin are, according to the observations premised, the principal requisites to the health of individuals, as well as of whole nations. But instead of contributing to its improvement, we generally pay very little attention to it, except to the skin of the face and hands, which are too often made the *fallacious* index of health. I am convinced, however, that most of the patients and valetudinarians, who take so much pains to refresh and fortify the *internal* parts of their body, by invigorating potations, rarely, if ever, pay any regard to their *external* surface;—an object of equal importance, and perhaps standing in much greater need of corroborants than the former. Hence it happens, that the skin of convalescents is observed to be particularly relaxed and obstructed; that they are liable to continual colds, upon the least change of temperature; and that every day of their recovery renders them more subject to relapses.

In this country, the children of people in the middling and lower ranks are perhaps better managed, than in most of the countries upon the Continent; because frequent and daily bathing is, to my certain knowledge, no where so generally practised as in England.

As soon, however, as children attain a certain age, this practice is again as generally neglected: after the tenth or twelfth year of age, the surface of the body is very little attended to. Thus a foundation is laid for numberless evils, and particularly for that scorbutic taint in the human system, which now almost universally prevails, and which is more or less connected with other and more fashionable complaints.—As we advance further in years, this disposition of the skin increases still more, particularly from the mode of life pursued in the higher ranks. We then begin to accustom ourselves to sedentary habits, to think, and to partake of the pleasures of life. The lady, the man of fortune, and the ill-fated man of letters, all of them require *more active* exercise, than they actually take, which alone can promote a free perspiration, and enliven the surface of the body; but, by their indolent habits, the whole machine stagnates, and the skin becomes contracted and debilitated.

The husbandman, indeed, labours diligently; and though, by the sweat of his brow, his skin preserves more life and activity, it is neither kept sufficiently clean, nor prevented from being obstructed by perspirable matter. The artist and manufacturer carry on their pursuits in a sedentary manner, and in a confined, impure air; the latter, in the duties of his occupation, generally employs unwholesome articles, so that at length he loses the use of this organ entirely, in some parts of the body. The voluptuary and the glutton do not suffer less than the former, as they impair the

energy of the skin by excesses of every kind, and take no precautions to preserve its elastic texture.—Our usual articles of dress, flannel excepted, are not calculated to promote a free perspiration;—our coal-fires, and still more the large potations of *warm* liquors, contribute greatly to relax the skin. If we add to this list of predisposing causes, our inconstant climate, which at one hour of the day braces, and at another relaxes the surface of the body, which alternately heats and cools it, and consequently disturbs its uniform action; it will be easily understood, that the skin must for these reasons be almost generally vitiated, and that it really is a leading source of many of our fashionable indispositions.

When the sensation of the surface is impaired; when the myriads of orifices, that are designed for the continual purification and renovation of our fluids, are obstructed, if not closed; when the subtle nervous texture is nearly deprived of its energy, so that it becomes an *impenetrable coat of mail*, is there any reason to wonder, that we are so often harassed by a sense of constraint and anxiety, and that this uneasiness, in many cases, terminates in a desponding gloom, and at length in complete melancholy?—Ask the hypochondriac, whether a certain degree of cold, paleness, and a spasmodic sensation in the skin, do not always precede his most violent fits of mental debility; and whether his feelings are not most comfortable, when the surface of his body is vigorous, warm, and perspires freely? In short, the degrees of insensible per-

piration are to him the safest barometer of his state of mind. If our skin be disorganized, the free inlets and outlets of the electric, magnetic, and other matters, which affect us at the change of the weather, are inactive. Thus the origin of extreme sensibility towards the various atmospheric revolutions, is no longer a mystery. For, in a healthy surface of the body, no inconvenience will follow from such changes.—If we further advert to those acrimonious fluids which, in an imperfect state of perspiration, are retained in our body, and which settle upon the most sensible nerves and membranes,—we shall better apprehend, how cramps or spasms, the torturing pains of the Gout and Rheumatism, and the great variety of cutaneous diseases, have of late become so obstinate and general.

The equilibrium of the fluids, and the circulation of the blood, are also determined in no small degree by the skin; so that if these fluids become thick and languid, the whole momentum of the blood is repelled towards the interior parts. Thus a continual plethora, or fulness of the blood, is occasioned; the head and breast are greatly oppressed; and the external parts, especially the lower extremities, feel chilly and lifeless.

In warm climates, in Italy for instance, the hæmorrhoids, a very distressing complaint, are but rarely met with, notwithstanding the luxurious and sensual mode of life of the inhabitants; because perspiration is always free and unchecked: while among us persons are found, who devote the whole of

their attention to the cure of that troublesome disorder.

May we not infer, from what I have thus advanced, that the use of baths is too much neglected, and ought to be universally introduced? It is not sufficient, for the great purposes here alluded to, that a few of the more wealthy families repair every season to watering-places, or that they even make use of other modes of bathing, either for their health or amusement. A very different method must be pursued, if we seriously wish to restore the vigour of a degenerated race. I mean here to inculcate the indispensable necessity for *domestic baths*, so well known among the ancients, and so universally established all over Europe, a few centuries ago, and which were eminently calculated to check the further progress of the leprosy;—a disease which, though slower in its effects, is not less distressing than the plague itself.

Much has been said and written upon the various methods, and the universal medicines, proposed in different ages, by different adventurers, professedly to diminish the inherent disposition to disease, and to give a new and renovating principle to the human frame. At one time they expected to find it in the philosophic and *astralian salts*, at another in Magnetism and Electricity;—some fanatics pretended to have discovered it in the light of the moon, others in celestial beds;—but, if I may venture to deliver my opinion, we may search for it most safely and conveniently

in every clear fountain—in the bosom of ever young, ever animating nature.

Bathing may be also considered as an excellent specific for alleviating both mental and bodily sufferings. It is not merely a cleanser of the skin, enlivening and rendering it more fit for performing its offices; but it also refreshes the mind, and spreads over the whole system a sensation of ease, activity, and pleasantness. It further removes stagnation in the larger as well as in the capillary vessels; it gives an uniform free circulation to the blood, and preserves that wonderful harmony in our interior organs, on the disposition of which our health and comfort so much depend. A person fatigued, or distressed in body and mind, will derive more refreshment from the luxury of a lukewarm bath, and may drown his inquietude in it more effectually, than by indulging in copious libations to Bacchus. The bath may be equally recommended as an admirable retiring place, to evade, for a time, the influence of the atmosphere; and persons that have the misfortune to be too susceptible of external impressions, would find no small benefit, were they to repair in thick and sultry weather to the bath, where they breathe in an element less loaded with noxious particles.

The wish to enjoy perpetual youth, is one of the most predominant and pardonable. Though it cannot be rationally asserted, that bathing will confer continual youth, yet I will hazard an opinion, that it has a very uncommon and superior tendency to prolong

that happy state ; it preserves all the solid parts soft and pliable, and renders the joints of the body flexible. Hence it powerfully counteracts, what I presume to call an insidious disease, viz. *age*, which operates by gradually exhausting the humours, and depriving the constituent parts of the human frame of their elasticity. It is no less certain, that bathing is one of the most efficacious means of preserving beauty ; and that those nations, among which bathing is a prevailing practice, are usually the most distinguished for elegance of form and beauty of complexion.

A moderate desire to improve and beautify the surface of the body, is far from being a frivolous pursuit. It excites as much interest, and is productive of as beneficial consequences, as the exertions of many a pseudo-philosopher, who devotes the toil of years, to arrange his notions in a certain systematic form, and who yet is not fortunate enough to attain the great object of his wish. I have had frequent opportunities to observe, that the desire of beauty, when not inordinate, may prove the source of many virtuous and laudable pursuits, and that it may be greatly instrumental to the preservation of health. I am also persuaded, that this desire is often pursued by methods not the most proper, and that from not having a just knowledge of beauty, we make many valuable sacrifices, not only of things relating to health, but sometimes of life itself. Instances are not uncommon, of young persons attempting to bleach their skins, and beautify their persons,

by avoiding a free air, using a mild and weakening diet, long fasting, long sleeping, warming their beds, &c. &c. ; but, alas ! the event does not answer their expectation,—they lose both health and bloom !—Eating chalk, drinking vinegar, wearing camphorated charms, and similar destructive means have been resorted to, by other more daring adventurers, but with no better success. Those I have last enumerated, may be called the *minor cosmetics* : others of a more formidable nature, I almost hesitate to mention, as they are unquestionably the most deleterious substances we are acquainted with. *Mercury* and *lead*, manufactured in various forms, are unhappily too common ingredients in many of our *modern cosmetics*, whether they consist of lotions, creams, powders, paints or ointments. That these substances can be communicated to the circulating fluids, through the skin as well as by the stomach, requires, I should suppose, no further proof, after the doctrines already advanced on this subject. *Lead*, in particular, if once introduced into the system, though in the smallest proportions, cannot be removed by art, and never fails to produce the most deplorable effects ; such as palsy, contraction and convulsion of the limbs, total lameness, weakness, and the most excruciating colic pains. Besides these more obvious effects, the frequent external use of lead and mercury, as cosmetics, occasions cramps in every part of the body, faintings, nervous weakness, catarrhs, tubercles in the lungs and intestines, which occur together or separately, according

to the different circumstances, till at length a consumption, either pulmonary or hectic, closes the dreadful scene.

Beauty of the skin, the subject under consideration at present, is but another term for a sound and healthy skin ;—a pure mirror of the harmony of the internal parts with their surface, or, if I may be allowed the expression, “ *it is visible health.*”

There subsists so intimate a relation between our interior and exterior vessels, that almost every error or irregularity in the organs within, shows itself first of all on the surface without, and particularly on the face.—How often are we struck at the countenance of a person, who thinks himself in perfect health, but whose illness, the result of some morbid cause concealed in the body, justifies in a few days the serious apprehensions we entertained at our last interview. Nature has wisely ordained, that the first appearance of internal irregularities is indicated by the countenance ; but to what use do we generally apply this index ?—We refuse to avail ourselves of her beneficent intimation ; and the continued use of pernicious substances, instead of promoting the object we have in view, ultimately tarnishes and impairs that beauty, which we meant to adorn and preserve. We imagine it in our power to improve the skin, without attending to the purity of the fluids, although it is indebted to them for its very existence ; and yet should smile at a person, who attempted to cleanse an impure tongue, by constantly scraping it, when a disordered stomach was the real cause of that impurity.

From the tenor of the preceding positions, I hope for indulgence, when I venture to pronounce every cosmetic, whose composition is kept a secret from the public, false and fraudulent ware. The three great and really effectual SUBSTITUTES FOR COSMETICS,* which I would recommend, are the following: *First*; due attention to *insensible perspiration*;—an important process, by which nature, if duly assisted, will not fail to expel all acrimonious or useless particles. By this, too, the surface of the body will be kept in a constant atmosphere of softening exhalations,—a species of volatile vapor-bath, and the most efficacious means of preserving it soft and pliant, and of animating it with the colour of life. The next circumstance to be attended to, is the *purity of the fluids*; this depends equally on a free *perspiration*, and on a vigorous state of *digestion*. The third requisite to a fair, healthful complexion, is an *uniform* distribution of the fluids; or in other words, a *free and un-*

* To such readers, whether male or female, as are *determined* to make use of *cosmetics*, instead of attending to the more effectual means to preserve the bloom of the skin, it may be of service to point out one or two *external applications*, in order to prevent them from resorting to the dangerous and destructive contrivances of Quacks.—According to Dr. WITHERING, a physician of great eminence at Birmingham, an infusion of horse-radish in milk makes one of the safest and best cosmetics. Another preparation for clearing the skin of pimples and *recent eruptions*, if assisted by gentle aperient medicines, is the fresh expressed juice of house-leek, mixed with an equal quantity of sweet milk or cream.—Yet all contrivances whatever, to answer this purpose, are absurd and nugatory, if the *inward* state of the body be neglected, or if they be looked upon as *specifics of themselves*. Such things do *not* exist in nature; and we might as well try to bleach the face of a Negro, as to remove any scorbutic or other eruptions from the face, without bestowing proper attention on the whole state of the body, and particularly the fluids, from which these irregularities derive their origin.

restrained circulation of the blood; as the very purest fluids, when profusely propelled to the face, are productive of disagreeable consequences, such as unnatural redness, flushings, tumid appearances, &c. of which ladies of a sedentary life are so apt to complain.

To these three general observations, I think, it may be necessary to subjoin a few particular injunctions, relative to the improvement of the skin, as connected with a state of good health.—Carefully avoid all *immoderate* and *violent dancing*, as the sudden alternations of heat and cold, not only impair the general state of the skin, but are likewise of the greatest detriment to beauty.—Abstain from the too frequent and too copious use of heating liquors of every kind, particularly punch and strong wines. There is scarcely any thing which is, in my opinion, more destructive of the bloom of youth and manhood, than this *liquid fire*, which fills the blood with inflammable particles, propels them towards the face, parches the skin, renders it spotted, and lays the foundation of that incurable disease, which is sometimes figuratively called *copper in the face*. Neither sugar, nor any additional ingredient to gratify the palate, can deprive these liquors of their noxious qualities, so that even the most agreeable of these seductive potions is attended with considerable danger.

Avoid, likewise, every excess in *hot drinks*, as coffee, chocolate, and tea, particularly the last, in which the people of this country are given to indulge, more than in any other beverage. I scarcely dare venture to impeach

this favourite *solace* of our morning and evening hours; but with all due deference to the comforts of the domestic circle, I consider it as my duty to denounce the too liberal use of this liquor, as not a little prejudicial to the fairness and purity of the skin. Tea taken hot, and in immoderate quantities, not only has a tendency to weaken the organs of digestion, but causes fluctuations and congestions in the humours of the face, and frequently brings on a degree of debilitating perspiration. Let us conceive the stomach inundated with a portion of warm water, just at the time of digestion; its concoctive powers are literally drowned, at the very instant when their assistance is most required; and, instead of a pure balsamic *chyle*, or alimentary fluid, it prepares crude, and acrimonious humours, which can only generate an unhealthy mass of blood. Here, I cannot impress upon the attentive reader, in terms sufficiently strong, the following truth: *that a healthy stomach only can produce healthy and uncontaminated fluids*; and that two thirds of what we call acrimony, or sharpness of humours in the system, proceed from a languid stomach, and irregular digestion.—If therefore the tea be made too weak, it will operate merely as warm water, and like it will greatly relax the coat and membranes of the stomach;—if made too strong, it will give an unnatural heat to the body, prove a dangerous stimulus to the nerves, occasion palpitations of the heart, universal trembling, cramps, and a number of other complaints, which it is needless to enumerate. That these

effects do not take place, during the first months or years of indulging ourselves in the intemperate use of hot and strong tea, is no argument to controvert this position; they will, either sooner or later, unavoidably follow.

I shall but slightly touch here, on another subject, scarcely of less importance than the former; namely, the various articles prepared by the pastry-cook and confectioner. These dainties would be less objectionable, if any method could be devised of baking them without the pernicious ingredients of yeast and fat, substances which load the stomach with a glutinous slime and rancid matter, which obstruct the glands of the abdomen, particularly those of the mesentery, and which have a strong tendency to produce the cutaneous diseases before mentioned.

On the Physical Education of Children.

THE physical education * of infants unquestionably forms an object of the first importance. The great disproportion subsisting between healthy and diseased children, together with the deplorable mortality which occurs among the latter, too plainly evince, that their *bodily* welfare is not sufficiently attended to.

There is little room to doubt, that by a more rational mode of nurture, during the

* To some readers it may be necessary to explain, that by *physical education* is meant the bodily treatment of children: the term *physical* being applied in opposition to *moral*.

first years of infancy, many subsequent diseases might either be wholly prevented, or at least greatly mitigated. Nothing perhaps would contribute more to meliorate education in general, than, what has been long and much wanted, a serious and minute attention of the Faculty to this particular branch of medical study: which at present, I am concerned to say, is almost totally neglected.

The few books extant on this subject are neither written on scientific principles, nor calculated, by their manner and style, to afford plain and popular instruction. It is not enough for professional men to plan systems of education in their study-rooms;—let them also demonstrate in practice, that they are familiarly acquainted with the *true* method of educating children;—a method which, in my opinion, implies somewhat more than merely prescribing and administering medicines.

So long as the nursing of children remains exclusively in the hands of common midwives and nurses, it is rather a matter of surprise, that so many infants should survive the age of childhood.—We ought therefore, above all things, to inquire into the monstrous prejudices prevailing in this essential part of domestic management, as the first step towards their extirpation.

How great would be my satisfaction, if, by the following strictures, I should be able to prevail upon some intelligent mothers, who possess sufficient fortitude, to throw off the bondage of old customs, or modern fashions,

and to return to the path of simple nature!—In a system of practical education, it is a judicious precept, which cannot be too much inculcated, *to omit rather than to undertake, or be too officious, in the physical treatment of infants.*

From the difficulty of discovering the true cause and seat of the complaints of children, especially if accompanied with any particular symptoms in the excretory vessels, it is very usual to administer a *gentle laxative* or *emetic*, upon the slightest occasion.—It would lead me too far to examine, in detail, the many bad consequences resulting from so absurd and detrimental a practice. I cannot, however, forbear from remarking, that by dealing constantly in aperient medicines (a strange infatuation among the vulgar!) the future diseases of the child assume a particular character of the *gastric* kind—the juice of the stomach, which serves to concoct our food, being vitiated. As the operation of the laxatives is in a manner mechanical, by impelling the fluids, and particularly those of the mucous kind, towards the stomach and bowels, and causing them to accumulate in a greater degree than usual, it will be easily understood, that by the frequent repetition of this stimulus, the gastric juice will be rendered unfit to effect the proper solution of food in the stomach. For the same reason, persons subject to frequent costiveness soon begin to complain of indigestion, when they once habituate themselves to take ANDERSON'S or any other aperient pills: for by them the stomach is converted, as it were, into a field of battle, where all the ir-

regularities, that take place in the system, are left to fight their way; where the limits of disease and health, nay the alternative of life and death, are to be finally determined. That this however is not the most proper place for such a contest, requires no demonstration. The stomach is appointed by nature for very different purposes; it is the only organ of nourishment and digestion; the source of restoration and health. But how can it effectually answer this end, if it serves, at the same time, as the constant laboratory of diseases? As it is always in a state of impurity, it cannot act with uniform energy and a sufficient degree of elasticity, to prevent frequent irregularities in digestion;—hence arise bad humours, hypochondriac affections, and nervous debility; all of which, I have reason to fear, are, more or less, consequences of tampering with medicines, especially in the period of childhood. I am further induced to think, though it may to some appear rather a bold idea, that more children are destroyed by the absurd practice of loading their tender stomachs with every sort of trash, and afterwards relieving them by repeated doses of physic, than by any *natural* process. This likewise accounts for the great number of children who die *in towns*, at an early age, before they become inured to such severe attacks made on their digestive organs.

In order to check, and, if possible, to prevent, this general tendency to diseases; to meliorate the constitution of children, by producing a regular circulation of the fluids;

and to direct the exuding morbid matter more universally and uniformly through the pores of the skin, a more effectual remedy cannot be suggested, than that of *frequent bathing*, and a very limited use of aperient medicines.

These observations are not conjectural, but founded on experience, and it gives me pleasure to add, that they are confirmed by many physicians of eminent abilities, and extensive practice.

Frequent bathing in infancy is a powerful mean of counteracting and suppressing the disposition to stomachic and bilious complaints, which, in our days, are uncommonly prevalent among children and adults, and which are frequently accompanied with diversified nervous symptoms. By the efforts of nature, to throw off malignant humours by the surface of the body, in consequence of a proper use of the bath, many infantile diseases may be safely prevented, catarrhs suppressed, or greatly mitigated, teething rendered easy, and the whole physical condition of the child considerably improved.

It becomes here a question, which is the most proper degree of heat in using the bath for children.—I shall venture to pronounce, upon the authority of the best modern authors, confirmed by my own experience and observation, that the *lukewarm bath*, between 84 and 96° of Fahrenheit's thermometer, rather more than new-milk warm, is, upon an average, the most suitable temperature. An erroneous notion too much prevails, that the

good effects of bathing are principally to be ascribed to the *cold bath*. The use of any bath, indeed, whether cold or warm, that is, the stimulating impression excited by the water, is, of itself, an excellent tonic, serving to brace and invigorate the whole system. Not to mention the comfortable sensations, that must necessarily attend the cleansing and opening so many millions of pores, with which the skin is provided, it is farther remarkable, that water, formerly considered as a *simple* element, is now pretty generally understood to be a *compound* body, consisting of *oxygen* and *hydrogen*, or vital and inflammable air, the former of which, it is well known, promotes the process of *respiration*, and literally feeds the vital principle in the human body. Although this assertion rests chiefly on an hypothetical foundation, so much is certain, that a lukewarm bath, used for the legs alone, is found by experience to communicate new spirits to the weary traveller, almost instantly to remove the sense of languor, and to re-animate all his faculties. *Bruce*, the Abyssinian traveller, remarks, that in the intense heat of that country, a lukewarm bath afforded him more refreshment and vigour, than a cold one. We ought farther to consider, that infants are accustomed scarcely to any other than a *warm* temperature. The cold bath belongs to the class of *heroic remedies*, and in its sudden and vehement effects nearly resembles electricity. It is moreover an axiom in medicine, that the means of stimulating and corroborating the system,

should be in proportion to the degree of vital power in the individual; that a faint spark may be extinguished rather than kindled by too violent a concussion of air; and that a degree of stimulus and invigoration, which agrees with a firm and robust body, may prove destructive to one that is weak and tender. It might therefore be extremely hazardous to employ a remedy, in the delicate frame of infants, which even adults should not resort to without the greatest precaution. I presume to go a step farther, and do not hesitate to say, that the use of the cold bath, as far as relates to the treatment of children, is even DANGEROUS. Its principal mode of operation is by contracting the whole surface of the body, and by causing a general repulsion of the fluids towards the internal parts. Hence in a young and infirm body, which has very little internal *reaction*, the necessary consequence of cold bathing will be an unequal distribution of the fluids, a partial or local stagnation of them; and, what is worst of all, an accumulation of humours in the head, by which infants are frequently injured, before it is in their power to complain.—The lukewarm bath, on the contrary, produces an uniform revolution and salutary purification of all the fluids. For these reasons, I consider the tepid bath as in every respect preferable, since it may be used somewhat cooler for strong children, or warmer for those of a weakly constitution, and the requisite degrees of heat be regulated according to the increasing age and strength of the child. In summer, the water

intended for bathing ought to be exposed the whole day to the rays of the sun, which will impart to it an agreeable and congenial warmth. Rain, or river-water, is the most proper for this purpose ; but if there be a necessity for using spring or well-water, it should be previously softened with a small quantity of boiled water, in which a quarter of an ounce of soap has been dissolved, with the addition of a little bran or oatmeal ; or if milk can be had, it will be found a still more useful ingredient. Here I would particularly recommend not to boil the *whole* quantity of the water to be used for bathing ; as it would in that case be deprived of its aërial constituents, which are not without their importance in the bath.—During the first weeks and months, the child should not be suffered to remain in the bath longer than five minutes, which time may be gradually increased to a quarter of an hour. During the whole process of bathing, the body should not remain inactive, but be gently rubbed with the hand, and afterwards cleaned with a soft sponge. It is of consequence to attend to the point of time, when the child is taken out of the bath ; for in almost every instance where warm bathing disagrees with the child, it will be found owing to neglect in not wiping and drying the body with sufficient expedition at this particular period. Hence it is highly necessary to keep warm cloaths in readiness, in which the child should be wrapped up, and dried, the very moment it is taken out of the bath. Every one in the habit of bathing must have

observed, that the evaporation of water on the skin excites penetrating and uncomfortable sensations of cold; and there is an astonishing difference of temperature between actually being in the water, and having water on the skin after quitting the bath. If, therefore, a child, from want of due precaution, be kept for several minutes with a naked, wet body, it will be liable to contract a cold, the more dangerous in its consequences, as it immediately succeeds a state, in which the body is warm and the skin open.

It should be further observed, that bathing, immediately after a meal, or with a full stomach, is highly improper, if not dangerous, both in children and adults; nor is it advisable, in rough weather, to carry a child into the open air too soon after bathing. The most proper time for using the bath is the evening, when the child can be removed to bed, as soon as it is completely dried.

There is another species of bath, equally indispensable, which I will call the *Air-bath*; or the daily enjoyment of fresh air. This is usually considered as a promenade, or walk of pleasure; and as children cannot judge of its great utility, and the weather is not always favourable for excursions, parents are sometimes guilty of unpardonable neglect, in confining infants for whole days and weeks together within their rooms. But if air be essentially requisite to animate the most subtle powers of man, it follows, that it is as necessary to the organs of life as food and drink; and that its salutary influence on the consti-

tution does not so much depend on the state of it with respect to pleasantness and serenity, as on its freshness and constant renewal. Hence I would impress it on the reader, as a rule not to be departed from, *to let no day elapse, without affording the child an opportunity of imbibing the salubrious qualities of fresh air.* In the first months great precaution is necessary, and children born in spring or summer have in this respect no small advantages, as there is less danger in exposing them to the open air during the warm months, than there is in autumn and winter. In the milder seasons, too, violent winds, and moist weather, cannot be too carefully avoided. After the two first months of its existence, if the child has been duly habituated to fresh air, it may be safely carried out in *any* state of the weather: this ought to be regularly done every day, if it be only for half an hour, as it is one of the most nourishing cordials that can be given. I shall just notice here, in a cursory way, the great benefit which the eyes of children derive from this practice, and which, particularly at a time when complaints of weak and sore eyes are heard in almost every family, is of the utmost importance. It is an unquestionable fact, that the shortness of sight, and weakness of the eyes, so prevalent among the inhabitants of towns, is chiefly owing to the injudicious custom of confining children, during the first years of their lives, almost constantly within four walls; so that the eye, being accustomed to *near* objects only, becomes organized for a narrow view, and at length

is rendered incapable of forming the focus properly for *distant* objects. On the other hand, it is equally certain, that by an early and daily exertion of the organs of sight, in beholding remote objects, in the open air, the circle of vision is enlarged, the power of sight increased, and a solid foundation laid for acquiring a clear and comprehensive discernment of objects.

From the preceding observations, it will be readily admitted, that the proper and daily airing of the nursery, *in winter as well as in summer*, is of no small importance to the well-being of children. It has been proved by many fatal instances, that a confined and impure air is of itself capable of exciting the most violent convulsive symptoms, and consequently is one of the principal causes, that so many infants die of convulsions, during the first months of their lives. Would it not be more eligible, to select the most airy apartment in the house for a nursery, than low and confined garrets, as is too frequently the case in large families? The room, in which children breathe, should at least be capacious and lofty, and exposed to the cheering rays of the sun, which not only influence the temper and spirits of children, but serve to purify the corrupted air in their apartments.

Persons unaccustomed to reflect on this subject, can scarcely conceive, what salutary effects the simple means here recommended, namely, the early habit of washing, bathing, and daily airing, produce on the constitution, and physical formation of the child. The

habit of body, growth, and appearance of children, properly educated in this respect, will be totally different from those, who are reared like foreign plants in a hot-house. To point out still more forcibly the peculiar advantages attending the regimen here recommended, I shall exhibit a picture of such children, not taken from fancy, but authorized by facts, and according with the experience of many modern observers, as well as my own, and that of a respectable physician in Germany, Professor Hufeland of Jena, to whom I am greatly indebted for the following observations :

1. A child thus treated is more hardy and less affected by the vicissitudes of climate and weather.

2. Its body is straight and robust ; its limbs are uniformly muscular, and well proportioned.

3. The stages of evolution, in its different organs, take place in regular succession ;—no power, no capacity, outstrips another ; its teeth do not appear too soon, nor at irregular periods ; the child does not begin to walk too early nor too late ; and the same order is observable with regard to its speaking. Even the mental faculties expand themselves more regularly, that is, not too rapidly, but after the most important bodily changes have been effected. Every period of its progress to maturity comes on in a natural and gradual manner, so that the child, in a physical sense, longer remains a child ;—he does not shoot up into manhood, before he has completed

the proper term of youth ; and thus every stage, as well as the whole career of his existence, is considerably prolonged.

4. By this treatment the circulation of the fluids, and all internal motions, particularly of the lungs and intestines, together with the usual evacuations, are beneficially promoted. Of no less advantage is the bath to those children, that are subject to habitual costiveness ; a distemperature which cannot be too much guarded against, not only during the age of childhood, but also through the whole life. Infants accustomed to the bath, and fresh air, are scarcely ever known to suffer from this complaint.

5. The texture of their muscular flesh becomes solid, the colour blooming, and the body neither appears tumid and spongy, nor parched and meagre. The complexion is lively and fresh ;—the head and lower belly are in just proportion to the rest of the body, and the disposition to rickets, so common in children, is not perceived in them.

6. Neither are such children as enjoy the benefit of the bath affected by that excessive sensibility and diseased irritability of the nervous system, which in many instances so fatally degenerates into spasms, fits, and convulsions. These irregularities, in early life, are chiefly instrumental in bringing on that pitiable state, in which some unhappy persons, through the whole of their lives, are little better than *loco-motive nervous machines*—organized beings, that exist apparently for the sake of *feeling only, not for acting.*

7. Diseases of the skin, eruptions, catarrhs, coughs, obstructions of the first passages, &c. are rarely observed to attack a child properly treated; and if they do, their duration will be short, and the *crises* easy and natural.

8. Those diseases in children, which are commonly called dangerous, as the small-pox, measles, scarlet fever, &c. and which are ultimately diseases of the skin, are greatly alleviated in their symptoms, and more easily overcome, when the skin is in full health and vigour;—but as the usual management of children deprives the skin of those properties, we need not be at all surpris'd at the danger and subsequent mortality of children, in the above-mentioned diseases.

9. The early practice of washing and bathing may be also recommended, as tending to strengthen that sense of cleanliness, which is so praiseworthy and useful in itself; and which is not sufficiently cultivated among those nations, where the bath is in disuse.*

If the means above stated are expected to produce their full effect, it should not be forgotten, that the *whole* management of the child ought to correspond and keep pace with

* The Russians, notwithstanding their ignorance, and rusticity of manners, take the lead of the more refined French and Germans, both in a delicate sensibility of cleanliness, and in the practical use of the bath. I lately read of a foreign gentleman, travelling in Russia, who had hired one of the natives as his groom or postillion. After having travelled several days together in very sultry weather, the semi-barbarian upon his knees requested his employer to grant him leave of absence for two or three hours, to refresh himself with the luxury of a bath, which to him was indispensable, and the want of which he had long felt. The *peasants* in that country possess a refinement of sense, with respect to the surface of the body, with which the most elegant *ladies* in other countries seem totally unacquainted.

the preceding practice. Without attending to this condition, constant washing and bathing may not only prove of little service, but may in some instances be productive of mischief. Hence it is absolutely necessary to prohibit the use of feather-beds, cumbersome dresses, &c. and to avoid all suffocating rooms, whether occasioned by too great heat, or an offensive corrupted atmosphere.

There is no practice more detrimental to the powers and energy of man, in the first period of his evolution, than that of immediately sinking the tender infant in a soft feather-bed. In this situation, all the organs become extremely relaxed, and we lay the foundation of a very serious malady, a *sweating-skin*; the source of constant colds, tooth-achs, head-achs, catarrhs, and innumerable other complaints.

For these and similar reasons, I would advise parents to lay their children, from the very hour of their birth, on soft and cooling mattresses, under thin blanket covers, or cotton quilts, which do not incommode the body, leave the hands and arms at liberty, and are not liable to excite too great a degree of heat. In the intense cold of winter, an additional blanket may be used, which, however, should be removed when the weather turns milder, and the child grows stronger. But the greatest mischief arises from bolsters or pillows filled with feathers; which must, after a certain time, produce uncleanness and a disagreeable smell. Such a pillow is calculated to collect and retain mephitic vapours;

and for this obvious reason it cannot but be unsafe to sleep for a whole twelvemonth with one's head reposed on such a mass of acrid exhalations. This inconvenience may be easily avoided, by furnishing children with cushions filled with horse-hair, or with the softest bran, previously well beaten; the best for this purpose is the bran of oats. The great advantage of these pillows is, that they admit moisture to pass through them, consequently they will always remain dry; and may from time to time be renewed, while they preserve a moderate and regular degree of warmth.

Cleanliness, in domestic life, is one of the cardinal virtues, and an essential requisite to the proper physical education of children. Indeed, I cannot help remarking, that this is perhaps the *only* province of parental care, in which we *never* can do *too much*. For this end, we ought not to neglect the article of linen, as the frequent change of it is of more consequence than many parents are aware of. A child is much more liable to perspire than an adult; the natural effect of which is, that its linen is more readily soiled and rendered unfit for wearing. I would therefore advise all parents, who can afford it, to give their children clean, dry linen *every day*. An undoubted proof of the utility of this practice is, that instances have occurred of children being cured of the rickets, when, from the first appearance of that complaint, they have been daily furnished with clean linen, well dried, and occasionally smoked with juniper-berries, frankincense, or other perfuming sub-

stances, in order to expel the moisture, which is absorbed by linen. But if a clean change cannot be conveniently had every day, the night-shirt as well as that of the day, ought to be regularly dried, and perfumed if necessary.

Lastly, let the dress of children be light; the head and breast during the first months may be covered, though very slightly; but as soon as the hair is sufficiently strong to afford protection, there is scarcely any necessity for hats or caps, unless in rainy or cold seasons. The breast and neck too acquire more firmness, and are rendered hardier, by keeping them uncovered; as our frequent colds and sore throats chiefly originate from the absurd habit of wearing bosom-friends and stiffened cravats.

I shall conclude these observations with an historical account from HERODOTUS, which clearly illustrates the advantage attending the cool regimen of the head. This judicious and learned writer informs us, that after the battle fought between the *Persians*, under CAMBYSES, and the *Egyptians*, the slain of both nations were separated: and upon examining the heads of the *Persians*, their skulls were found to be so thin and tender, that a small stone would immediately perforate them: while on the other hand, the heads of the *Egyptians* were so firm, that they could scarcely be fractured by the largest stones. The cause of this remarkable difference Herodotus ascribes to a custom the *Egyptians* had of shaving their heads from the earliest infan-

cy, and going uncovered in all states of the weather; whereas the Persians always kept their heads warm, by wearing heavy turbans.

I sincerely wish, that the rules and observations, here submitted to the candid reader, were more generally understood and practised, so far at least as they are found to accord with reason and experience. I am not however disposed to imagine, that plans of *sudden* improvement are the most likely to succeed; and I am well aware of the difficulties we must expect to encounter, when we attack old and rooted prejudices, with the hope of vanquishing them *all at once*. For though I should be fortunate enough to substitute fonder opinions and better practices, in lieu of those already established, yet, unless the mind be prepared for such changes, by a proper philosophic culture, nothing is more probable, than that a speedy relapse into former errors will be the necessary consequence. The history of our own time has, in some recent instances, evidently confirmed the truth of this observation. We find even the mandates of arbitrary power insufficient to produce a thorough reform in the manners and customs of a superstitious people. The philanthropic but weak emperor JOSEPH II. was obliged to yield to the torrent of popular prejudice; and, in spite of his better reason, frequently to repeal measures dictated by the enlightened genius of philosophy. His obstinate and infatuated subjects were not fully ripe for such salutary innovations. Our age is scarcely docile enough to pursue those im-

provements, which a rapid and continual progress in the sciences is daily suggesting. Upon this ground alone we can explain the frequent and obvious contrast between the prevailing theories and practices, both in the higher and lower walks of life. A great majority of the common people, from their habitual indifference to literature, and their aversion to serious reflection, still manifest their ancient prejudices to every thing which falls under the description of novelty or improvement. More than one generation will probably elapse, before even a part of the useful hints can be realized, which lie dispersed in the later writings on subjects of health and domestic economy. Whatever benefits can be attained by popular instruction, both with regard to the treatment of children and adults, must be introduced in a gradual manner. The ancient treatment of children, being consecrated by time, must not be rudely and precipitately rejected; but old customs may be changed by prudent and moderate management; and thus we may proceed from one step to another, in extending the boundaries of truth and reason. A gradual transition from a faulty to a better state of things, is commonly the most permanent. Let us combat, at first, the most dangerous notions and prejudices: the conquest over a *single* prejudice, if it be completely extirpated, is a triumph of no little moment; inasmuch as it will shake the foundation of many others, more or less connected with it.

In my earnest endeavours to caution the reader against inveterate prejudices, I do not mean to insinuate, that a perfect and permanent state of health is compatible with the delicate organization and complex functions of the human body: I am well aware, that its most healthy condition closely borders on disease, and that the seeds of distempers are already planted in the very fulness or luxuriance of our fluids. Hence no *absolute* perfection is to be found among mortals, whether we consider them in a physical or moral state. CICERO illustrates this position, when speaking of man as a moral agent, with equal truth and energy, in the following words: "He is not," says this philosophical orator, "the most virtuous man, who commits *no* faults; but I consider him as the most virtuous, whose conscience reproaches with the *fewest*."

C H A P. I.

A Practical Inquiry into the means and plans adopted among different nations, with a view to prolong human life.—An historical survey of this interesting subject, in different ages; together with the success which has attended the respective efforts made by nations and individuals.—A brief statement of the conditions requisite to the attainment of a long and healthy life.—Observations, rules, and cautions deduced from the experience of ages.—Symptoms of actual dissolution.—Summary account of a dietetic system; explanation of its design, and the vast diversity of objects comprehended under this popular science.

AS the enjoyment of ‘a sound mind in a sound body’ is one of the greatest of terrestrial blessings, it is incumbent on every rational inquirer, to devote some portion of his time and industry to the research of such useful and practical objects, as may contribute to improve and insure so desirable a state.

As long as the various functions of the human body, the voluntary as well as the involuntary motions, are performed with ease, and suffer no interruption, we usually pronounce the body to be in a state of health; in the contrary case we call it diseased. I shall advance a step further, and assert, that when we do not feel ourselves encumbered with the

weight of our own frame, and when we are not disposed to reflect, with uneasiness and solicitude, upon its physical condition, then we have a right to consider our health as being in a perfect state.

Although we are liable to suffer from the attacks of disease, in a variety of shapes, yet we have abundant reason to contemplate with satisfaction the chequered condition of human life: for, even in the present imperfect state of things, we find comforts more than sufficient to counterbalance our sorrows. Considering the innumerable accidents, to which we are daily and hourly exposed, it is a matter of just surprise, that frail, imbecile man should remain in health during the greater part of his life; and still more so, that, upon an average, the number of healthy individuals should be found far to exceed those in a contrary state. If we further advert to the want of thought and circumspection, which marks the conduct of man in general, in the treatment of his body, our astonishment will necessarily increase, that he so often escapes the dangers prepared by his own hands. But parental Nature frequently repairs the injury, though we are not conscious of her salutary efforts. She powerfully co-operates, when art is called in aid, to restore that harmony and order in the system, which had been imprudently or inadvertently disturbed. To her healing powers we are principally indebted, if the sufferings resulting from ignorance or obstinacy are less severe, than the extent of the mischief seemed to portend.

It cannot be expected, that persons unacquainted with the economy of the human frame should be able to discriminate between internal and external causes, and their effects. Where a competent share of this knowledge is wanting, it will be impossible to ascertain, or to counteract, the different causes by which our health is affected; and should a fortunate individual ever fix upon a suitable remedy, he will be indebted to chance alone for the discovery.

This has been the case in all ages, and alas! it is still deplorably the case. Remedies have from time to time been devised, not merely to serve as *Nostrums for all diseases*, but also for the pretended purpose of *prolonging human life*. Those of the latter kind have been applied with a view to resist or check many operations of nature, which insensibly consume the vital heat, and other powers of life, such as respiration, muscular irritability, &c. Thus, from the implicit credulity of some, and the exuberant imagination of others, observations and experiments, however discordant with sound reason and philosophy, were multiplied, with the avowed design of establishing proofs or refutations of this or that absurd opinion. In this manner have fanaticism and imposture falsified the plainest truths, or forged the most unfounded and ridiculous claims; so that one glaring inconsistency was employed to combat another, and folly succeeded folly, till a fund of materials has been transmitted to posterity, sufficient to form a concise history of this subject.

Men, in all ages, have set a just value on long life; and in proportion to the means of enjoying the same, this value has been felt in a greater or less degree. If the gratification of the sensual appetite formed the principal object of living, the prolongation of it would be, to the epicure, as desirable, as the prospect of a life to be enjoyed beyond the limits of the grave, is to the moralist and the believer.

In the Old Testament, the promise of a long life was held up as one of the most important sources of consolation: and, conformably to the principles of Christianity, a patient continuance in well-doing, or, in other words, a long life rich in good works, can best insure the hope of a more happy state in a future world. Hence the wish of a speedy termination of our existence here, is one of those eccentricities, into which only persons deprived of reason are liable to be drawn, either from extreme anxiety, or the want of mental fortitude. The desire of longevity seems to be inherent in all animal life, and particularly in human nature: it is intimately cherished by us, throughout the whole of our existence, and is frequently supported and strengthened, not only by justifiable means, but also by various species of collusion.

The possibility of prolonging human life was never doubted by the Orientals, even in the earliest ages. One of the most ancient methods on record, is that of placing the aged and decrepit in the vicinity of an atmosphere, replete with the exhalations of blooming youth. It is not improbable, that a certain

custom then prevailing in the East, by alluring the fancy with beautiful images, and by imposing upon the understanding through poetical fictions, first induced man to entertain this singular notion. The bloom of a juvenile age, and particularly the healthful virgin, was compared, by the Orientals, with roses, lilies, and other elegant flowers; she was introduced in allegorical description, to represent odoriferous spices, balms, and oils, and was made the subject of pastoral and other poems. How easy, then, the transition from fancy to belief, that the exhalations of vigorous and healthy persons must be highly conducive to the support of exhausted age; that they were capable, like the fragrant balms of the East, of softening the rigidity of the fibres, of exciting the vital spirits, and, in short, of supplying the aged with a fresh stock of health. The history of KING DAVID furnishes us with a striking illustration of this renovating process.

In the writings of the ancient physicians, we meet with various accounts, from which we learn, that this method has ever been a favourite resource of invalids, worn out with age. Modern physicians also mention the practice, and the celebrated BOERHAAVE informs us, that he advised an old and decrepit burgomaster at Amsterdam to sleep between two young persons; and that his patient, who before was sinking under the weight of infirmities, obviously recovered strength and cheerfulness of mind.

The great age of some schoolmasters has

likewise been ascribed to the benefit they derive from breathing, almost constantly, among young and healthy children. It has been farther observed, that young persons, if they sleep in company with the aged, become lean and enfeebled.—Upon more accurate inquiries, however, it is pretty evident, that most of the benefits (perhaps all of them) which the aged derive from this expedient, may be placed to the account of the imagination, and its surprising effects on the body. It is this power which, in my opinion, renews the languishing flame of the aged, and which may preserve them for some time longer in that renovated state, provided it be supported by a proper attention to diet and other circumstances.—We frequently see a debilitated and peevish old man assume a complacent smiling aspect, when a sprightly maiden addresses him in the language of courteous pleasantry. The most charming images recur to his stimulated imagination; and the powers of life are, as it were, again roused, and directed to one object. That such means of reanimating old age, may have a favourable effect on health, cannot be disputed.

To imagine, however, that the vigour of health and the bloom of youth can be transfused by insensible perspiration, or exhalation, into the body of the aged, is to labour under a very palpable mistake. I shall prove, in the next Chapter “On Air and Weather,” that every living being necessarily corrupts the air more or less by its respiration; and that the atmosphere, thus impregnated, be-

comes unfit for other beings to breathe in ; because every expiration contains certain particles, which are separated by the lungs, as being uselefs and noxious to the body. How then is it conceivable, that matters or substances should be hurtful to one body, if retained in it, and useful to another, if communicated to it? Or was it supposed, that the *watery parts* of insensible exhalation from the young body, could moisten and refresh the parched fibres of the aged? To accomplish this purpose, we are possessed of remedies much purer and more effectual. Natural warmth or heat is the only means competent to produce such a salutary effect; as that alone is capable of exciting the slumbering energy of life. And in this respect, I apprehend, we ought to do justice to the above-described method practised by the ancients.

When young persons live or sleep with old people, and are observed to grow thin and infirm, (which however is not always the case) that proceeds from another circumstance, namely, that the former absorb or inhale the noxious particles of the latter; but from this it by no means follows, that the aged body attracts the vital principle from the younger. Although free *caloric*, or matter of heat, may probably pass over from the young body into that of the aged; yet this transfusion, under certain circumstances, would be rather to the advantage than disadvantage of the former; inasmuch as this deprivation of superfluous caloric is not unfrequently found to be serviceable and wholesome.

From the preceding remarks we may conceive, that a school-room filled with the various exhalations of children, cannot conduce to the prolongation of life; and, consequently, that the great age of certain schoolmasters must be ascribed to some other cause. An accurate account of the mortality prevailing among that class of men would satisfactorily demonstrate, that the age of schoolmasters is in a just proportion to that of other classes of society.

I shall now consider several other plans, that have been adopted for the prolongation of human life.

The Egyptians, who lived in a country rendered unwholesome by intense heat and frequent inundations, could not long remain ignorant of the comparative longevity of their northern neighbours, the Greeks. After many fruitless attempts to discover the true cause of their short life, and to provide the means of removing that cause, they at length became fanatical enough to imagine themselves possessed of the grand secret for prolonging life—in the constant use of sudorifics and emetics. The air of Egypt, being impregnated with aqueous and putrid particles, not only checked the process of perspiration, but also generated various epidemic distempers. In such cases, sudorific medicines were necessary and proper; and even emetics, by exciting a forcible commotion through the whole system, not unfrequently restored the activity of the cutaneous vessels, and thus produced a favourable effect in those mala-

dies. Farther, the heat of the climate inspissated their fluids ; this circumstance, connected with their usual mode of life, and their crude articles of food, necessarily brought on an excess of bile, which overflowing the stomach upon the least occasion, could not fail, sooner or later, to occasion very obstinate diseases. The emetics, therefore, being eminently qualified to evacuate the bile, would of course obtain general reputation among the Egyptians. These and the sudorifics were for a long time considered as specific remedies ; from their tendency to expel the matter so dangerous to life ; and because in those ages diseases were considered the *only* enemies to longevity : the Egyptian physicians and philosophers not being able to distinguish between effects and their causes, the latter of which existed in the pestilential vapours of a hot climate.

Thus it became a custom to take at least two emetics every month ; to inquire of acquaintances and friends, how those medicines had operated, and to wish each other joy upon these occasions. I need not observe, that this singular method of prolonging life is not to be recommended as worthy of imitation ; that the periodical custom of taking medicinal remedies renders their frequent repetition necessary, while it destroys their occasional efficacy ; and that it therefore chiefly belongs to the department of the physician to determine, when, and in what degree, such medicines are to be administered.

The Greeks lived in a more romantic and

picturesque country ; their conceptions with regard to the structure and functions of the human frame were more correct and conformable to nature. Their philosophers and physicians were more enlightened and less prejudiced than those of Egypt ; they were not, like the latter, under the capricious influence of a wild imagination, too frequently disordered by the effects of BLACK BILE. Nature, displayed in all her charms, in the sublime and beautiful scenery of their country, every where invited them to the enjoyment of free and pure air ; the effects of this on their susceptible nerves, combined with an excellent system of bodily exercise, proved the best specific for counteracting the effects of time, and thus prolonging their active, healthful lives. For this great and beneficial purpose, particular methods and rules were contrived, in order to give the body the most varied and effectual, yet gentle motions ;— these athletic exercises were judiciously adapted to the different constitutions, situations, and ages of life, so that the sagacious Greeks arrived at an extraordinary degree of perfection in the *gymnastic art*.

The great advantage of such a course of bodily exercise cannot be disputed, when we consider how many individuals in all countries die prematurely from want of activity, motion, and nervous energy ; though their organization may be in no respect faulty. Besides, a body inured to frequent and laborious exercise, will not be easily affected by external causes of disease ; being secured, as

it were, by a coat of mail, against the attacks of many acute disorders.

The Greeks carried, to a still greater degree, the system of gymnastic motions. By the same method they attempted to cure diseases in their first stages, not excepting such as were already formed, and to put a stop to their further progress. They caused the patient to move in various positions; they applied gentle friction to the whole surface of the body; and used different methods to overcome the languor of the muscles, by exciting and stimulating the muscular energy.

In relaxed, weakly individuals, whose organization is deficient in the proper degree of tension or elasticity, this method must be allowed to possess great advantages; but I do not conceive it necessary to prove here, that it cannot be consistently applied to *all* diseases. It is not to be supposed, that the weary traveller can be either strengthened or refreshed by additional exercise.

The modern methods of bracing the human body, such as frequent bathing in cold water, exposing the body to all the vicissitudes of climate and weather, the various modes of supporting bodily fatigue, as travelling on horseback and on foot, &c. which are so indiscriminately recommended to our aspiring youth, cannot in every instance fortify and render the human frame indestructible:—on the contrary, *all such violent efforts* have a tendency to bring on the symptoms of age, at a much earlier period than it ought to appear; as the joints and muscles are there-

by rendered liable to contract an uncommon degree of stiffness and rigidity.—To load tender youth with burthens disproportionate to their age, and to impose upon them the task of men, can never be the most proper means of hardening and preparing them for a long and active life.

A distinction, however, should be made here, between bracing the *fibres*, of which all solid parts of the body consist, and bracing the sense of *touch* or *feeling*. The animal fibres may be solid, but should not be so rigid as to become insensible; a certain degree of irritability is necessary to the proper exercise of their contracting and relaxing power. If, further, there should exist in the body a disposition towards rigidity and insensibility, any artificial modes of bracing it will be of dangerous tendency. If, on the contrary, the fibres should be too irritable, the Grecian method may, in that case, be resorted to with safety and advantage. A striking instance of this occurs in the history of Captain Cook. On his arrival in the Friendly Islands, he was seized with an acute rheumatism, attended with excruciating pains. He was soon relieved from this torturing situation, by the easy and instinctive process of gentle friction, which the Islanders generally followed on such occasions. Thus a few untutored persons completely effected what could not have been sooner, nor more easily accomplished by the systematic art of the learned.

From these considerations we may safely infer, 1. That the cold bath, gymnastic exer-

cases, bodily fatigue of any kind, and all expedients to brace and invigorate the constitution, ought only to be adopted under certain limitations, viz. with a proper regard to particular cases and circumstances: and, 2. That these severe remedies cannot and ought not to be universally nor indiscriminately recommended, as methods of prolonging life.

Let us not, however, disparage the merits of that ingenious race of men, whom we only know from their inimitable works. For, although the method of the Greeks cannot be safely introduced among us, without many and great exceptions, we must do them the justice to allow, that in their operations of hardening the human body, they proceeded in a more cautious, gradual, and judicious manner, than the moderns seem willing to submit to. Sudden changes of any kind produce a sort of revolution in the body, and this is necessarily attended with a waste of strength, proportionate to the violence of the shock.

Plutarch possessed clear and rational ideas on the subject of preserving and prolonging human life; the truth of which he confirmed by his own experience, during a series of many happy years. He advises to keep the head cool and the feet warm, not immediately to take medicines on every slight indisposition, but rather to let Nature relieve herself by fasting a day, and, in attending to the mind, never to forget the body. Much learning is compressed in these golden precepts, which will be valuable as long as hu-

man nature remains the same. The attention bestowed upon the mind, however laudable, should not authorise us to neglect the care of the body; the intimate connexion subsisting between both requires a due proportion of care and attention to be paid to each. In the same degree, as a diseased body sympathetically torments the mind, so does an infirm mind agitate and harass the body; and such tortures and reciprocal affections are unavoidably attended with the consumption of animal life.—What Plutarch enjoins, with respect to keeping the head cool and the feet warm, is agreeable to reason and experience; we should not, however, imagine, that the grand secret of prolonging life consists in the sole observance of these maxims. The head and feet are not the only points, in which life is concentrated; they may indeed have a beneficial or pernicious influence on the whole body, and in this respect they demand a share of our attention; but no other part ought on that account to escape our notice.

I now enter upon a very unpleasant task, namely, that of reviewing a period of darkness, during the barbarity of the middle ages, when the progress of true knowledge was obstructed by the most absurd fancies and childish conceits; when conjectures, caprices and dreams supplied the place of the most useful sciences, of the most important truths. Chemistry, so essentially requisite to explain the phenomena of known and unknown substances, fell into the hands of jugglers and fanatics;—their systems, replete with philo-

sophic nonsense, and composed of the most crude, heterogeneous materials, served rather to nourish superstition than to establish facts and illustrate useful truths. Universal remedies, in various forms, met with strenuous advocates and deluded consumers. The path of accurate observation and experiment was forsaken; far from penetrating into the mysterious recesses of Nature, they bewildered themselves in the labyrinth of fanciful speculation; they overstepped the bounds of good sense, modesty, and truth, and the blind led the blind.

The prolongation of life, too, was no longer sought for in a manner agreeable to the dictates of Nature; even this interesting branch of human pursuits was rendered subservient to Chemistry, or rather to the confused system of Alchemy. *Original matter* was looked upon to be the elementary cause of all beings; by this they expected literally to work miracles, to transmute the base into noble metals, to metamorphose man in his animal state by chemical process, to render him more durable, and to secure him against early decline and dissolution. Millions of vessels, retorts, and phials were either exposed to the action of the most violent artificial heat, or to the natural warmth of the sun; or else they were buried in some dunghill, or other fetid mass, for the purpose of apprehending this *original matter*, or obtaining it from putrescible substances.

As the substance called Gold always bore the highest value among metals, these mon-

great philosophers concluded, from a ridiculous analogy, that its value, with respect to the preservation of health, and the cure of diseases, must likewise surpass that of all other remedies. The nugatory art of dissolving it, so as to render it potable, and to prevent it from being again converted into metal, employed a multitude of busy idiots, not only in concealed corners, but in the splendid laboratories of the palaces of the great. Sovereigns, magistrates, counsellors, and impostors, were struck with the common frenzy, entered into friendship and alliance, formed private fraternities, and sometimes proceeded to such a pitch of extravagance, as to involve themselves and their posterity in ruinous debts. The real object of many was, doubtless, to gratify their avarice and desire of aggrandisement, although this sinister motive was concealed under the specious pretext of searching for a remedy, that should serve as a tincture of life, both for the healthy and diseased; yet some among these whimsical mortals were actuated by more honourable motives, zealous only for the interests of truth, and the well-being of their fellow-creatures. The common people in some countries, particularly Italy, Germany, and France, often denied themselves the necessaries of life, to save as much as would purchase a few drops of the tincture of gold, which was offered for sale by some superstitious or fraudulent chemist: and so thoroughly persuaded were they of the efficacy of this remedy, that it afforded them in every instance the most confident and

only hope of recovery. These beneficial effects were positively promised, but were looked for in vain. All-subduing Death would not submit to be bribed with gold, and Disease refused to hold any intercourse with that powerful deity, who presides over the trade and commerce of nations.

As, however, these diversified and almost numberless experiments were frequently productive of useful inventions in the arts and manufactures; and as many chemical remedies of real value were thereby accidentally discovered, the great and general attention to those bold projectors, was constantly kept alive and excited. Indeed, we are indebted to their curious operations, or rather perhaps to chance, for several valuable medicines, the excellence of which cannot be disputed, but which, nevertheless, require more precaution in their use and application, and more perspicacity and diligence in investigating their nature and properties, than the original preparers of such articles were able or willing to afford.

All their endeavours to prolong life, by artificial means, could not be attended with beneficial effects; and the application of the remedies thus contrived, must necessarily, in many cases, prove detrimental to the health of the patient. In proof of this assertion, it will be sufficient to give a slight sketch of the different views and opinions of the Goldmakers, Rosencrucians, manufacturers of Astralian Salts, of the Drops of Life, and Tinctures of Gold, hunters after the Philosopher's Stone,

&c. &c. Some of these enthusiasts fancied life to resemble a flame, from which the body derived warmth, spirit, and animation. This flame they endeavoured to cherish and to increase by their remedies, supplying the body with materials to feed the flame, as we pour oil into a burning lamp.

Others imagined they had discovered something invisible and incorporeal in the air, that important medium in supporting the life of man. They pretended to catch, to refine, and so to reduce and *materialize* this undefinable something, that it might be swallowed in the form of powders or drops; that by its penetrating powers it might insinuate itself into the whole animal frame, invigorating and qualifying it for a longer and healthier duration than usual.

Others again were foolish enough to cherish a notion, that they could divest themselves of the properties of matter during this life; that in this manner they might be defended against the gradual approaches of dissolution, to which every animal body is subject; and that thus fortified, without quitting their terrestrial tabernacle, they could associate at pleasure with the inhabitants of the spiritual world.

The Sacred Volume itself was interpreted and commented upon by the Operators and Alchemists, with a view to render it subservient to their interested designs. Indisputable historical facts, recorded in this invaluable book, were treated by them as hieroglyphical symbols, which contained chemical processes:

and the fundamental truths of the Christian religion were applied, in a wanton and blasphemous manner, to the purposes of making Gold, and distilling the Elixir of Life.

The productions of Alchemy, far from answering the purpose of prolonging life, have rather a contrary tendency. All the remedies which it affords, are of a heating and stimulating nature. The person who takes them will feel himself more cheerful for some time, and on that account he may fancy himself more vigorous and juvenile; as they certainly give an additional impulse to the sensations of life, like wine, spirits, and all other stimulants. But this increase of the *sensation of life* should by no means be confounded with an increase of the *power of life*. It may be even safely affirmed, that by the increase of vital sensations, the career of life itself is accelerated, and the consumption of it sooner exhausted; consequently the duration of the body is necessarily shortened.

I should not omit to mention, that these remedies strongly increase the sensitive power of man, they predispose him to sensual pursuits, stimulate him to commit excesses of every kind, incite him to take continual or excessive exercise, as dancing, and the like, and thus by inevitable consequence hasten the waste and dissolution of the body. That, for instance, which, according to the natural course, ought to be expended or consumed in three days, is dissipated perhaps in as many jovial hours. This premature loss is attended with relaxation, irksomeness, and even

aversion to life, till a new dose of stimulants reproduces the former false vivacity. It fares with the patient here, as it does with the hard drinker, who trembles in the morning that follows his nightly debauch, feels his whole frame relaxed, inactive and torpid, and is in a manner obliged to take a fresh dram of his favourite liquor, before he can enter on any serious business, with pleasure or effect.

These famous essences, balms, tinctures of life, &c. are farther dangerous, as they contract the small vessels, so necessary to the preservation of life, as well as to the reparation of the losses sustained, and thus render them unfit to perform their offices. Hence arise rigidity or stiffness, and exsiccation; the body shrivels, and the symptoms of old age appear at an earlier period than they would otherwise have done. Man is seldom unprovided with the supplies of vitality;—every draught of air we inhale, and every particle of food we swallow, is a fresh accession to the stock of life. But as soon as the *susceptibility* or *power of receiving* those supplies becomes languid, we then may be considered as unfit to perform the functions of life; and all the medicaments of nature and art will be found insufficient to relieve us. He who searches for the supplies of life in alchemical productions, elixirs, balsamic essences, &c. will sooner or later, but always prematurely, experience the want of susceptibility. Even that impudent boaster and celebrated *insurer of lives*, THEOPHRASTUS PARACELSUS, although he pretended to have in his possession the

stone of immortality, died—in his fiftieth year! His vegetable sulphur was a heating and stimulating remedy, partly similar to the Anodyne Liquor of Hoffmann.

The world of spirits also was invaded, and summoned, as it were, to contribute to the prolongation of human life. Spirits were supposed to have the rule of air, fire, earth, and water; they were divided into particular classes, and particular services ascribed to each. The malevolent spirits were opposed and counteracted by various means of prevention: the good and tutelary were obliged to submit to a sort of gentle, involuntary servitude. From invisible beings were expected and demanded visible means of assistance—riches—health—friends—and long life. Thus the poor spirits were profanely maltreated, nay they were sometimes punished, and even miserably flogged in effigy, when they betrayed symptoms of disaffection, or want of implicit loyalty.

As men had thus, in their weakness and folly, forsaken the bounds of this terrestrial sphere, it will easily be believed, that with the help of an exuberant imagination, they would make a transition to the higher regions—to the celestial bodies and the stars, to which indeed they ascribed no less a power than that of deciding the destinies of men, and which, consequently, must have had a considerable share in shortening or prolonging the duration of human life. Every nation or kingdom was subjected to the dominion of its particular planet, the time of whose

government was determined; and a number of ascendant powers were fictitiously contrived, with a view to reduce under its influence every thing which was produced and born during its administration.

The professors of astrology appeared as the confidants of these invisible rulers, and the interpreters of their will; they very well understood the art of giving a respectable appearance to this usurped dignity. Provided they could but ascertain the hour and minute of a person's birth, they confidently took upon themselves to predict his mental capacities, future vicissitudes of life, diseases, together with the circumstances, the day, and the hour of his death. Not only the common people, or the less informed classes of society, but the most respectable men for learning and abilities, nay even those of the highest rank and station, did homage to those "gods of their idolatry," and lived in continual dread of their occult powers. With anxious countenances and attentive ears, they listened to the effusions of those self-appointed oracles, which prognosticated the bright or gloomy days of futurity. Even physicians were solicitous to qualify themselves for an appointment no less lucrative than respectable:—they forgot, over the dazzling hoards of Mammon, *that they were peculiarly and professedly the pupils of Nature.* The curious student in the Universities found every where public Lecturers, who undertook to instruct him in the profound arts of divination, chiromancy, and the famous *cabala*.

Not to mention other instances, I shall cite that of the noted *Thurneisen*, in the last century, who was invested at Berlin with the respective offices of Printer to the Court, Bookseller, Almanack-maker, Astrologer, Chemist, and First Physician. Messengers daily arrived from the most respectable houses in Germany, Poland, Hungary, Denmark, and even from England, for the purpose of consulting him respecting the future fortunes of new-born infants, acquainting him with the hour of their nativity, and soliciting his advice and directions as to their management. Many volumes of this singular correspondence are still preserved in the Royal Library at Berlin. The business of this fortunate adept increased so rapidly, that he found it necessary to employ a number of subaltern assistants, who, together with their master, realized considerable fortunes. He died in high reputation and favour with his superstitious cotemporaries; and *Thurneisen's* Astrological Almanack is yet published in some of the less enlightened provinces of Germany. But it may be asked, how it happens, that an art which determines the fate of mortals, and ascertains the impassable limits of human life, can at the same time serve as the means of prolonging it? This I shall now proceed to account for. The teachers of divination maintained, that not only men, but all natural bodies, plants, animals, nay whole countries, including every individual place and family, were under the government of some particular planet. As soon as the masters of the OCCULT SCIENCE had discov-

ered, by their tables, under what constellation the misfortune or distemper of any person originated, nothing further was required, than that he should remove to a dwelling ruled by an opposite planet, and confine himself exclusively to such articles of food and drink, as were under the influence of a different star. In this artificial manner, they contrived to form a system, or peculiar classification of plants, namely, lunar, solar, mercurial, and the like—and hence arose a confused mass of dietetic rules, which, when considered with reference to the purposes of health, cleanliness, exercise, &c. form a remarkable contrast to those of the Greeks.

Neither was this preventive and repelling method confined merely to persons suffering under some bodily disorder. In the case of individuals who enjoyed a good state of health, if an unlucky constellation happened to forebode a severe disease, or any other misfortune, they were directed to choose a place of residence influenced by a more friendly star; or to make use of such aliment only as, being under the auspices of a propitious star, might counteract the malignant influence of its adversary.

It was also pretty generally believed and maintained, that a sort of intimate relation or sympathy subsisted between metals and plants; hence the names of the latter were given to the former, in order to denote this supposed connexion and affinity. The corresponding metals were melted into a common mass, under a certain planet, and were formed into

small medals or coins, in hopes, and with the firm persuasion, that he who carried such a piece about his person, might confidently expect the whole favour and protection of the planet thus represented.

The transition from one degree of folly to another is easy; and this may help us to account for the shocking delusions practised in the manufacturing and wearing of metallic amulets of a peculiar mould, to which were attributed, by a sort of magic influence, the power and protection of the planet, to whom they related: these charms were thought to possess virtue sufficient to overrule the bad effects presaged by an unlucky hour of birth, to promote to places of honour and profit, and to be of potent efficacy in matters of commerce and matrimony. The German soldiers, in the dark and superstitious ages, believed, that if the figure of Mars, cast and engraved in the sign of the Scorpion, were worn about the neck as an amulet, it would render them invulnerable, and insure success to their military enterprizes: hence amulets were found upon every soldier, either killed in battle or taken prisoner.

But let us quit a subject which excites disgust, as it exhibits such glaring deviations from reason and truth. It is much more pleasant to dwell upon examples, which afford satisfactory proof, that the human mind has never been *entirely and universally* debased, and that there have always existed some individuals, though few in number, who would not submit their necks to the yoke of popu-

lar prejudice, and whose superior talents and virtues rescued them from the impositions of general folly or depravity. A memorable instance of this rare merit is to be found in the noble Venetian LEWIS CORNARO, whose history illustrates this agreeable and instructive truth, that nature, left to herself, or, in other words, a properly chosen mode of life and diet, regularly persisted in, will achieve great things; and that a frame, disordered and even reduced to a state bordering on the grave, may yet be re-established, and preserve its health and vigour for a great number of years.

Cornaro had been a professed epicure and libertine, till he entered into the fortieth year of his age. His constitution was so far reduced by the colic, rheumatic pains, fevers, &c. that his physicians at length gave him up, assuring him he could not survive much longer than two months; that no medicines whatever could avert this catastrophe, and that the only possible means of preserving his life would be a regular adherence to a frugal diet. He punctually followed this advice, perceived symptoms of convalescence within a few days after entering on his plan of reformation, and, after the lapse of twelve months, was not only completely restored, but found himself in a better state of health than he had ever been during any period of his life. He resolved therefore to confine himself to a still more parsimonious regimen, and to take nothing more than what he judged to be absolutely requisite for his support.

Thus, during *sixty* years, he confined himself to exactly twelve ounces of food a day, (bread and other nourishment included) with thirteen ounces of beverage. It should be also observed, that during this long period he carefully avoided violent heat, cold, passions, and extremes of every kind; and by rigidly and uniformly adhering to this moderate diet, not only his body, but his mind also, acquired so determined a tone, that no common incidents could affect them. At a very advanced age he lost a law-suit, which involved pecuniary concerns of great importance, and on account of which two of his brothers died of broken hearts; but he still retained his pristine health and tranquillity. His carriage happening on some occasion to be upset, he was dragged by the horses, in consequence of which his arms and legs were dislocated. He caused them, however, to be reduced again, and, without taking any medicines, we find him in a short time restored.

A striking instance of the dangerous effects likely to attend the slightest deviation from long custom and habit, is the following: When Cornaro had reached his eightieth year, his friends prevailed upon him to add a small portion to his daily quantum of food; alleging that his advanced age necessarily called for additional support. Although he was not convinced by this argument, being of opinion, that, with the general decrease of strength, our powers of digestion are likewise impaired, and that we ought to diminish rather than to increase our food, in pro-

portion to the decay of nature ; yet he yielded to the solicitations of his friends, and increased his food from twelve to fourteen, and his drink from thirteen to sixteen ounces. “ Scarcely,” to quote the words of our dietetic veteran, “ had I proceeded in this altered mode of living for ten days, before I found my spirits visibly affected ; a fretful, peevish temper succeeded to my former cheerfulness and gaiety, so that I became a burden to myself and others. This change of temper was followed by other symptoms still more alarming. On the twelfth day, I was attacked with a pain in my side, which continued for twenty-four hours together, and soon after found myself oppressed by a fever that raged with unabating fury for thirty-five days, so that my life was at times despaired of. By the blessing of God, however, on returning to my former regimen, I recovered from this shock, and now enjoy, in my eighty-third year, perfect health of body and serenity of mind. I can mount my horse without assistance ; I can climb steep precipices, and but lately I wrote a comedy, abounding with traits of innocent mirth and raillery. When I return home, after being engaged in my private affairs, or from attending the councils of state, I feel inexpressible satisfaction in the company of my grandchildren, eleven in number, whose education, amusement, and songs, are the comfort of my age. I frequently join them in singing, as my voice is now stronger and clearer than I ever knew it to be in my youth, and as my happiness is

not disturbed by the complaints, the moroseness, and discontented humours, so frequently the lot of intemperate old age."

In this happy frame of body and mind, Cornaro attained to his hundredth year; his virtuous and memorable example, however, has hitherto had but few followers. He found by *actual observation* and *experience*, that a strict and uniform regimen, or a regular daily allowance of food and drink, ascertained by weight, was the best method *he* could pursue, for the purpose of prolonging his life. He did not wish however to be understood, nor does it follow in general, that this or any other precise portion of nutriment is to be held out as a proper standard, by which *all persons* are to regulate their diet. His advice, that we should take no more food than what is absolutely necessary to our subsistence, may be thus explained; namely, that the restoration of strength, derived from supplies of nutriment, ought to bear an exact proportion to the losses sustained by the body. He, for instance, who spends little of his time in bed, and much in the open air, takes frequent exercise, is constantly employed in some laborious occupation, makes long journies on foot or horseback, or the like, will feel himself refreshed and strengthened after partaking of a plentiful meal, and cheering beverage; and such a repast is even indispensable to him, to recruit the sources of his muscular strength and activity. If, on the other hand, a person who lounges away half of his time in bed, or upon the sofa, were to consume a quantity of

food equal to the former, he would no doubt feel himself heavy and uncomfortable. Yet here too, the consequent loss of strength may vary in degree, in different sedentary persons; and this circumstance will afford me an opportunity, in the sequel, to apply to individual cases the doctrine suggested by the experience of Cornaro.

There was another period, during which *blood-letting* came into general use, and obtained great credit, as one of the most effectual means of prolonging life: the superfluity and vitiated state of the blood, or what physicians term a *plethoric habit*, being looked upon, at the same time, as a principal means of shortening life. Through the veins thus regularly opened, at certain seasons, the superfluous or vitiated blood was supposed to be emitted, while that of a more salubrious quality was left behind. Considered as a medical remedy, phlebotomy must certainly be allowed to possess its uses, and it is sometimes a necessary expedient, to produce an immediate diminution in the fulness of the blood, particularly when the time is too short, and the danger too pressing, to admit of any other method for effecting that purpose. As there can be no doubt, that blood-letting is an invaluable remedy in many disorders, it is the more peculiarly incumbent on the practical physician, to distinguish with care those cases, in which imminent danger may be averted, and health restored by the use of it. I am of opinion, that there are two cases, and only two, in which venesection is likely to be attended

with real advantage ; 1st, When it is required to prevent the fluids gaining access to the parts more essential to life ; and, 2dly, Where means must be speedily used, to counteract a threatened inflammation in the intestines. But, even in these two cases, the intelligent physician is at no loss for other remedies, which may be frequently administered with a greater probability of success. In the treatment of every disorder, it is necessary to single out that remedy, which is found most suitable to the stage of the complaint. And here we have no occasion to start the question, Whether the method and the means, by which the disease is checked and health restored, are, in the end, best calculated to prolong the life of the patient ? Physicians professionally look upon every disease as an evil, which cannot be too speedily removed ; and it would be to hazard the recovery of their patients, in many cases, were they to waste time in reflecting upon the consequences of the remedy with respect to its influence on the duration of life. Hence the art of prolonging life, strictly speaking, is not a distinct branch of medicine, but rather forms a separate art, and as such is the common property of all : it should therefore constitute a part of the education and studies of every rational individual, whatever be his other engagements and occupations. The absurd notion, that blood-letting is useful and necessary to the prolongation of human life, is still pretty generally received among the common people of all countries. Neither the *good* nor the *bad* days, supersti-

tiously marked in the almanacks for amusing the vulgar, can palliate or justify the mischiefs, with which this dangerous error is pregnant. Bleeding can be of service only, when it is performed at a proper time; and to express my opinion of it, in a few words, *it is always noxious to the healthy.*

The blood contains and affords to the bones, ligaments, tendons, membranes, muscles, nerves, vessels, in short, to the whole organized body, all the parts, which form the bones, ligaments, tendons, &c. Each of these parts is evolved from the blood, and adapted to its proper place, in so artificial a manner, that the human mind is totally at a loss to comprehend, how this operation is performed; neither have the researches of the most acute and attentive observers been able to account for it. And as the blood serves to replenish the diminution, and to make up the losses, which those parts occasionally sustain, it may be considered as the original source of our whole organization. By its stimulating powers it also causes the heart and the arteries to contract; and by that means preserves the circulating motion, by which it is propelled through all the parts of the body, for the purposes designed by nature.

Now, it requires little reflection to perceive, that he who wastes this vital fluid, thereby obstructs, and, as it were, cuts off the sources of his support and regeneration. And though it be true, that the blood evacuated by periodical bleedings is soon re-produced by the activity of the vital powers, yet this restora-

tion is not effected without considerable efforts, and at the expense of the whole machine. As this exertion, therefore, is a great pressure upon the vital powers, it must of course be attended with a proportionate degree of their consumption. It is too well known, that the corrupted part of the blood cannot be separated from the mass, so that the sound and uncorrupted particles alone may remain behind. If the quality of the blood ever become vitiated and diseased; if it be too thick and viscous, or too acrid, and dissolved, the whole mass participates in the infectious taint; neither is it in the power of art, to contrive any method, by which the corrupted part may be kept asunder, from that which is in a sound state. It would be equally unreasonable to expect, that a spoiled cask of wine could be cured of its tartness, by drawing or tapping the acid and corrupted portion from the top, and leaving the sweet and wholesome part behind. Lastly, experience has shewn in numberless instances, collected from different observations, that persons accustomed to frequent blood-letting are not only rendered more delicate in their constitutions, and thereby more subject to diseases, but also that they die, for the most part, at an earlier age than others; and although cases have occurred of some persons, who, having been bled twice or four times a year, have nevertheless arrived at a considerable age, they can only prove, that venesection was to them a proper medical remedy, perhaps adapted to their peculiar habit of

body ; or that the activity of their vital powers, their mode of life, and other favourable circumstances, internal and external, may have been sufficient to counterbalance the dangerous consequences, resulting from the frequent loss of this essential fluid.

On the Doctrine of Transfusion.

AT a time, when the shortness of life was imputed to a distempered state of the blood ; when all diseases were ascribed to this cause, without attending to the *whole* of what relates to the moral and physical nature of man, a conclusion was easily formed, that a radical removal of the corrupted blood, and a complete renovation of the entire mass, by substitution, was both practicable and effectual. The speculative mind of man was not at a loss to devise expedients, or rather attempts, for effecting this desirable purpose ; and this undoubtedly was one of the boldest, most extraordinary, and most ingenious attempts ever made to lengthen the period of human life. I allude here to the famous scheme of *transfusion*, or of *introducing the blood of one animal body into that of another* ; a curious discovery, attributed to ANDREAS LIBAVIUS, Professor of Medicine and Chemistry in the University of Halle, who, in the year 1615, publicly recommended experimental essays to ascertain the fact. Libavius was an honest and spirited opposer of the Theosophic Sys-

tem, founded by the bombastic Paracelsus, and supported by a numerous tribe of credulous and frantic followers. Although Libavius was not totally exempt from the fashionable follies of that age, since he believed in the transmutation of metals, and suggested to his pupils the wonderful powers of *potable gold*; yet he distinguished rational Alchemy from the fanatical systems then in vogue, and zealously defended the former against the disciples of Galen, as well as those of Paracelsus. He made a number of important discoveries in Chemistry, and was unquestionably the first professor in Germany, who read Chemical Lectures, upon pure principles of affinity, unconnected with the extravagant notions of the Theosophists.*

* As this remarkable sect was founded upon the doctrines of Paracelsus, during the latter part of the sixteenth and the beginning of the seventeenth centuries; and as the society known by the name of Rosencrucians, or Rosencrucians, has not been without its followers and propagators, in different shapes, even to the present time, I shall here present the reader with a concise account of the origin and tenets of that fanatical sect.

We find this order first publicly announced to the world, in a book published in the German language, at Regensburg, in the year 1614, with the following title: "*The Universal and General Reformation of the World, together with an Account of the famous Fraternity of the Rosencrucians.*" In the work is an intimation, that the members of the society had been secretly at work, for a century preceding, and that they had come to the knowledge of many great and important secrets, which, if communicated to the world, would promote the happiness of man. An adventurer of the name of CHRISTIAN ROSENKREUZ is said to have founded this order, in the fourteenth century, after being previously initiated into the sublime wisdom of the East, during his travels in Egypt and Fez. According to what we can learn from this work, the intention of the founder, and the final aim of the society, appear to have been to accumulate wealth and riches, by means of secrets known only to the members; and by a proper distribution of these treasures among princes and potentates, to promote the grand scheme of the society, by producing "*a general revolution of all things.*" In their "*Confession of Faith*" are

The first experiments relative to the transfusion of the blood, appear to have been made, and that with great propriety, on the lower animals. The blood of the young, healthy, and vigorous, was transfused into the old and infirm, by means of a delicate tube, placed in a vein opened for that purpose. The effect of this operation was surprising and important : the aged and decrepit animals were soon observed to become more lively, and to move

many bold and singular dogmas ; among others, that the end of the world is at hand ; that a general reformation of men and manners will speedily take place ; that the wicked shall be expelled or subdued, the Jews converted, and the doctrine of Christ propagated over the whole earth. The Rosencrucians not only believed that these events must happen ; but they also endeavoured to accelerate the same by their exertions. To their faithful votaries and followers they promised abundance of celestial wisdom, unspeakable riches, exemption from disease, an immortal state of ever-blooming youth, and, above all, *the Philosopher's Stone*. Learning and culture of the mind were, by this order, considered as superfluous, and despised. They found all knowledge contained in the Bible : this, however, has been supposed rather a pretext to obviate a charge, which has been brought against them, of not believing in the Christian religion. The truth is, they consider themselves as superior to Divine Revelation, and believe every useful acquisition, every virtue, to be derived from the influence of the Deity on the soul of man. In this, as well as many other respects, they appear to be followers of Paracelsus, whom they profess to revere as a messenger of the Divinity. Like him, they pretend to cure all diseases, through *Faith* and the power of imagination ;—to heal the most mortal disorders by a touch, or even by simply looking at the patient. The Universal Remedy was likewise a grand secret of the order, the discovery of which was promised to all its faithful members.

I think it unnecessary to enumerate any more of such impious fancies, if the founder of this still lurking sect, now partly revived, had not asserted with astonishing effrontery, that human life was capable of prolongation, like a fire kept up by combustible matter, and that he was in the possession of a secret, which could verify his assertion. It is evident, however, from the testimony of the above mentioned Libavius, a man of unquestionable veracity, that this doughty champion in Medical Chemistry, or rather Alchemy, Paracelsus, notwithstanding his vaunting assurances, died at Salzburg in Germany, in the Hospital of St. Stephen's, in 1541 ; and that his death was principally brought on by the irregular and dissolute mode of life, which he had for a long time pursued.

with greater ease and rapidity. By the indefatigable exertions of LOWER, in England, of DENIS, in France, and of MORITZ HOFFMAN, and others, in Germany, this artificial mode of renovating the life and spirits was successfully followed up, and even brought to some degree of perfection. The vein usually opened in the arm of a patient was resorted to for the purpose of transfusion; into this a small tube was placed in a perpendicular direction; the same vein was then opened in a healthy individual, but more frequently in an animal, into which another tube was forced in a reclining direction; both the small tubes were then slid into one another; and in that position the delicate act of transfusion was safely performed. When the operation was completed, the vein was tied up in the same manner as in blood-letting. Sometimes a quantity of blood was discharged from the patient, previous to the experiment taking place. As few persons however were to be found, who would agree to part with their blood to others, recourse was generally had to animals, and most frequently to the calf, the lamb, and the stag. These being laid upon a table, and tied so as to be unable to move, the operation was performed in the manner before described.

In some instances, the good effects of these experiments were evident and promising, while they excited the greatest hopes of the future improvement and progress of this new art. But the increasing abuses, to which it led bold and inexpert practitioners, together

with the great number of cases, wherein it proved unsuccessful, induced the different governments of Europe to put an entire stop to the practice, by the strictest prohibitions. And, indeed, so long as the constitutions of men differ from each other materially as they now do, this is, and ever will be, a hazardous, if not a desperate remedy. The blood of every individual is *sui generis*, or of a peculiar nature, and suits or accords, as it were, with that body *only*, to which it belongs, and in which it is generated. Hence our hopes of prolonging human life, by artificial evacuations and injections, must necessarily be disappointed.

We are not however to suppose, that these and similar pursuits, during the times of which we treat as well as those which succeeded, were solely or chiefly followed by mere adventurers and fanatics. No; the greatest wits and geniuses of those times, together with the most learned and eminent men, deemed them objects worthy of their sedulous attention. LORD BACON, that sagacious explorer of the arcanæ of Nature, that luminary of science and talents, represents life as a flame, which is continually wasted by the surrounding atmosphere, and asserts that *all the fluids* of the body may from time to time be renovated, and require such renovation. The remedies, which he prefers and prescribes, are conformable to this hypothesis. To prevent the *external* consumption produced by the circumambient air, he recommends the bath, and, after quitting it, friction with oils and salves, with a view

to fortify the pores, and exclude the influence of the external air. As means to counteract the *internal* waste of the body, he inculcates the propriety of a cooling, moderate diet, and, above all, extols the narcotic or soporific remedies, as the true balm of life, and the best adapted to attain the desired effect. Tranquillity of mind, and a cooling diet, may no doubt be very necessary in some cases, where there is too great an irritability of temperament, and where the circulation of the blood is too rapid. But to a phlegmatic habit, they will rather be injurious than serviceable. Narcotic remedies, too, are but ill qualified to cool and to moderate the body, since they never fail to act as a certain stimulus, are attended with heat and relaxation, and therefore must accelerate the consumption of the vital powers: that sleep, also, which is artificial, and which they have a tendency to procure, cannot upon the whole be salutary. It is no less evident, that the vital power supplied by heat or *caloric* (which is principally evolved from the air,* and introduced into the body by means of respiration) must be much less considerable during sleep, than while we are awake.

For improving the fluids of the aged, and renovating the dry and corrupted part of them, Lord Bacon thinks nothing can be put in competition with powerful laxatives, and

* We shall have occasion to institute a particular inquiry into the properties of *air*, in the next Chapter, from which it will appear, that one species of air is more noxious to the vital power than another, and that there is a greater consumption of it in one, than in the other.

advises the use of a full course of them, every two or three years at least. These remedies are, in his opinion, the best qualified to evacuate vitiated humours, and afterwards to produce, in lieu of them, milder and more healthy juices. The exhausted, and, as it were, thirsty vessels may be replenished and strengthened, according to his ideas, by a refreshing and nourishing diet.

However plausible this theory may appear, the execution of it is impracticable, and the basis on which it rests, merely conjectural. If it were possible to withdraw the corrupted part of the fluids from the body, by means of evacuants, and at the same time to remove the *causes*, which produce this tendency to corruption, then the doctrine laid down by Lord Bacon would deserve every praise, and the most minute attention to its merits. But it ought to be observed, that the activity and energy of *the whole* organized system is indispensably necessary in the process of separating the noxious or useless particles. As, therefore, laxatives remove only the more watery fluids; as they have a bad effect on the stomach and intestines, by rendering them too irritable, and consequently less tonic or vigorous; as the bile, a fluid so essential to the concoction of food and assimilation of alimentary matter, is thereby uselessly wasted; as the balance between the solid and fluid parts of the body is in this manner destroyed; and as, upon the whole, the vital powers must sustain a considerable degree of diminution in affording supplies, to repair what is

lost;—the precarious nature of *evacuants*, as the means of prolonging human life, appears too evident to require further illustration.

It is not, therefore, in such remedies as these, which can only be employed with safety, where a judicious attention is paid to the case and circumstances of the patient, that we ought to confide, as the most proper to prolong the period of our existence: we must search for means less dangerous and more effectual.

There is a pretty numerous class of men, who profess to calculate the length of their lives, not so much by the number of years or days they have lived, as by the use they have made of them, or, to speak more plainly, by the quantum of sensual pleasure they have enjoyed. Persons of this cast, though fully sensible of the unavoidable consequences, are not averse to what is called *fast living*. Accustomed to reckon only upon the enjoyments of life, they wish to attain these in a shorter period of time, and in more rapid succession, rather than slowly and by degrees; especially as the duration of our life ever remains uncertain. Men of this sanguine character may be aptly compared to a plant forced in a hot-house, which will indeed grow up suddenly, but, if contrasted with a plant of slower growth, or any kind of fruit which gradually ripens to maturity, will be found much degenerated, neither possessing the solidity and strength of stalk, nor the astringent, aromatic, and other properties, in that vigour and perfection, which we find in vegetables

raised in the open air. Many similar hot-house plants are discoverable among men, in the different stages of society. In childhood, they display the premature acquirements of youth; in youth, they show the sense, ambition, and other qualifications of manhood; and before they have well passed through the prime of virility, they are either snatched away by untimely death, or their faculties become blunted and impaired.

It is the unalterable plan of Nature, to proceed, in every one of her operations, by degrees; all outrage and extravagance militate against her established laws. The *true* enjoyment of life does not consist in the hasty pursuit of pleasure, nor in the intemperate indulgence of our sensual appetites. The epicure is soon laid up by dangerous surfeit, resulting from indulgence in a variety of highly-flavoured dishes, and is obliged to spend that time in reluctant confinement, which he proposed to devote to his bottle, to his debauchery, or to some scene of gaiety; he is compelled to lead as it were a vegetable life, scarcely pitied by his friends, and, in the fullest sense of the word, to *exist* rather than to *live*.

In one respect, we have little occasion to extol our own enlightened age, at the expense of those which are so frequently and justly termed *dark*: I allude to the bold and artful designs of imposture, and particularly *medical imposture*. We daily see illiterate and audacious empirics sport with the lives of a credulous public, that seem obstinately resolved

to shut their ears against all the suggestions of reason and experience.

The host of empirics and mountebanks, to be found in our great cities, and the tinctures, essences, and balms of life, so much in vogue with even the polished classes; the celestial beds, the enchanting magnetic powers, lately introduced into this country by *Messmer* and his numerous disciples; the prevailing indifference to all dietetic precepts; the singular imposition practised on many females, in persuading them to wear the inert *acromatic belts* (which shall be further noticed in the eighth chapter); the strange infatuation of the opulent to pay *five guineas* for a pair of *metallic tractors*,* not worth a sixpence; the tables for

* The Monthly Reviewers, in examining Mr. Perkins's pamphlet on that subject, after having informed the reader that a Dr. Willard, an American practitioner, the author himself, and four other persons, had *purposely* burnt themselves with a red-hot piece of iron, so that blisters were raised, in order to *experience* the anodyne effects of the tractors, and that all these living witnesses obtained relief in a few minutes, proceed in the following words:

"This zeal for knowledge is truly edifying, especially as the tractors are generously presented to the public at *only* five guineas a pair; and it is clear that one pair would suffice to cure all the burns and scalds of a large parish. Why are not such luculent experiments repeated here? If Mr. P. or any admirer of the discovery, would submit to have a red-hot poker run into some part of his body not necessary to life (into *that part where honour's lodged*, according to Butler, for example,) in any public coffee-house within the bills of mortality, and would afterwards heal the wound in presence of the company, in ten minutes, or in half as many hours, by means of the tractors, the most stony-hearted infidel could not resist such a demonstration. Why trifle with internal inflammations, when such an outward and visible sign might be afforded?"

"Mr. Perkins has taken some pains, in the first part of his pamphlet, to shew that the operation of his rods is not derived from animal magnetism. In our opinion, this is an unnecessary piece of trouble in England, where there is a constant succession of similar pretensions. The *virgula divinatoria*, and the *baguette* of the juggler, are the genuine prototypes of this mystery. We were indeed rejoiced on Dr. Perkins's account, to find that the Connecticut Society

blood-letting, and other absurdities still inserted in popular almanacks, sufficiently evince, that this is far from being the "Age of Reason;" that the Temple of Superstition is yet thronged with numberless votaries; that human reason is still a slave to the most tyrannical prejudices; and that there is no readier way to excite general attention and admiration, than to affect the mysterious and the marvellous.

The visionary system of JACOB BÖHMEN has lately been revived in some parts of Germany. The ghosts and apparitions, which have disappeared from the times of THOMAS and SWEDENBORG, have again, it seems, left their graves, to the great terror of fanaticism. New and unheard-of prophets announce their Divine mission, and, what is worse, find implicit believers! The inventors of secret medicines are rewarded by patents, and obtain no small celebrity; while some of the more conscientious, but less fortunate adepts, endeavour to amuse the public with *popular systems of medicine!* These, however,

had only denounced him as a *Mesmerist*; we trembled lest he should have been put into the inquisitorial hands of the old women, as a white witch.

"To trace the relations and dependencies of projects similar to that of Dr. Perkins, would now be a work of more labour than utility. The fund of public credulity is an inexhaustible resource for those who can resolve to levy contributions on it. In vain is the spirit of quackery exorcised in one form; it rises again immediately, *with twenty ghastly murders on its head, to push us from our stools.*" We, who have contemplated the progress of real knowledge, during a long course of years, have seen many bubbles like this glitter for a moment, and then disappear for ever. People may talk of *Mesmerism* or *Perkinism*; but we consider all such varieties as belonging to the old and extensive class, *Charlatanism.*"—*Monthly Review*, April, 1799, p. 463 and 464.

are harmless, in comparison with the daring experiments, of which I shall briefly sketch the history.

One of the most dazzling and successful Inventors in modern times was MESSMER, who began his career of Medical Knight-errantry at Vienna. His house was the mirror of high life; the rendezvous of the gay, the young, the opulent, enlivened and entertained with continual concerts, routs, and illuminations. At a great expense he imported into Germany the first *Harmonica* from this country; he established cabinets of natural curiosities, and laboured constantly and secretly in his chemical laboratory; so that he acquired the reputation of being a great Alchemist, a philosopher studiously employed in the most useful and important researches.

In 1766 he first publicly announced the object and nature of his secret labours:—all his discoveries centered in the *magnet*—which, according to his hypothesis, was the greatest and safest remedy hitherto proposed against all diseases incident to the human body. This declaration of Messmer excited very general attention; the more so, as about the same time he established an hospital in his own house, into which he admitted a number of patients *gratis*. Such disinterestedness procured, as might be expected, no small addition to his fame. He was, besides, fortunate in gaining over many celebrated physicians to espouse his opinions, who lavished the greatest encomiums on his new art, and were instrumental in communicating to the public a

number of successful experiments. This seems to have surpassed the expectations of Mesmer, and induced him to extend his original plan farther than it is likely he first intended. We find him soon afterwards assuming a more dogmatical and mysterious air, when, for the purpose of shining exclusively, he appeared in the character of a *Magician*—his pride and egotism would brook neither equal nor competitor.

The common Loadstone, or Mineral Magnet, which is so well known, did not appear to him sufficiently important and mysterious: he contrived an unusual and unknown one, to the effect of which he gave the name of '*Animal Magnetism*.' After this he proceeded to a still bolder assumption, every where giving it out, that the inconceivable powers of this subtle fluid were centered in his own person. Now the Mono-drama began; and Mesmer, at once the hero and chorus of the piece, performed his part in a masterly manner. He placed the most nervous, hysteric, and hypochondriac patients opposite to him; and by the sole act of stretching forth his finger, made them feel the most violent shocks. The effects of this wonderful power excited universal astonishment; its activity and penetrability being confirmed by unquestionable testimonies, from which it appeared, that blows, resembling those given by a blunt iron, could be imparted by the operator, while he himself was separated by two doors, nay even by thick walls. The very looks of this Prince of Jugglers had the power to excite painful cramps and twitches.

This wonderful tide of success easily instigated his indefatigable genius to bolder attempts, especially as he had no severe criticisms to apprehend from the superstitious multitude. He roundly asserted things, of which he never offered the least shadow of proof; and for the truth of which he had no other pledge to offer, but his own high reputation. At one time he could communicate his magnetic power to paper, wool, silk, bread, leather, stones, water, &c.—at another he pronounced, that certain individuals possessed a greater degree of susceptibility for this power than others.

It must be owned, however, to the honour of his cotemporaries, that many of them made it their business to encounter his extravagant pretensions, and to refute his dogmatical assertions with the most convincing arguments. Yet he long enjoyed the triumph of being supported by blind followers; and their too great number completely overpowered the suffrages of reason.

Messmer perceived at length, that he should never be able to reach, in his native country, the point which he had fixed upon, as the term of his magnetical career. The Germans began to discredit his pompous claims; but it was only after repeated failures in some important promised cures, that he found himself under the necessity of seeking protection in Paris. There he met with a most flattering reception, being caressed, and in a manner adored, by a nation which has ever been extravagantly fond of every thing new, whim-

fical, and mysterious. Mesmer well knew how to turn this national propensity to his own advantage. He addressed himself particularly to the weak; to such as wished to be considered men of profound knowledge, but who, when they are compelled to be silent from real ignorance, take refuge under the impenetrable shield of mystery. The fashionable levity, the irresistible curiosity, and the peculiar turn of the Parisians, ever solicitous to have something interesting for conversation, to keep their active imagination in play, were exactly suited to the genius and talents of the inventor of Animal Magnetism. We need not wonder, therefore, if he availed himself of their moral and physical character, to insure easy entrance to his doctrines, and success to his pretended experiments: in fact, he found friends and admirers, wherever he made his appearance.*

* His first advertisement was couched in the following high-sounding terms: "Behold a discovery which promises unspeakable advantages to the human race, and immortal fame to its author! Behold the dawn of an universal revolution! A new race of men shall arise, shall overspread the earth, to embellish it with their virtues, and render it fertile by their industry. Neither vice, nor ignorance, shall stop their active career; they will know our calamities only from the records of history. The prolonged duration of their life will enable them to plan and accomplish the most laudable undertakings. The tranquil, the innocent gratifications of that primeval age will be restored, wherein man laboured without toil, lived without sorrow, and expired without a groan! Mothers will no longer be subject to pain and danger during their pregnancy and child-birth; their progeny will be more robust and brave; education's now rugged and difficult path will be rendered smooth and easy; and hereditary complaints and diseases will be for ever banished from the future auspicious race. Parents will impart to them the activity, energy, and graceful limbs and demeanour of the primitive world. Fathers, rejoicing to see their posterity of the fourth and fifth generations, will only drop, like fruit fully ripe, at the extreme point of age! Animals and plants, no less susceptible than man of the magnetic power,

What splendid promises! what rich prospects! Mesmer, the greatest of philosophers, the most virtuous of men, the physician and saviour of mankind, charitably opens his arms to all his fellow-mortals, who stand in need of comfort and assistance. No wonder that the cause of Magnetism, under such a zealous apostle, rapidly gained ground, and obtained every day large additions to the number of its converts. To the gay, the nervous, and the dissipated of all ranks and ages, it held out the most flattering promises. Men of the first respectability interested themselves in behalf of this new philosophy; they anticipated, in idea, the more happy and more vigorous race to proceed, as it were by enchantment, from the wonderful impulsive powers of Animal Magnetism. Nay, even the French Government was so far seduced by these flattering appearances, as to offer the German Adventurer *thirty thousand livres* for the communication of his secret art. He appears, however, to have understood his own interest better than thus to dispose of his hypothetical property, which upon a more accurate investigation might be excepted against, as consisting of unfair articles of purchase. He consequently returned the following answer to the credulous French Ministers:—

will be exempt from the reproach of barrenness and the ravages of distemper. The flocks in the fields, and the plants in the gardens, will be more vigorous and nourishing, and the trees will bear more beautiful and luscious fruits. The human mind, once endowed with this elementary power, will probably rise to still more sublime and astonishing effects of nature:—Who indeed is able to pronounce, with certainty, how far this salutary influence may extend?

“That Dr. M. considered his art of too great importance, and the abuses it might lead to, too dangerous for him at present to make it public; that he must therefore reserve to himself the time of its publication, and mode of introducing it to general use and observation; that he would first take proper measures to initiate or prepare the minds of men, by exciting in them a susceptibility of this great power; and that he would then undertake to communicate his secret gradually, which he meant to do without hope of reward.”

Messmer, too politic to part with his secret for so small a premium, had a better prospect in view; and his apparent disinterestedness and hesitation served only to found an over-curious public; to allure more victims to his delusive practices; and to retain them more firmly in their implicit belief. Soon after this, we find Messmer easily prevailed upon to institute a private society, into which none were admitted, but such as bound themselves by a vow to perpetual secrecy. These pupils he agreed to instruct in his important mysteries, on condition of each paying him a fee of *one hundred louis*. In the course of six months, having had not fewer than three hundred such pupils, he realized a fortune of *thirty thousand louis*. It appears, however, that his disciples did not long adhere to their engagement: we find them separating gradually from their professor, and establishing schools for the propagation of his system, with a view, no doubt, to reimburse themselves for their

expenses in the acquisition of the magnetizing art. But few of them having clearly understood the enigmatic terms and mysterious doctrines of their foreign master, every new adept exerted himself to excel his fellow-labourers, in additional explanations and inventions : others, who did not possess, or could not spare the sum of one hundred louis, were industriously employed in attempts to discover the secret by their own ingenuity ; and thus arose a great variety of magnetical sects. At length, however, Mesmer's authority became suspected ; his pecuniary acquisitions were now notorious, and our *humane and disinterested philosopher* was assailed with critical and satirical animadversions from every quarter. The futility of his process for medical purposes, as well as the bad consequences it might produce in a moral point of view, soon became topics of common conversation, and at length excited even the apprehensions of Government. One dangerous effect of the magnetic associations was, that young voluptuaries began to employ this art, to promote their libidinous and destructive designs.

As soon as matters had taken this serious turn, the French Government, much to its credit, deputed four respectable and unprejudiced men, to whom were afterwards added four others of great learning and abilities, to inquire into, and appreciate the merits of the new discovery of animal magnetism. These philosophers, among whom we find the illustrious names of Franklin and Lavoisier, recognized indeed very surprising and unexpected phe-

nomena in the physical state of magnetised individuals; but they gave it as their opinion, that the power of imagination, and not animal magnetism, had produced these effects. Sensible of the superior influence, which the imagination can exert on the human body, when it is effectually wrought upon, they perceived, after a number of experiments and facts frequently repeated, that *Contact* or *Touch*, *Imagination*, *Imitation*, and *excited Sensibility*, were the real and *sole* causes of those phenomena, which had so much confounded the illiterate, the credulous, and the enthusiastic; that this boasted magnetic element had no real existence in nature; consequently that Mesmer himself was either an arrant Impostor, or a deceived Fanatic.

In the mean time, this magnetising business had made no small progress in Germany; a number of periodical and other publications vindicated its claims to public favour and attention; and some literary men, who had rendered themselves justly celebrated by their former writings, now appeared as bold and eager champions in support of this mystical medley. The ingenious LAVATER undertook long journies for the propagation of Magnetism and Somnambulism*—and what manipulations and other absurdities were not practised on hysterical young ladies in the city of Bre-

* *Somnambulism* is the art of exciting sleep in persons under the influence of Animal Magnetism, with a view to obtain, or rather extort, during this artificial sleep, their verbal declarations and directions for curing the diseases of body and mind. Such was the rage for propagating this mystical nonsense, that even the pulpit was occasionally resorted to, in order to make—not fair penitents, but fair profelytes to the system.

men? It is further worthy of notice, that an eminent physician of that place, in a recent publication, does not scruple to rank magnetism among medical remedies! Yet it must be confessed, that the great body of the learned, throughout Germany, have endeavoured, by strong and impartial criticism, to oppose and refute Animal Magnetism, considered as a medical system. And how should it be otherwise, since it is highly ridiculous to imagine, that violent agitations, spasms, convulsions, &c. which are obviously symptoms of a diseased state, and which must increase rather than diminish the disposition for nervous diseases, can be the means of improving the constitution, and ultimately prolonging human life? Every attentive person must have observed, that too frequent intercourse between nervous and hypochondriac patients is infectious; and, if this be the case, public assemblies for exhibiting persons magnetised can neither be safe nor proper. It is no small proof of the good sense of the people of this country, that the professors of this fanatical art could not long maintain their ground; that they were soon exposed to public ridicule on the stage; and that the few who are still left, are banished to dark alleys and obscure cellars of the metropolis.

Some other plans for the prolongation of life deserve to be mentioned, though scarcely less absurd than the preceding.

The French Count of ST. GERMAIN made large sums, by vending an artificial Tea, chiefly composed of Yellow-Saunders, Senna-leaves,

and Fennel-feed ; puffing it off by the specious name of *Tea for prolonging life*. It was once swallowed with great avidity all over the continent ; but its celebrity was short-lived, and its promised beneficial effects were never realized.

Another impudent adventurer, the *Chevalier D'AILHOU*D, presented the world with a Powder, which met with so large and rapid a sale, that he was very soon enabled to purchase a whole *Comté*. Instead, however, of adding to the means of securing health and long life, this famous powder is well known to produce constant indisposition, and at length to cause a most miserable death ; being compounded of certain drugs, which are clearly of a poisonous nature, although slow in their operation. And yet there are on the continent, even to this day, several respectable families, who persist in the use of this deleterious powder, from an ill-judged partiality for its inventor.

COUNT CAGLIOSTRO, that luminary of modern Impostors and Debauchees, prepared a very common stomachic Elixir, which he sold at an enormous price, by the name of "*Balm of Life* ;" pretending, with unparalleled assurance, that by the use of this medicine he had attained an age exceeding 200 years, and that he was thereby rendered invulnerable to all attempts by poison. These bold assertions could not fail to excite very general attention. During his residence at Strasburg, while he was descanting, in a large and respectable company, on the virtues of his an-

tidote, his pride was mortified by a severe check. A Physician who was present, and had taken part in the conversation, quitting the room privately, went to an Apothecary's shop, where having ordered two pills to be made of an equal size, and agreeably to his directions, he suddenly appeared again before Cagliostro, and addressed him as follows: "Here, my worthy Count, are two pills; the one contains a mortal poison, the other is perfectly innocent; choose one of these, and swallow it, and I engage to take that which you leave. This will be considered as a decisive proof of your medical skill, and enable the public to ascertain the efficacy of your extolled Elixir." Cagliostro took the alarm, made a number of apologies, but could not be prevailed upon to touch the pills. His opponent swallowed both immediately, and proved by his Apothecary, that they might be taken with the most perfect safety, being only made of common bread. Notwithstanding the shame of this detection, Cagliostro still retained numerous advocates and partisans, by circulating eccentric notions, and concealing his real character by a variety of tricks.

The inspired FATHER GASSNER, of Bavaria, ascribed all diseases, lameness, palsy, &c. to diabolical agency, contending from the history of Job, Saul, &c. recorded in Sacred Writ, that Satan, as the grand enemy of mankind, has a power to embitter and shorten our lives by diseases. Vast numbers of credulous people flocked to this fanatic, for the purpose of obtaining relief. Whole cargoes

of patients, afflicted with nervous and hypochondriac complaints, besieged him as it were in his quarters every day; all stimulated and heated with a wild imagination, all eager to view and to acknowledge the works of Satan! Men of literary character, even the Natural Philosophers of Bavaria, were hurried away by the stream, and completely blinded by this sanctimonious Impostor.

It is no less astonishing than true, that in the year 1794, a COUNT THUN, at Leipzig, pretended to perform miraculous cures on gouty, hypochondriac, and hysterical patients, merely by the imposition of his sacred hands. He could not, however, raise many disciples in a place, that abounds with Sceptics and Unbelievers.

It would be trespassing too much on the limits I have proposed to myself, were I to enumerate the various remedies advertised in the daily papers, both British and foreign, under the fictitious and fraudulent pretence of prolonging life. I shall therefore only remark, in general, that all these celebrated specifics are obviously composed upon wrong principles; inasmuch as their inventors proceed on the hypothetical idea, that *disease is the only cause of shortening life*; and, being thus mistaken, it is no wonder that they carry the *strengthening* or *bracing* system to an extravagant degree.

The highest point of bodily vigour and health may of itself contribute to shorten life; although no external causes should appear as co-operating to hasten the consump-

tive process. Nay, the very remedies we use, and the regimen we attend to, for the prevention or cure of diseases, may be of such a nature as to promote that consumption.

Absurdity of Specific Remedies.

FROM the doctrines now laid before the reader, I hope I shall not be thought unreasonable, in drawing this conclusion:—That the plans for prolonging human life are generally erroneous and injudicious; that all *artificial* means have rather a tendency to shorten than to prolong it; and that we can never safely expect the accomplishment of this great object, unless we pursue methods more consonant to nature, more verified by experience.

The truth of this inference will be more evident, when we come to inquire into the *conditions*, which are essentially requisite to the attainment of a long life.

The *first* of these is a certain bodily and mental disposition to longevity, not easily defined, yet sufficiently known and understood. In whatever this disposition may consist, it is a matter of astonishment, and inexplicable by the laws of animal economy, that many individuals, frequently under the most unfavourable circumstances, and in the most unwholesome climates, have attained to a great and happy age. It may indeed be confidently affirmed, that, without this principal requisite, all other

advantages are often of no avail; the most salubrious country air, a district abounding with aged inhabitants, a rigid adherence to the diet of Cornaro, a regular course of exercise and recreations, with the best art of the physician, are not alone sufficient to insure the felicitous prospect of a long and healthy life.*

Secondly: It is certain that there is, in most cases, a sort of hereditary disposition to longevity; an innate principle or quality, which, like many family diseases, is propagated from one generation to another. Perhaps nine out of ten old persons could make it appear, that their parents and ancestors also lived to a great age; a reason which may be admitted without having recourse to any material substance, as the cause or effect of this inherent virtue.

The *third* requisite to longevity is a *perfect birth* of the child, and a proper subsequent conduct in the mother; upon which subject it is not my intention to expatiate in this place. That acute physiologist, Lord Bacon, somewhere remarks, "that children partake more of the nature of the mother, the longer

* If these rational means be unavailing to insure longevity, still more so are those miraculous remedies introduced by superstition. The ancients conceived the idea of a *principle of life*, which they compared to a radical fluid;—the Alchemists expected to find this *original entity in gold*, by the use of which they pretended that the human body might acquire the solidity and durability of that metal. Others traced the germ of life in bodies of considerable duration; in plants and animals; in the wood of the Cedar, and in the flesh of the Stag. BOERHAAVE has made a facetious remark upon the subject: "This notion," says he, "is just as ridiculous as that of the man, who, in order to prepare himself for the business of a running footman, is said to have lived for some time entirely on the flesh of hares; hoping thus to surpass all his fellows in agility."

time she has nursed them; and that those children which most resemble the mother, will be generally found to have a claim to longevity."

Fourthly: A gradual, and not too precipitate culture of the physical and mental faculties may be properly considered as an excellent preliminary step towards prolonging life. The age of man bears a certain proportion to the growth of his various powers; and the longer we can protract the different stages of life, the more extended will be the whole compass of our existence. As it is evidently the design of nature, that man should live longer than most of the lower animals, he of course requires a greater space of time, to develop the faculties both of mind and body. Animals, which arrive soon at the perfection of their nature and form, live but a short time. Man requires upwards of twenty, and according to some, twenty-five years, before he attains to full maturity; and if it be a rule of nature, that animals in general live eight times the number of years, which is requisite to the attainment of their perfect growth, a strong presumption arises, that the age of man might be extended to nearly two hundred years. In the works of the illustrious Bacon, and particularly in his "Historical View of Life and Death," are given many strong arguments to confirm this assertion. Surprising as it may appear to some, there is a possibility at least, if not a probability, that the term of human life might be still further extended, if mankind could by any means be persuaded to re-

turn to that primeval state of nature, from which history and tradition have furnished us with such astonishing and almost incredible instances of longevity. It is not my intention here to inquire into the degree of credit, which may be due to the accounts of some extraordinary facts of individual longevity, recorded by the sacred historian; as the learned vary much in their opinion, relative to the mode of computation, and whether the Solar, the Arabic, or the Lunar year, or a still shorter measure of time, is alluded to. This, at least, seems to be generally admitted, that the antediluvians enjoyed an enviable, uninterrupted state of health; that their vegetable aliment, and general mode of living, were extremely simple and no wise prejudicial; that the constitution and temperature of the globe itself must have been greatly affected and deteriorated, in consequence of the Flood, or other causes of which we are ignorant; and, lastly, that those impetuous and inordinate appetites and passions, which, like flames, may now be said to consume the powers of life, were then either less violent, or exerted their baneful influence at a much later period of life.

Nature resents every outrage committed on her treasures, and seldom fails to punish the transgressors with lingering disease, or early dissolution. This observation may be applied to the moral as well as the physical faculties of man. It is commonly said, and not without some degree of truth, that very forward

children seldom live to any age; and that too early an exertion of mental powers is in most cases destructive. The same remark holds good in what relates to the body. The inhabitants of hot climates, who frequently marry at the age of ten and twelve, or twelve and fourteen, begin to be old at thirty, and rarely survive the sixtieth year. Every thing which hastens the evolution of the natural powers, every exertion of strength, disproportionate to the ability of the individual, should be carefully avoided, as of a dangerous tendency. Hence the great art of education, the great art of living, consists in following the path of nature.

Fifthly: We should constantly inure ourselves to the habits of supporting and resisting the various impressions of external agency.—Some persons who have paid a very rigid attention to diet, have notwithstanding been unable to reach even a middling age; while others, who have been addicted to the most irregular and extravagant courses, have been observed to live to one very advanced. Hence arise contradictory maxims in dietetics, which can only be reconciled by deciding chemically between the two extremes, and ascertaining pretty nearly the absolute and relative salubrity of things. All deviations from the rules of diet are in a certain degree hurtful; although these may, in most cases, have only a limited value. Many epicures have been known to reach their seventieth and eightieth year, if they have once survived a certain

critical period of their lives.* As soon as the body becomes accustomed to the use of certain things, at first disagreeable and perhaps hurtful, the noxious tendency will not only be removed, but we shall find our frame hardened and strengthened by the habit of using them. Nature must stand many a shock, if she would familiarize herself to the vicissitudes of climate and opposite modes of life, but every victory she gains in these encounters, will be a means of rendering her more vigorous and unconquerable. How could the sublime mind of FREDERIC THE GREAT have remained so long in its earthly vehicle, if he had not improved, by constant culture and discipline, his original disposition to a long life? A thousand other men, who have endured as much exercise of body and exertion of mind in their younger years, have yet not attained to any remarkable age.—Severe and obstinate diseases have also been thought, in many instances, to contribute to the prolongation of life: this is at best, however, but a doubtful point; although it cannot be denied, that many sick persons have, to all appearance, acquired additional

* Experience shows, that there is a particular term of life which, if we can pass in the fullness of health and vigour, leaves the greatest probability of living to a considerable age. In the female sex, this period generally arrives at, or before, the fiftieth year; in the male, it is about the sixtieth year. GELLIUS, a medical author of credit, asserts, from observations founded on long experience, that the sixty-third year is, to most constitutions, a critical and dangerous one.—The Egyptians called this epocha *Androctos*, because man begins from that time to experience a rapid decay of strength and energy. Others, rather more superstitiously, maintained that, about this period, many individuals die, or at least are subject to severe attacks of disease.—The Emperor AUGUSTUS received the congratulations of his friends, on having survived this trying period.

strength and spirits, after having recovered from a distressing quartan ague, or some threatening pulmonary disorder.

Sixthly : We may take notice of a certain *steady and equal progress through life*, as highly conducive to the great object in view, whether it flows in the manner of a gentle stream, or resembles the more active course of a rapid river. The mind, when accustomed to certain situations and pursuits, which almost constantly affect it in an uniform manner, is most likely to preserve its reasoning powers unimpaired and strong. He whom neither violent joy convulses, nor deep melancholy corrodes, whose drama of life is not chequered by too sudden vicissitudes, may, with some probability, expect a long enjoyment of that life, to which he has become so habituated. There are many whose days quietly glide away, like those of a simple rustic, in continual sameness : such persons, it is observed, generally live to a great age.

Seventhly : A very necessary cause of the attainment of an advanced age, is a sound state of digestion. In very old persons, we generally find the digestive organs in excellent condition ; nor is there a surer symptom of approaching dissolution, than complaints in the stomach, or frequent returns of indigestion. The Swiss are indebted, it is thought, to the vigorous tone of their digestive powers, for the long preservation of their lives, in general, and for the great number of aged persons among them. Milk and vegetable food seem remarkably well adapted to invig-

orate the stomach. To effect the same purpose, Lord Bacon advises old people to have recourse to strengthening baths, fomentations, and similar *external* remedies, which operate upon the absorbent system. At the same time, a thin but nourishing and moderate diet should be observed, in order to spare the organs of digestion.

Eighthly, and lastly: We may recommend equanimity, or that state of the mind, when, from the happy nature of its pursuits, it is not disquieted by too violent exertions. In the literary professions, and particularly among such individuals as are placed in easy circumstances, we discover as many instances of longevity, as in the more laborious occupations. It was remarked by the Ancients, that grammarians and rhetoricians commonly attained a great age. The mind being engaged in scientific pursuits, and other objects in which it finds pleasure, such as conversation on literary and mixed topics, collecting the productions of nature, a continual series of mental research, diversifying the pursuits or amusements, yet gradually and constantly persevering in exertions towards the attainment of some principal object—all supply the vital power, as it were, with materials, like the cuse of oil, which proved a never-failing support to the widow of *Sarepta*. On the other hand, it is a general remark, that deep thinkers, speculative philosophers, and those whose powers are continually absorbed in abstruse inquiry, soon feel the effects of age, from the great exertions of their mental powers. This must

be understood, however, with exceptions, as in the cases of SIR ISAAC NEWTON, HALLER, EULER, and the pride of his nation and age, the profound and venerable KANT, still living at Kœnigsberg.

I venture to say thus much on the various rules and precautions requisite to attain a long and healthful life. Some of the particulars are, no doubt, found united in a certain proportion of the individuals, who arrive at a respectable age. It is commonly remarked also, that the inhabitants of mountainous countries, for the most part live to a greater age than those of plain and, particularly, marshy districts. This is in part true; yet we are not to consider the lofty regions in the Alps and Pyrenees as possessing these salubrious qualities; for it is only upon moderate heights, and in hilly rather than mountainous countries, that we so frequently meet with people of an unusual age. Persons who are constantly travelling, are likewise said to enjoy a long and healthful life; and Lord Bacon further includes, in the list of long livers, such as are of a melancholy temperament. It is a questionable point, whether the great age of many Turks is to be ascribed to the serenity of their climate, their daily use of the bath, or their uncommon temperance in eating and drinking. For, as to their copious use of opium, which is considered by them almost as necessary as food, we have already shown the noxious tendency of such practice; opium generating, in a remarkable degree, a disposition of the fluids, in many respects resembling

that of hypochondriasis. There is scarcely an instance of any person, that has attained to uncommon longevity, who has not been particular in his diet and manner of living. But in this respect we cannot hope to derive advantage from excessive solicitude:—for, as when in want of sleep, the more we think of it, the more it shuns us; so those who are most anxious for longevity, are the least likely to attain it. Age is a gift, which Heaven frequently bestows upon mortals, when they are asleep, or in other words, when they are scarcely sensible of it!

On the Symptoms of actual Dissolution.

THAT many unfortunate individuals are consigned to the grave, before they are actually dead, is a truth too well attested to require demonstration. If this were not, or never had been the case, it could not have excited that degree of attention on the Continent, and particularly in Germany, which of late years has been bestowed on this important subject. The most respectable Physicians have proved by incontrovertible facts, that sick persons have often been hastily buried, or to speak more properly, smothered in their coffins, either from accidental mistake, or from the most detestable motives. But, as many false and scandalous reports are generally circulated, in addition to those founded on truth, we need not wonder, that this business has

not been conducted, hitherto, with that degree of calm and patient attention, to which it is justly entitled. Houses for the reception of persons apparently dead have been, at length, erected in various parts of Germany, in Berlin, Jena, Coburg, &c. This idea, at the first view of it, may to some appear whimsical; but those who know the extent of the power of vitality, and the almost infinite modifications of which that power is susceptible, will not ridicule a proposal, which originated in motives of prudence and humanity. Into these houses every inhabitant of the town, or district, has a right to send the body of a deceased person, on paying a trifling sum per night, towards the expenses of the institution. Here the body is deposited on a couch, lightly covered, and provided with a string fastened to the hand, which pulls a bell on the top of the house. A watchman is appointed to receive and register the bodies brought into the house, and to give the alarm, if necessary. This, to say the least of it, is no small convenience to families in a large city, crowded into narrow apartments, with a number of children, who must necessarily suffer from the pestiferous exhalations of dead bodies. But this is not the principal advantage attending such establishments: it is unquestionably a great satisfaction to the relatives of the deceased, to be assured that every means have been used to preserve from the most dreadful of all deaths, a friend whose memory they revere.

The cases, in which death can be clearly ascertained, are nearly the following :

1. When putrefaction has actually taken place over the whole animal frame ; as instances are common, in which a partial mortification of an arm or a leg is by no means mortal.

2. In the nervous apoplexy of the aged ; as such persons generally die in consequence of slowly wasting disorders, various species of palsy, &c.

3. If the patient expires after a long standing consumption, hectic fever, or ulcerations of the breast and lungs, diseases now very common.

4. If any of the larger blood-vessels, or other parts essential to life, have received external injury, by violent blows, bruises, or cuts, attended with great loss of blood, which could not be stopped by artificial means. If we are unable to supply the loss of this vital fluid, and to restore the organization of the parts thus destroyed ; particularly if the brain, the lungs, the heart, the stomach, or any of the intestines, have suffered from a severe wound, a speedy dissolution may be considered as inevitable.

5. After chronic disorders of the intestines, obstructions of the abdominal vessels, and dropsy thence arising—or if an incurable weakness in the breast has occasioned the organic destruction, or ossification of the pectoral vessels, there is little prospect of the recovery of such a person ; as these complaints of asthmatic sufferers, in general, are not in a

just proportion to the whole state of the body ; for instance, if their appetite and digestion have been unimpaired previous to their disease, or if their muscular strength has not suffered from the like affections.

6. In persons of tender and debilitated nerves, who have been long subject to spasms or epileptic fits, particularly if they die in child-bed, in consequence of violent hemorrhages, or after repeated and oppressive agitations of mind ;—in such cases there is no hope left, as it is too late to think of changing or improving the constitution of the nervous system. Lastly,

7. If a person gradually wastes away in a malignant nervous or putrid fever, or after long fasting from want of food. In these instances it is not in the power of the medical art to restore the shrivelled vessels to their proper tension and energy ; consequently all our efforts to reanimate the body will be unavailing.

There remains now to be stated also, in what cases and situations the symptoms of apparent death are less certain, so that some hope of recovery is still left to the disconsolate friend and relative. These are principally the following : after faintings, sudden loss of blood from diseased intestines,—in certain cases of repelled morbid matter, for instance, in the small-pox, measles, poisons, and the like, which frequently produce a spurious kind of apoplexy ;—after hysteric and hypochondriac spasms and colics of a transitory kind, which have not too often recurred ; af-

ter mental anxiety, perturbation, terror, and other oppressive passions, where every thing depends on a speedy removal of the causes. To this list we may likewise add the cases of drowned, hanged, and otherwise suffocated persons, or those who appear to be dead; in consequence of a fall from high scaffoldings, without any external injury. In such accidents, an internal pressure or stoppage of the vital functions, as breathing, and circulation of the blood, often produces a state of apparent death.—Even the suppressed pulse in the arteries, imperceptible respiration, the coldness and rigidity of the limbs, the want of contractibility in the pupil of the eye, the involuntary loss of excrementitious substances,—all these symptoms of approaching dissolution should not discourage us from trying the proper means of recovering the patient's life. In children and young persons, in particular, we must not too hastily decide, whether they be absolutely dead or not;—*teething* is frequently attended with diversified convulsive symptoms, and the *tape-worm* is capable of producing the most alarming effects, which the inexperienced by-standers may unwarily ascribe to very different causes. Hence every possible degree of precaution is requisite in managing the bodies of infants apparently dead, and above all things not to remove them from the warm temperature of the sick-room, before the last lingering spark of life is extinguished. Indeed, it must strike even superficial observers, that the hasty removal of a body from a warm to a colder temperature

is highly improper and dangerous. And here the excellent rules, published by the Royal Humane Society of London, for the recovery of persons apparently dead, cannot be recommended in too strong terms; although some of the more violent methods detailed in their plan, such as inflation of the bowels with the *fumes of tobacco*, *clysters* prepared of this herb, violent agitation, and too early and indiscriminate application of the *electric shock*, might well bear a few modifications and improvements.

Summary of Dietetics.

THE knowledge of those objects which relate to the preservation of the human body, in its natural state, may be called the *Doctrine of Health*. Life and Health are, therefore, the proper objects of this doctrine; as the second department of Medicine solely relates to the preternatural states of man, viz. Disease and Death, and forms that branch of professional study, which we call '*Pathology*.'

The compass of the former science, or an investigation of the objects included in the doctrine of health, must be very extensive. It furnishes us with rules and cautions as to every thing we ought to do, or to avoid, in order to remain healthy. This useful science is properly denominated DIETETICS, or a *systematic view of all objects relative to health in general, and to food and drink in particular*.

The following Chapters will, therefore, be exclusively devoted to Dietetics. My principal object will be, to lay a solid foundation for that important science, by investigating and combating the chief prejudices, which have hitherto retarded the progress of this branch of knowledge. Hence, a *System of Dietetics* must not only contain all those rules, which are requisite to guide us in the preservation of health, together with such as relate to the choice of a proper mode of life, but should likewise inform us with regard to the beneficial or hurtful influence, which *external objects* produce on the health and life of man, and teach us the just application, or practical use, of these objects.

DIETETICS include the whole of what the Ancients understood by the singular name of the SIX NON-NATURALS; namely, *Air, Aliment, Exercise and Rest, the Passions and Affections of the Mind, Wakefulness and Sleep, and Repletion and Evacuation*. Although these general heads do not comprise, strictly speaking, every thing that relates to the different functions of the human body; yet they contain all such conditions of life, as are absolutely necessary, and the greatest part of those circumstances, which are connected with the health and well-being of the individual. In each of these particulars we are liable to commit errors, either by intemperate use, or an improper application. I propose, therefore, to lay down a System of Rules, by which we may be assisted to choose, according to particular circumstances, the best and most ra-

tional means of insuring health, and of avoiding whatever may have a contrary tendency.

Our mode of life is no longer that natural and simple one, which prevailed in the primitive ages of mankind: in the present state of society such habits are scarcely conceivable. Man in a state of nature had little occasion to attend to his health; he wanted no rules for the preservation of it; for, as the seeds of diseases are rarely scattered in such a state, instinct would be to him in most cases a sufficient guide. It now seems to be impossible to return to that primeval state, without returning, at the same time, from our present degree of mental improvement to that of pristine barbarity. We have, to all appearance, purchased our improved state of mental culture, by sacrificing to it a considerable share of our bodily welfare;—happy, however, we may still consider ourselves, if we have actually gained in moral and intellectual improvement.

Innumerable are the causes, which have conspired to render the *true* knowledge of the means conducive to health, difficult in the acquisition, and uncertain in its application. The chief of these are probably the following, which include most of the subordinate particulars:—the present very artificial method of living; the prodigious number of the employments of mankind; the different modes of dwelling and dressing; the endless variety of articles used as food and drink; the great diversity of national customs and manners; and the difference of climate and situation:—

all these circumstances have greater or less influence, conjointly or separately, not only on the passions, inclinations, and instinctive desires of individuals, but also on the general state of the health and physical welfare of a people. By the present mode of living we are exposed to diseases wholly unknown in the first ages of the world, and we suffer from a variety of complaints, originating either in artificial habits, or the constraint under which we labour, in consequence of blindly complying with the caprices of custom, or fashion, without perhaps apprehending any ill consequences from such pernicious practices.

Many ingenious writers have lately endeavoured to point out the disadvantages arising from causes apparently trivial. Thus the fashion of using paint, hair-powder, and pomatum; of wearing ill-shaped shoes, laced stays, &c. have deservedly incurred severe ridicule and pointed censure. The custom of applying lead to earthen vessels has not escaped their attention: the danger, however, resulting from the use of that substance, has been greatly exaggerated. Writers, with the best intentions, have sometimes, from an excess of zeal, descanted on the worst side of the question only, by attributing to certain things many dangerous qualities, which in fact are owing to a great diversity of circumstances.

This partial method of inquiring into the sources of the evil, is, generally speaking, a serious error; as it not only leads to false conclusions, but also draws our attention from other pressing injuries, to which, in a more

dispassionate state of mind, our care might be directed.

Many, and perhaps the greater number, of dietetic writers have fallen into another error of an equally bad tendency. They judge of every thing, according to the agreeable or disagreeable effect it produces on their own palates and constitutions, and hence recommend their favourite articles to others; although what is salutary in particular cases, may have a pernicious tendency, if prescribed indiscriminately.

The multiplicity of our wants, all deserving attention in a Dietetic System, has also considerably multiplied the rules of health. Of all living beings, indeed, none require such rules more than those, who fervilely submit to the arbitrary mandates of luxury and fashion.

Many are the open and secret enemies to the health and prosperity of man. Even the most healthy, and those who rigidly adhere to the rules of Diet and Regimen, cannot altogether evade their attacks. Hence we should make it our study, to acquaint ourselves minutely with every thing, so as to be enabled to judge of its good or bad qualities. Whatever we are obliged to have more immediately about and around us, ranks in this class: the arrangement of our dwelling places, beds, clothes, furniture, &c. in the choice of which we are less accustomed to consult what nature requires, or to contrive what may be most likely to promote the welfare of the body, than to follow fashion, vanity, or our own habits.

Some of our organs of sense, and other faculties of the body, must unavoidably suffer from inattention to a proper mode of living in general. From the great exertions, to which we often subject them (the eyes, for instance, in reading) they are liable to a variety of accidents, and frequently become debilitated and impaired. It appears, therefore, perfectly consistent with the plan of this work, to treat of the management of the eyes, teeth, and other individual parts of the body.

In a complete System of Rules for preserving the health of man, attention must be paid to the separate wants of individual constitutions; provided they be not too minute and trivial. Such a system must contain more than what relates to the first and most simple rules of living;—its precepts must not apply to the healthy alone, or those whose life is regulated by the simplicity of nature,—it should also lay down instructions, how, in all contingent circumstances, we may be secured from danger and bodily injuries. It is not, however, proposed to treat of diseases after they have taken place, if the removal of them requires any thing more than a strict adherence to temperance, and the other rules laid down in these Lectures.—But to prevent any misapplication of those rules which are established by the accumulated observations of ages, it may not be improper to introduce here some previous *general remarks*, relative to the individual use and advantage to be derived from a connected view of *Dietetics*.

It may be laid down as a preliminary observation, that the rules contained in this work are not to be considered as strictly applicable, in every instance, to the particular situation of any individual, or as essentially necessary to the preservation of his health.— It is not so much the healthy, as the valetudinary and infirm, who stand in need of minute precepts for their conduct; and even the latter ought not to engage too solicitously in their compliance with them; since it is only a very limited number that require such accurate attention.

A vigorous and persevering method of inuring ourselves to the unavoidable difficulties and diversified accidents of life, is of greater importance to the preservation of health, than any dietetical rules whatever. Man is capable of undergoing all the vicissitudes and inconveniences of air, weather, and climate; he can digest any articles of food, if his stomach has not been wantonly indulged; he can sustain the severest bodily exercise and labour, without paying too minute attention to time or regularity, when his employment or duty renders exertion necessary. But he who from his infancy has been treated with extreme tenderness, or who, after having been previously accustomed to a hardy mode of life, is seized with the whim of bestowing too much care on his health, will suffer from the most trivial hardships, and catch cold at every change of the air; every heavy or high-seasoned dish will be oppressive, and the smallest deviation from the rules of temperance indis-

pose him. Yet, by the same rules, every healthy person will learn, that the grand secret for preserving himself in that state, consists principally in the art of moderating his desires and enjoyments. We may thus arrive at the knowledge of such things, as are *generally* conducive to the welfare of the body; and more than this ought not to be expected. Rules of health, *universally* applicable to the state of every individual, are not discoverable in nature; nor can they be derived from any experimental knowledge we possess of corporeal objects.—The best general precept is, that every one study himself, and his own particular constitution; that he choose and regulate his mode of life accordingly; and that he make his own experience his guide in whatever he finds most suitable and convenient.

C H A P. II.

Of AIR and WEATHER; their influence on the Human Body; the means of improving the former, and diminishing the pernicious effects of the latter.

Of Air in general.

AS soon as an infant enters into the world, the air of the atmosphere penetrates into his lungs, filled up till then with aqueous mucus, and renders them fit for the circulation of the blood, which immediately commences. From that moment the alternate extension and contraction of the breast and lungs, the inspiration and expiration of the air, or in other words, the function of *respiration*, becomes indispensably necessary to the preservation of animal life. While the child remained within its mother, it required no external air. As soon, however, as it has drawn breath, as soon as the lungs are opened, the act of respiration begins, is constantly renewed through life, and can never absolutely cease, but with death. As, therefore, air is the principal medium by which animal life is supported, it becomes highly important to acquire correct ideas of this refined substance, that pervades all the parts of animate and inanimate matter, and is so essential to man, for the preservation of both his life and health.

Air is that colourless, transparent, compressible, heavy, and elastic fluid, which every

where furrounds our globe, and which generally receives the name of *Atmosphere*.* This ambient matter, in its common state, is combined with a great variety of foreign ingredients. It contains *water* in a state of solution; by means of water it combines with salts; in many places we find it impregnated with *sulphur*, with putrid exhalations, and the like; nay, frequently we even meet with earthy particles floating in this element.—When all foreign ingredients are separated from it, the subtle aërial body still remains of

* “Our bodies are equally pressed upon by the incumbent atmosphere, and the weight they sustain is equal to a cylinder of the *air*, whose base is equal to the superficies of our bodies.—Every foot square of this superficies sustains a quantity of *air* equal to 2660lb.; so that if the superficies of a man’s body was to contain 15 square feet, which is pretty near the truth, he would sustain a weight equal to 39,900lb. The difference of the weight of the air, which our bodies sustain at one time more than at another, is also very great; that between the greatest and the least pressure of air upon our bodies has been proved to be equal to 3902lb. Hence it is so far from being a wonder, that we sometimes suffer in our health by a change of weather, that it is the greatest miracle we do not always do so. For when we consider, that our bodies are sometimes pressed upon by near a ton and a half weight more than at another, and that this variation is often very sudden, it is surprising that every such change should not entirely break the frame of our bodies to pieces. And the vessels of our bodies, being so much strained by an increased pressure, would stagnate the blood up to the very heart, and the circulation would quite cease, if Nature had not wisely contrived, that when the resistance to the circulating blood is greatest, the *impetus*, by which the heart contracts, should be so too. For upon increase of the weight of the air, the lungs will be more forcibly expanded, and thereby the blood more intimately broken and divided; so that it becomes fitter for the more fluid secretions, such as that of the (supposed) nervous fluid, by which the heart will be more strongly contracted, and the blood’s motion towards the surface of the body being obstructed, it will pass in greater quantity to the brain, where the pressure of the air is taken off by the *cranium*, upon which account also more spirits will be separated, and thus the heart too more enabled to carry on the circulation through all passable canals, while some others towards the surface are obstructed.”

Quincy’s *New Medic. Dict.*—Article, *Air*.

a compound nature, and is by no means a simple elementary substance, as was formerly believed.

According to the late discoveries in chemistry, the aërial basis of the atmosphere consists of *three* different species of air, namely, of pure, respirable, or dephlogisticated air; of azotic, or phlogisticated air; and of fixed, aërial, or carbonic acid air.—The proportion of the first, namely, pure or vital air, consists, according to the French Chemists, who have given it the name of *Oxygen*, of 27 or 28 in the hundred parts; the second, *viz.* the *Azote* of the French, of 72 or 73 in the hundred; and the third, namely, the *Carbonic acid air*, of about one part only in the hundred.*

* The accurate experiments made by the late SCHEELÉ and BERGMAN, in Sweden, do not much differ from those of the French Chemists, with respect to these proportions. For, according to Scheele and Bergman, the common proportion of vital air, or oxygen, in the atmosphere, is about one fourth; that of azote about five eighths; and that of carbonic acid nearly one sixteenth; the last of which, by the French, is computed only at one hundredth part, that is, five parts in the hundred less than the Swedish philosophers maintain.

The following is a concise history of *Oxygen*:—In August, 1774, Dr. PRIESTLEY, and much about the same time Mr. SCHEELÉ, in Sweden, discovered this respirable part of atmospheric air, or rather they exhibited it, for the first time, in a pure state. This elastic substance was first called *dephlogisticated air*, agreeably to the hypothesis of *phlogiston*;—afterwards it went under different names, as pure air, fire-air, vital air, until the late hypothesis of *Oxygen*, or the acidifying principle, has procured it the name of *oxygen gas*.—But still more diversified than these names, are the theories which have been proposed on the nature and properties of this species of air, during the last twenty years. With *Priestley*, it is the purest air freed of all phlogiston; with *Scheele*, it is the nitrous acid deprived of its water; according to *Bergman*, it is one of the unknown constituents of nitrous acid; with *Fontana*, it is the dephlogisticated nitrous acid; *Forster* considers it as air united with fire; Mr. *Watt*, of Birmingham, thinks to find in it elementary fire combined with hydrogen or inflammable gas; *Achard* and *Gren* formerly believed it to be water combined with much Caloric, or the principle of heat; but *Gren*

Oxygen is much better adapted to the respiration of animals, than common atmospheric air. If two animals be inclosed in vessels, one of which contains pure oxygen, and the other common atmospheric air, in proportions equal to the size of the animals, the former in the oxygen will be found to live from six to seven times longer, than the latter in common air. It is properly this oxygen which we inspire, and which is the grand support of animal life. Persons apparently dead, or in a state of suffocation, have been instantly restored to life by its influence, and from the corresponding testimony of several respectable physicians, it appears to have been employed with advantage in many obstinate diseases.—The celebrated INGENHOUSZ therefore gave it the name of *vital air*. It promotes combustion in a very high degree. A candle will burn in it from six to seven times longer than in common air, with a much greater degree of heat, and a more brilliant flame. Bodies in a glowing state, are immediately inflamed, when put into oxygen gas; and even metals, which are not very fusible, are melted in it, and converted into oxyds, or calces, with the greatest facility.

latterly maintained, in his System of Chemistry, that it is the unknown basis of vital air combined with Caloric;—if we believe *Westrumb*, it is elementary air in a state of combination with Caloric, but the basis of the former cannot be discovered; according to *Fourcroy*, it is an unknown elementary matter united with inflammable air; in the opinion of *Lavoisier*, it contains the acidifying principle, OXYGEN, and the principle of Heat, CALORIC; Mr. *Cavendish* maintains that it is dephlogisticated water; and according to *De la Metherie*, it is an unknown substance combined with water and fire; &c. &c.

Azote, by others called phlogisticated, mephitic, corrupted, or suffocative air, is absolutely irrespirable, and not miscible with water. It arises from the change which atmospheric air undergoes in every process of combustion, putrefaction, and respiration, whether produced by nature or art.

Azote enters into no combination with water, but may be rendered less hurtful by shaking it with that fluid: this accounts in some measure for the salubrity of the sea-air. It greatly promotes the growth of plants, and readily accumulates in apartments filled with people, or containing articles fresh-painted with oil-colours, or in which strongly fragrant flowers are kept, without having any access of fresh air. We should be extremely cautious in entering such places; as diseases of the breast and lungs are too frequently the consequences of neglect, obstinacy, or ignorance.

The *Carbonic acid* of the French is the *fixed air* of Dr. BLACK, and the *Aërial acid* of BERGMAN. This species of air is miscible with water; but in its pure state equally irrespirable as the Azote. It derives its origin, partly from the vinous fermentation of vegetables, and some animal substances, and partly from the mild alkaline salts and earths combined with acids. Much of this air is found in mines, where it frequently distresses the workmen by its suffocating qualities. It is also observed in most mineral waters, where a stratum of it sometimes swims upon the surface of the well. These waters, as well as fermented liquors

which contain a considerable portion of fixed air, receive from it the well known pungency so agreeable to the palate. Hence flat and spoiled beer, or wine, may be corrected and restored to its former briskness, by the addition of fixed air evolved from chalk and vitriolic acid, or by mixing it with new beer or wine in a state of fermentation.

This species of air quickly extinguishes fire, and strongly attracts the fumes arising from candles. As it is unfit for respiration, animals cannot live in it. The warm-blooded animals die in it much sooner than any other; those of an amphibious kind somewhat later; insects are not irrecoverably killed by it; irritability is suddenly destroyed, and the heart of an animal so deprived of life, though still warm, no longer exhibits any signs of motion.

There is another species of mephitic air, which is not miscible with water, which burns with a flame, and if mixed either with atmospheric air, or oxygen gas, instantly catches fire, and is exploded: this has received the name of inflammable air,* and deserves to be

* This air may be obtained in a great variety of ways, from all substances liable to inflammation, or containing combustible matter, by means of heat, fermentation, acids, and the like; nay, even from metals, by directing the steam of boiling water through a red-hot metallic tube.—It is the spontaneous production of nature, throughout her *three* kingdoms. In mines, in subterraneous caverns, and particularly in coal-pits, it is known by the name of *cheak-damp*. It is copiously generated in the intestines of living animals, and is frequently met with in common sewers, burying grounds, and places where dead animal bodies are exposed to putrefaction.

The white Dittany, (*Dictamnus albus*, LIN.) when in flower, generates so great a quantity of inflammable air, that the atmosphere around it has been observed to catch fire. In swamps, pools, and

mentioned here, although it cannot be considered as a constituent part of the atmosphere.

With respect to the *specific gravity* of the different airs before enumerated, it is in this place only necessary to observe, that the heaviest is the fixed air, or carbonic acid gas; next to this comes the azote and oxygen, both of which are heavier than the common air of the atmosphere; and lastly, hydrogen, or inflammable gas, which is the lightest of all; for it is even lighter than the purest atmospheric air.

When the atmosphere is too much impregnated with any of the mephitic gases, its influence on the human body is extremely noxious. Thus we see many of the workmen in lead-mines dying in the prime of life, of an obstinate and incurable colic, which is attended with the most painful obstructions.—Painters, glaziers, potters, and manufacturers of glazed earthen ware, are from a similar cause exposed to the same dreadful disease; being obliged to make use of great quantities of lead* in different forms.

other stagnant waters, where a number of plants, particularly sage, calamus, and the like, are putrifying, we find a species of inflammable gas, which is known by the name of *marsh-air*, or more commonly, the *ignis fatuus*, or *Will-o'-the-Wisp*.

* Whether this insidious and deleterious metal be communicated by inhaling its vapours through the lungs, or by absorbing them through the pores of the skin, the effects of it are equally dangerous and fatal. The internal use of sulphur, and both the internal and external use of vegetable oils, or animal fats, are the only antidotes hitherto discovered against this virulent bane of the manufacturer and the artist.

Most trades and occupations are subject to peculiar diseases; in some the materials of the manufacture have a pernicious influence on the body, and in others the nature of the employment is hurtful, either from requiring a sedentary life, a reclined, stooping, or stand-

It is almost unnecessary to mention the frequent and sudden deaths that have taken place from the explosion of inflammable air in mines, or from the opening of pits, deep wells, and other confined places. Neither is any thing so much calculated to corrupt and poison the air, to fill it with noxious vapours, and to generate diseases, as the *burying-grounds* established within the walls of populous cities, where human bodies are deposited, as if with an apparent design to produce an atmosphere, which is particularly fatal to the tender lungs of children, and in no small degree hurtful to adults.

As the mass of atmospheric air is incessantly corrupted by the respiration of men and animals, by the burning of so many natural and artificial fires, by the dissolution and putrefaction of innumerable substances, and by various other phlogistic or desoxygenating processes, it would at length become altogether incompetent for its original designation, if Nature had not provided effectual means for its improvement and restoration. Among the most powerful of these, we may place the growth and vegetation of plants.—For this very important discovery we are indebted to Dr. PRIESTLEY, who was so fortunate as to hit upon it, after he had long employed him-

ing posture, or from being performed in a confined air, or at a great fire, and the like. Hence *millers, hair-dressers, and stone-masons*, frequently die of a consumption of the lungs, in consequence of the minute particles of dust which they are continually obliged to inhale.—Manufacturers of wool, and particularly hatters, are much troubled with obstinate cutaneous diseases; and all those whose business is attended with grease and dust, suffer more or less from the consequences of uncleanness.

self in fruitless attempts, to improve and restore corrupted air, by artificial means. He found that air, rendered mortal by the breathing of animals which had expired in it, was again so completely restored by the vegetation of plants, that, after the lapse of some days, an animal could live in it with equal ease, and for the same length of time, as in a similar quantity of common atmospheric air.

These experiments, indeed, did not succeed with some Naturalists; and Priestly himself, upon repeating them with different plants, found the results rather varying and doubtful: but Dr. INGENHOUSZ removed the greater part of these difficulties, by his book, "Experiments upon Vegetables, .8vo. London, 1779." This ingenious philosopher remarked, 1st, That most plants have the property of correcting bad air within a few hours, when they are exposed to the *light of the sun*; but that, on the contrary, *during the night*, or in the *shade*, they corrupt the common air of the atmosphere;—2d, That plants, from their own substance, afford a very pure dephlogisticated air, or Oxygen, when exposed to the rays of the sun; but a very impure air or Azote at night, or in the shade;—3d, That not all the parts of plants, but only the green stalks of leaves, particularly through the sides opposite to the soil, produce this beneficial effect;—4th, That the disengagement of pure or vital air does not commence until the sun has been some time above the horizon; that it ceases altogether with the termination of day-light; and that the disadvantage arising

from the impure exhalation of plants, during the night, is far exceeded by the great advantage they afford during the day; infomuch, that the impure air, generated by a plant during the whole night, scarcely amounts to a hundredth part of the pure vital air or Oxygen, exhaled from the same plant in two hours of a serene day.—Thus we discover a most striking phenomenon in the œconomy of nature; since the vegetation of plants continually counteracts the noxious effects of respiration, combustion, and putrefaction.* In this manner, the atmosphere is constantly preserved in that necessary state of purity and temperature, which is the most salutary both to animals and vegetables.

We have learnt the effects produced on the human body by the atmosphere and the changes of the weather, partly from observations made by ourselves and others, and partly from their influence on inanimate matter, by which we can judge in some measure of its analogous effects on the human frame; but we should not thence conclude that our knowledge, in this respect, is either complete or infallible. Observations may frequently deceive us, since the

* It should be recollected here, that when the growth of plants is interrupted by the cold of winter, so that they no longer generate a beneficial air to purify the atmosphere, Nature has ordained it, that this very cold of the winter itself contains the most effectual virtues to stop the progress of putrefaction. We further find, that in the most unwholesome, and particularly in marshy countries, those very plants appear to be very profusely distributed, which most eminently possess the property of purifying the air. And as the pure air, or oxygen, is of greater specific gravity than the common air of the atmosphere, it is perfectly consistent with the operations of nature, that the oxygen should settle towards the lower side of the leaves of plants.

human body, besides the weather, is incessantly exposed to the effects of other external agents, which may easily elude our attention. Further, the atmosphere surrounding us, besides the properties cognizable by our senses, or discoverable by the assistance of particular instruments, may also be impregnated with substances which have hitherto escaped our researches, and which nevertheless may have the power to effect important changes. Lastly, we ought not to consider the arguments deduced from analogy as strictly conclusive; we should remember, that the effects of external objects on the living animal fibre are, in many instances, totally different from those which they produce on lifeless or inanimate bodies.

Recommending these general remarks to the consideration of the reader, I proceed to consider those particular and positive effects, which the different states of the atmosphere produce on our frame, and in what manner they influence our health.

Warm air relaxes the solid parts of the body, and occasions a stronger circulation of the fluids. *Heat* is chiefly oppressive to the Nerves; hence the tender and infirm suffer severely in hot weather; hence arise hysteric and hypochondriac complaints, convulsions, and diarrhœas. *Cold* renders bodies more compact, particularly the solid parts of the animal structure, such as the muscles, nerves, bones, &c. They become more elastic in winter; the appetite for food is stronger, and digestion easier and quicker. On the contrary, the resistance

of the fluid parts becomes so great, that even the increased powers of the solids cannot overcome it, if the cold be too violent. In winter the blood is much disposed to inflammations; hence stiches in the side, inflammatory sore throats, rheumatisms, &c. In persons who take little exercise, the fluids are apt to stagnate, and the solids to chill during the winter;—upon the whole, however, the effects of cold weather may be rendered less hurtful, and even salutary to the body, if proper exercise be not neglected.

Damp or *moist air* suddenly relaxes and debilitates; it occasions a slowness in the circulation of the fluids, which gives rise to obstructions, and impedes both the circulation of the blood and the secretion of humours, by checking insensible perspiration. If the moisture of the air increases, we experience an unaccountable torpor and *ennui*; with the loss of energy we lose our gaiety, and the mind is depressed with the body. Damp places and districts are always unwholesome, but more particularly so in cold weather. Moisture, by diminishing perspiration, produces disorders of the throat, the breast, and the abdomen. But the most dangerous and fatal effects on the human body have been observed to arise from moist air accompanied with hot weather; for, when moisture has impaired our energy, heat increases the evil in a great degree, by opening the pores through which the moisture penetrates into the body, and predisposing every part of it to putrefaction and dissolution. This accounts for the

great mortality prevalent during the hot season at Batavia, and some of the West India islands.

Dry and cool air, from possessing a due degree of elasticity, promotes in an extraordinary degree the serenity and alertness of mind and body; hence it is found uncommonly salubrious to hypochondriacs. But a dry and very cold air generates inflammatory diseases; because it inspissates the blood. Dry and hot air affects us like heat, and enervates the body. But a dry air, which is not too warm, is both agreeable and healthy.

Great and *sudden changes* from a warm to a cold, or from a light to a heavy air, are highly injurious to valetudinarians, and even to the healthy. Soldiers in camp, and, sometimes, travellers, feel very severely the bad effects of cold and moist night air, after long marches and journeys. Weakly and infirm persons have frequently ominous sensations, previous to any remarkable change of the air.

A moderately heavy and elastic air is the most agreeable and salutary to the human body; hence nature has not assigned us our constant residence on the summits of mountains. Yet a light and rarefied air, such as is felt on the highest mountains, is not so unfit for respiration, nor does it manifest so noxious an influence on the human body, as was formerly believed. The latest travellers assure us of the contrary, and speak in decisive terms of the salutary effects of the air, during a short stay in those elevated regions.

Among the different WINDS—which are nothing else but strong commotions of the air—the long continued *North wind* is comparatively the most wholesome; it purifies the atmosphere of noxious vapours, renders the air serene and dry, and thus imparts to the human body elasticity, vigour, activity, and a lively colour. It is, however, troublesome to persons of delicate habits, and occasions in them coughs, inflammation of the throat, pains in the side, obstructions, and febrile diseases. The *South wind* weakens and relaxes the body, and is very apt to produce catarrhal affections. The *Morning wind* is very drying; but *Evening winds* are cool and moist, being frequently accompanied with rain and changeable weather. All these winds differ materially in their qualities, from local circumstances, and accordingly as they blow over a Continent, over the Ocean, or over high mountains and icy regions, from which they carry along with them more or less of cold and humid particles. But upon the whole, too dry weather is always more healthy, than that which is too moist.

Of the four SEASONS of the year, the *Autumn* is the most unhealthy; because then the particles of perspiration not only remain on the body, but are in a state inclining to putrefaction. This disadvantage, however, may be easily obviated by guarding ourselves with proper dress and choosing a suitable diet. Too light a dress, and too thin stockings, are not advisable at this season. The *Spring season* is, in general, the most healthy. Spring,

and the beginning of *Summer*, are most salutary to children and young persons; while the *Summer*, and the beginning of *Autumn*, agree best with the aged. The latter end of *Autumn*, and the beginning of *Winter*, are commonly the most healthy seasons to persons of a middle age.

It has been remarked by medical men, that certain diseases appear and disappear according to the different seasons. Thus, putrid and bilious disorders prevail in *Summer*; inflammatory diseases in *Winter*, and the catarrhal, mucous, and gastric or stomachic affections, in *Spring* and *Autumn*. It has been further observed, that in *Spring* the blood usually circulates more freely; hence probably arose the ancient practice of blood-letting, and taking laxatives at certain regular periods; both of which I have already pointed out, in the preceding Chapter, as dangerous in their tendency, and always hurtful to the healthy.

As the vegetable kingdom is renewed in *Spring*, and as vegetation, in general, is most lively in that season, there can be little doubt, that the pure vital air is then most copiously evolved, by means of the solar light and heat. Hence it follows, that the vernal air is more wholesome than that of *Autumn*, which is saturated with corrupted and putrifying particles. Still the cold of *Autumn*, and the frequent winds then prevalent, prove extremely efficacious in counteracting the baneful effects of corruption and putrefaction.

If the temperature of the air correspond with the natural constitution of the season, we may expect what is called a healthy year, and that the prevalent diseases will be of a mild nature; but if the weather does not agree with the general laws of the season; if, for instance, the Winter prove warm, or at least moderate, or the Spring cold and severe, with sudden alternations of heat, we may expect to find the year pretty generally marked with serious and obstinate diseases.

The temperature of the air depends not a little on the natural situation of the country, whether it lie high or low; whether its mountains oppose or give a free passage to the winds; whether it contains flowing or stagnant waters or morasses, and whether it is open or covered with woods.—Country air, upon the whole, is always purer than that of towns, narrow streets, and crowded buildings.

All *strongly-scented bodies* are more or less pernicious; as well those of a disagreeable smell, as the greater number of fragrant perfumes. The latter, if too strong, are more particularly dangerous, as a sense of disgust does not naturally incline us to avoid them. Among these may be comprehended all vegetable odours strongly volatile and pungent, and which thereby stimulate and stupify the nerves. Hence people, who carry large nose-gays in the hot days of summer, are apt to feel themselves variously and strongly affected, particularly with drowsiness. From this apparently innocent cause, head-achs, vertigoes, fainting-fits, and apoplexies have frequently

been produced in persons of a plethoric habit. These, as well as people of a delicate constitution, are liable to such affections, from the fragrance of many balsamic plants, but particularly from the strong scent of lilies, roses, pinks, the blossoms of oranges, hyacinths, and the like.—Many flowers emit a more powerful fragrance in the night than in the day-time, and the effluvia of several trees and other vegetable bodies are peculiarly dangerous, and sometimes mortal. Of this nature are the walnut and yew trees, under whose shades persons have actually died, who had fallen asleep; and likewise the deadly *Upas* of Surinam, and the no less poisonous *Manchineel* tree of the West Indies.

Aromatics of every kind taint the air in a similar manner, introducing into the human body particles foreign to its nature, all exciting more or less an inclination to sleep. Saffron and hops have sometimes proved fatal; the former in particular has often produced a sleep terminating in death, in those incautious individuals, who had lain down in the ware-houses or upon the bags, in which it was packed. Ambergris and musk are also, on account of their powerful fragrance, very hurtful to persons of an irritable and nervous temperament.

Dwellings in the vicinity of lakes, fens, and marshes, are exposed to all the noxious effects of a moist atmosphere, namely, to the various species of intermittent fevers or agues;—on the other hand, it has been observed, that persons living on the banks of rivers, though at times subject to these, are not very liable to

other diseases, and that running water has a tendency to purify the air, when it is saturated with inflammable particles.

Too sudden a transition from warm to cold air, or the reverse, is pernicious; but to exchange, however suddenly, an unhealthy atmosphere for a healthier, is at all times safe and highly advisable. Numberless instances have proved, that such as were constantly indisposed in the corrupted air of a town, very quickly recovered their health, on removing to the purer atmosphere of the country. Yet the question, *Which air is the most wholesome to live in?* will admit only of a conditional answer. We must attend not only to the particular constitution of the air, but also to the nature and habits of the individual. Neither should we too hastily pronounce every air unwholesome, that does not appear to agree with us. The air of every climate, whether hot, cold, or temperate, may be called healthy, provided it be pure and clear, and occasionally agitated by wind: but a gross atmosphere, and one loaded with animal or vegetable exhalations, is certainly deleterious. After all, perhaps the longevity of the inhabitants may be considered as the best evidence of a healthy district. Thus we find uncommonly long-lived persons in high countries, or such as are visited by frequent winds, and also in small sea-port towns. In villages and places thinly inhabited, the proportion of aged people is considerably greater than in cities or populous towns. This may be ascribed partly to a less degree of corruption in the air, and partly to

a more simple mode of life prevailing in such places : for wealth and riches, the concomitant effects of which are greater luxury and extravagance in living, usually keep pace with the increase of population ; and if the numerous chimney-fires of our populous cities did not serve as so many well-contrived machines for rarefying the atmosphere, incalculable mischiefs must inevitably ensue.

Of the Improvement of Air in Dwelling-Houses.

A HOUSE built on a rising ground, on a healthy soil, in an open, dry country, and neither exposed to the greatest degree of cold in winter, nor to the highest point of heat in summer, may be said to stand in a healthy situation. Hence those apartments are the most healthful as well as comfortable to the individual, which enjoy a pure and free circulation of air in summer, and the cheering rays of the sun in winter : the heat of summer being considerably tempered by the former, and the severity of winter much abated by the latter. Farther, a proper size and height are requisite to constitute a healthful apartment ; for low rooms are detrimental to health, particularly when inhabited by large families, and seldom aired, or rather, which is frequently the case, when all air is carefully excluded by close doors, shutters, curtains, &c. The most proper place of residence in winter is one with a southern aspect, not only as be-

ing more dry, but also more cheerful, and therefore attended with a favourable influence on the spirits. In summer, the situation of a room may be chosen either to the North or to the East, the latter of which is preferable, because it admits the first enlivening rays of the Sun.

Although it is not in every person's power to choose his habitation agreeably to the laws of health; yet this choice of a pure and healthy air is not sufficiently attended to, and it certainly deserves as much consideration in purchasing an estate or country-house as the quality of the soil or other lucrative advantages.

The local constitution of the air depends not merely on the exhalations of the soil itself, but likewise on the different vapours, conducted to and blended with it by the winds, from adjoining places. Thus in a dry and sandy country, considered of itself as healthy, the air may be rendered extremely unwholesome from the vicinity of marshes or other stagnant waters.

The better to judge of the salubrity of the air in any district, we should examine the properties of the wells and springs; for both *air* and *water* absorb the saline and mineral particles of the soil. We may pretty certainly conclude, that a country producing good water, enjoys likewise a salubrious air; and as the best water is tasteless, so the purest air is free from any smell whatever.

The most certain marks, by which to distinguish whether the air in rooms be damp or not, are the following: the walls or tapet-

try change their colour ; bread in closets acquires a mouldy surface ; sponges in the rooms retain their moisture ; loaf-sugar turns soft ; iron rusts ; brass and copper acquire a green colour, or verdigris ; and wooden furniture moulders and crumbles to pieces.

The sitting-room ought, if possible, to be above the ground floor, or in the second story ; it should be so constructed as to admit a free current of air ; but if this cannot be done, it should be frequently aired by opening the windows in dry weather, or by fumigating the room, either with vinegar dropped upon warm stones, or evaporated in a basin over a lamp, or with sugar, juniper-berries, and the like.

Every room is filled with *three* different *strata* of air : 1. The lower part of the room contains the heaviest species of air, namely, fixed or carbonic acid gas, particularly in apartments situated on the ground-floor, or even under ground ; 2. The middle part of the room is filled with the lighter atmospheric air ; and 3. The uppermost stratum contains the lightest or inflammable air, the most corrupted of the three, in consequence of the processes it has undergone by respiration and combustion. In lofty apartments this contaminated species of air is not inspired by the lungs ; because the middle stratum, or the most wholesome of the three, extends to a height above that of a man.

A continual change of the air, by opening the doors and occasionally the windows, however advisable, is yet not sufficient to preserve

a healthy atmosphere in an apartment. For this important purpose the following improvements may be suggested as useful: 1st, Small apertures in the ceiling of the room, or through the walls close to the ceiling, in an oblique direction, so that the rain and snow cannot penetrate into it; 2d, Ventilators, that is, small moveable wheels made of brass or sheet-iron, which are applied to some part of the window-panes, and set in motion by the pressure of the external air. This is an excellent contrivance to introduce fresh atmospheric air into a room, by occasionally opening and shutting the door. The most proper height for placing these ventilators is about seven feet from the floor; 3d, Air-tubes running in a straight direction from the door to the fire-place, or rather to the wall of the chimney, and concealed under the floor of the room. As such tubes, however, are very expensive, and appear better calculated to convey the smoke up the chimney, after all means have been tried in vain, than to conduct the corrupted air from the upper part of a room, I shall mention a better and much easier method of effecting this purpose. It is a late discovery of a physician in France, who contrived it with a view to save the great expense of ventilating or airing large wards in hospitals, filled with patients who laboured under putrid distempers, particularly in the heat of summer. He caused a number of small holes to be made in the uppermost part of the window-frames; into these holes he placed from without an equal number of funnels, present-

ing an aperture of nine or twelve inches diameter, and terminating in the inside almost in a point, or at least in an opening not exceeding the size of a small quill. By means of these simple machines, the air in the sick rooms was so effectually renewed, by the great and constant pressure of atmospheric air from without, that any other artificial process for correcting the putrid air in a large hospital was judged to be unnecessary.

Above all things, the windows and doors of sitting and bed-rooms, when it can be done conveniently, ought to be left open for a certain space of time, every day. This, however, requires to be done at the proper time, neither too early in the morning, nor when it grows dark in the evening, during the vernal and autumnal months; nor at the time when the horizon is overspread with a thick fog. The windows should be opened, when the air is pure and serene; or, in general, when there is less danger to be apprehended from the external air than from that within. Sometimes it may be proper to make use of what is called *pumping* the room, or moving the door backward and forward for some minutes together; but in spring and autumn, our sitting-rooms, and even in winter, bed-rooms, ought to be persflated every clear day, by currents of fresh air, for a considerable time.

In the hot days of summer, the windows may be opened early in the morning and in the evening, in order to cool and refresh the heated air of the room by that from without.

It is however not safe (and has sometimes proved fatal) to leave the windows of a bedroom open at night during the summer-months, as there is no small hazard of checking perspiration by the cool night-air; the susceptibility of the pores being then very much increased by the heat of the day, and the warmth of the bed. Rooms which we inhabit in the day-time may be safely left open during the night. In summer-houses, or such as are surrounded with plants and trees, it will be proper not to open the windows of bed or other rooms, till some time after sun-rise, and to shut them at sun-set: they require also to be opened and shut sooner in hazy than in serene weather.

The airing of apartments should not be neglected even in winter, as coal-fires alone are not sufficient to carry off the corrupted particles of air, unless they be assisted by ventilators.—Here I must oppose and contradict a prevailing, yet mistaken notion, that fire in a room where the windows are open, introduces moist air. On the contrary, the most proper time for opening the windows is after lighting up a brisk fire; as the warmer air of the room will then be powerfully attracted by the colder atmospheric air, and the corrupt particles of the air within most speedily dissipated.

In *moist* and *cold* air, the dress should be somewhat warmer than usual: Flannel may then be worn with double advantage next the skin, and the rooms we inhabit should be warmed, or at least fumigated, with the ber-

ries of Juniper or similar shrubs. Fumigation is likewise attended with this advantage, that it contributes to dry and in some degree to warm the air.

In *moist* and *warm* air the explosion of a little gunpowder will be of use, or vinegar may be evaporated with greater safety, and the floor and walls sprinkled over with this excellent antiseptic.

Hot and *dry* air may be tempered by placing vessels filled with cold water in different parts of a room; or, as is often practised in hot climates, by sprinkling water over the floor. The greater or less degree of corruption of the air, in an apartment, depends very much on the kind of labour or exercise performed in it: Six watchmakers will not corrupt the air nearly so much as two carpenters would do in the same space and time; hence appears the necessity of appropriating lofty rooms instead of low garrets, for the workshops of mechanics.

Green plants and flowers placed before the windows are both an agreeable and useful ornament, if not of too strong a fragrance. In serene weather, it may be expedient to strew fresh plants (not flowers) in a dwelling-room, exposed to the rays of the sun, taking care, however, to remove them as soon as the sun withdraws. This method of exposing plants, or even the branches of trees with green leaves, in apartments, may have a beneficial influence on valetudinarians, and particularly on asthmatic persons, as vital air, or *oxygen* is

thereby generated, and introduced very gradually into the lungs.

Large trees with thick foliage should not be placed very near the windows of a house; for, besides that they obstruct the access of day-light and fresh air, and have thus a tendency to make the rooms damp, their exhalations in the evening, and during the night, are by no means wholesome. Trees planted at the distance of eight or ten yards from the house, do not prevent the free access of air; they present an agreeable object to the eye, and cannot be too much recommended, both on account of their cooling shade in summer, and the salutary exhalations they emit during the day.

It has been already mentioned, that the burning of candles corrupts the air; for which reason the custom of illuminating assembly or other large rooms, with a *superfluous* number of candles, must be very detrimental. This extravagance becomes still more dangerous in places where, beside the crowd of people, great quantities of provisions, dressed with the richest spices of the East and West, contribute to saturate the air with the most heterogeneous particles. And as persons of tender lungs must suffer extremely in such an atmosphere, it would be proper to provide all public rooms with a competent number of conic ventilators, of the description before mentioned.

Strictly speaking, we ought not to sit in the room where we dine, or take victuals, until it be aired again: those who can afford this luxury, should be careful not to stay for hours

together over their bottle in the dining-room: the bad effects of such contaminated air are not perceived by the persons continuing their libations after dinner, but are very sensibly felt by any one coming in from the fresh air.

It is no less unhealthy to sleep in a room where a quantity of *green fruit* is kept, a circumstance not attended to in country places, particularly by those who deal in fruits. From its fragrance a portion of inflammable matter exhales, which soon impregnates the air. Hence females of delicate habits have been known to faint, in approaching places where a few quinces were kept. For the same reason, store-rooms and pantries are extremely unwholesome, if provisions of all kinds, animal as well as vegetable, be kept in them; especially oil, candles, fat, flesh meat, whether raw, boiled, or roasted, pastry, and the like.

As foul linen readily imbibes the perspirable matter of the skin, it should never be suffered to remain any time in a bed-room, or sitting-room.

If possible, we should not sit through the day in a room in which we have slept; as the bed-clothes, and particularly feather beds, very slowly part with the exhalations they have imbibed during the night, neither is it sufficient for purifying the air of the room, that it has been ever so well aired in the morning.

The vapour of *charcoal* produces, particularly in close apartments, dangerous and frequently fatal effects. It fills the atmosphere with sulphuric particles which may be inspired, but cannot be expired:—they retard the

motion of the blood-vessels, stagnate the blood itself, penetrate into the head, and produce an acute pain, vertigo, and torpor. Hence the greatest precaution is necessary, where charcoal is used, as innumerable fatal accidents have happened from this source. Dyers, who employ it for drying their cloth upon frames, seldom fail to experience great injury to their health.

All employments, in which persons work among impure wool, oil, colours, and the like, are to a certain degree detrimental to health. Washing, ironing, dressing the hair with greasy curling-irons, burning lamp oil, frequent painting of the walls, all saturate the air of a room with pernicious damp and sulphuric vapours. From the change, which oil and candles in a state of combustion produce in the colour of a white wall and white curtains, we may infer, that this fetid steam must also penetrate into the human body, and if so, must materially affect it.

It farther deserves to be remarked, that all damp vapours are prejudicial, although they should not in themselves have a tendency to corrupt the air. Hence the keeping of wet linen, or even wet clothes, umbrellas, and the like, in dwelling-rooms, should by all means be avoided. Mechanics and others, who are obliged to dry wet things in their strongly heated apartments—joiners, turners, potters, bookbinders, &c. are particularly liable to swellings, and other disagreeable affections in the relaxed vessels of absorption.

Of Heat and Cold.

As observation and experience inform us, that immoderate heat relaxes the body, overheats the blood, and exsiccates or consumes the other fluids; and that the people who live in temperate regions are more hardy and vigorous, and attain to a greater age, than the inhabitants of warmer climates; it follows from these premises, that we ought not to enervate the human body by keeping it immoderately warm, by dressing it with a superfluity of clothes, by plunging it unnecessarily into hot baths, by using too strong fires in temperate weather, or least of all, by sleeping in warm rooms, and perhaps on the most heating of all substances, feather beds. The temperature of a sitting-room should not exceed 60° of Fahrenheit's thermometer; that of a bed-room may be about 50° , as the medium temperature of our climate is between 50 and 55° .

Although man is, no doubt, capable of injuring himself to a very great degree of heat as well as of cold, yet sudden changes can be supported only by the few who possess very hardened constitutions. The gradual changes of the seasons prepare us in the safest manner to sustain all the alternations of cold and hot weather. It is therefore an error, and of no small consequence, in the modern system of education, that we generally endeavour to habituate our children to the support of cold weather only. Persons who cannot bear the heat of the sun, or strongly heated rooms, are,

from their excessive delicacy, frequently exposed to the most violent, nay to mortal accidents. Hence children ought to be slowly and gradually accustomed to these inconveniencies, which indeed occur frequently, and are more dangerous than those arising from sudden transitions to a colder temperature: for the effects of the latter may, in a great measure, be obviated by exercise and muscular action.

In the sultry days of summer, we should be particularly on our guard against violently overheating the body;—in autumn, we should not dress too lightly, and in the mornings and evenings always somewhat warmer;—in short, we ought to avoid every thing that appears likely to check and repel perspiration. The baneful custom of accommodating our dress to the almanack and the fashion, rather than to the vicissitudes of the weather, in this inconstant climate, must necessarily be productive of many disagreeable consequences. Above all things, we ought to change our summer-dress pretty early in autumn, and to clothe ourselves gradually warmer, according to the variations of the weather. Yet after all, perhaps it would be most advisable to accustom ourselves to one kind of dress only for all seasons. The propriety of this custom I shall more particularly consider in the fourth Chapter.

With respect to the proper time for heating rooms in autumn, it has been supposed, that early fires are unwholesome and productive of frequent catarrhs. This assertion is

certainly ill founded ; for in warming a room, as well as in clothing the body, we should not so much be regulated by the particular time of the year, as the state of the weather, and the degrees of actual heat and cold : in attending to this circumstance, we cannot easily mistake. If, in the temperate days of autumn, the room should feel colder than the external air, it is time to make a moderate fire : in damp and cold weather this is an useful precaution, even in summer. Those who from caprice, parsimony, or prejudice, would rather shiver on some weeks longer, than consult their sensations, often feel the consequence of a violent cold. The Dutch and German stoves certainly afford more uniform heat in a room, though they might not be considered cheerful enough for an English company.

As we can neither breathe nor live without fresh air, we ought not to withdraw our bodies too much from the bracing effects of cold. In this respect, we should act conformably to nature, that is, in the same degree as the warmer weather changes to a colder state, we should gradually expose ourselves to the various changes of temperature. The cold will then neither feel unpleasant, nor impede the necessary perspiration ; especially if we oppose it with vigour and bodily exercise. We ought also to take more solid sustenance in winter than in summer ; because, by the longer continued motion or digestive process of the stomach, the circulation of the blood is accelerated, from which the natural heat of the body is produced. Nature herself dictates

a compliance with this precept, as she has provided us with more substantial articles of food during the former season than the latter.

Lastly, as every sudden change of the weather from heat to cold, and the reverse, is prejudicial to the body, we ought to guard against every circumstance by which *perspiration* may be suddenly checked. Hence we never should remove from a strongly heated apartment into a fresh and cold air, unless we are provided with a warmer dress;—in hot days, or after violent exercise, we should not frequent vaults, cellars, or ice-houses, undress immediately after overheating the body, nor take rest upon a damp soil or upon stones, nor bathe in cold water. Such transgressions have often been punished with instant death, or, what is still worse, have brought on a painful and lingering species of consumption, which has hitherto baffled the united efforts of the Faculty, and which annually makes dreadful havoc among people of a middle age.* It is devoutly to be wished, that the experiments, now

* According to the statement given by the Bills of Mortality, the total number of deaths in London, during the three spring months of 1799, amounted to 5271. Among these, no less than 1353, or upwards of one fourth, were carried off by *consumption*!—Although consumption and *decline* are terms often used to express many other chronic diseases, as well as *pulmonary consumption*, so that the above stated number probably includes various species of decline, yet, even with these allowances, the number of victims to *general consumption* is truly terrific. Let the reader reflect, for a moment, on the following melancholy inference:—If the population of the country consist of between nine and ten millions, of whom the 30th or the 33d part, that is, about 300,000, die annually, it follows that this merciless disease, CONSUMPTION, cuts off about 80,000 persons every year, in Great Britain alone, and these generally in the prime of life, when Society ought to be benefited by their mental and bodily exertions!!

purfued with factitious airs or gafes, and with the fox-glove, may afford fome remedy againft this formidable deftroyer of the human fpecies, which cuts off incredible numbers in the bloom of life, and fpare neither age, rank, nor fex. And, as there is fo much reafon to believe, that a great proportion of confumptive cafes originate from the fudden tranfitions above mentioned, no language can be ftrong enough to deprecate practices, as injudicious as they are deftructive.

C H A P. III.

Of Cleanliness, and its various modifications, so far as it is immediately connected with Health ; —the management of the Teeth ;—the use of Baths, &c.

Of Cleanliness in general.

THIS domestic virtue ought to extend its influence to every object connected with the human frame ; to the preparation and consumption of food and drink ; to dress, habitation, household furniture, and all our physical wants ; in a word, cleanliness should not be confined merely to the interior domestic economy ; it claims our attention in every place which we occupy, and wherein we breathe.

Let our clothes, linen, beds, covers, blankets and sheets, be clean and dry ; as all these substances absorb perspirable matter, and check the process of perspiration. Articles of dress which are soiled, and come into contact with the skin, being placed immediately over the pores, reimbibe the humours already perspired, and return them to the body by the absorbents. Dirty linen will never attract the useless or noxious matter, which is secreted from the blood, and ejected from the body ; it remains on the pores of the skin, and is either again absorbed by the vessels, or clogs those excretories which require always to be kept open. For a similar reason, it is highly

improper and dangerous to wear the clothes of sick persons, especially in contagious distempers.

Let the body, and particularly the joints, be frequently washed with pure water, especially in summer, when the perspirable matter, being of an unctuous, clammy nature, obstructs the excretion by the pores. The face, neck and hands, being most exposed to the air, dust, and the like, ought to be daily washed, both morning and evening. Attention should also be paid to the ears, by cleaning them occasionally; so that the sense of hearing may not be impaired by an accumulation of wax, which from its acrid nature may prove unpleasant as well as injurious. The whole head ought to be frequently washed and cleaned, even though no hair-powder be used; as it perspires very much, and is besides exposed to dust and other particles in the atmosphere. Washing opens the pores, while the comb, by its close application to the skin, dissolves the viscid humours, and renders them fluid.

The mouth should be rinsed every morning, after dinner, and at night, with cold water; but in winter the chill should be taken off. The frequent washing of the mouth is otherwise necessary, because the viscid slime, and small particles of food which settle about the interstices of the teeth, are very apt to putrify, and, if not removed, will infect the breath, and gradually injure the teeth themselves. Besides, this slime settles on the tongue,

covers the papillæ by which food is tasted, and renders the palate less sensible.

It is scarcely necessary to observe, that the nose also should not be overlooked, as by neglecting to remove the secreted moisture in due time, the effects may become troublesome and detrimental to the organs of smell. In children, the nose ought to be occasionally washed; it having been found that the unpleasant smell, peculiar to some infants, is owing to the habitual neglect of cleaning that organ.

The tongue should be cleaned every morning, either with a small piece of whalebone, or with a sage leaf. This leaf is likewise useful for polishing the teeth. To clean the throat, we should gargle it with fresh water, and swallow a mouthful of water every morning—the latter, however, must not be attempted too hastily; but, when we once accustom ourselves to the practice, we shall find it attended with advantage.

It is necessary, particularly in hot weather, to wash the feet frequently; as they perspire much, and are more exposed to dust than any other part of the body. The water should be warm, but not too much so, because hot water thus used relaxes the fibres, drives the blood upwards, and occasions head-achs. The proper degree of heat for young persons to wash in, is between 96 and 98° of Fahrenheit, and for the aged between 98 and 100°, or somewhat more than milk-warm.

The removing of the beard and nails is no insignificant matter in the care of health. By shaving, we promote perspiration. Long

nails, especially as they were in fashion some years ago, disfigure the hands, and prevent the feet from expanding properly : but the nails ought not to be cut too close, otherwise the toes will be obstructed in their pressure on the ground, and the fingers in feeling. They may also be easily wounded ; and wounds under the nails are generally attended with disagreeable consequences, on account of the many nerves running in that direction. Too long nails on the toes are apt to grow into the flesh, to become an obstacle in walking, and sometimes to occasion considerable pain.

In the vessels used for preparing food and drink, we ought likewise to pay proper attention to cleanliness. Every particle of filth introduced into the stomach may prove hurtful to it, to the tender intestines, to the blood, and consequently to the whole body. For the same reason, it is not only indelicate, but also unwholesome, to dine or take any food in places where an offensive smell prevails.

On the management of the Teeth.

THE principal requisite for the preservation of the teeth is, never to retire to rest without having cleaned them : for this prevents the viscous matter of food, collected during the day, from corrupting them in the night. The tooth-ach, now so common, is frequently owing to a hollow state of the teeth, but still more frequently originates in a want of clean-

lines. The cleaning of the teeth, however, requires precaution. What is called the Tartar of the Teeth, is of a corrosive nature, and should be removed with the greatest care. The manner in which most Dentists treat the teeth, as well as their powders, tinctures, and other dentifrices, although highly puffed off and strongly recommended, are obviously pernicious. They deprive the teeth of their enamel, make them loose, and spoil the gums. The various dentifrices, whether *Royal* or *Imperial*, advertised in the public papers, are at least of doubtful, if not injurious effect. It is an astonishing instance of credulity and infatuation, that people will take external and internal *medicines upon trust*, when they would hesitate to take any *food*, with which they are unacquainted.

If there be too much tartar, so that it adheres like a cement between two teeth, its being incautiously removed will deprive the teeth of the tartarous cohesion, and consequently of their support; thus, from the constant contact of the tongue, lips and food, they will be shaken and loosened. The same will happen, should the tartar be allowed to eat away the gum from the root of the tooth. If in this case the foundation of the tooth be injured, it will necessarily be rendered loose, the gums being no longer able to retain a tooth, which is deprived of its intermediate cement.

The tartar therefore must not be broken, all at once, with iron or glass instruments; but may be gradually scraped away with a

blunt or broad cut quill, or some similar substance, from which the enamel of the teeth can suffer no injury. Most kinds of dissolvent drops, especially those sold as specifics for whitening the teeth, are made up of vitriolic acid, diluted with some distilled waters—They are of no service, but, on the contrary, remove the enamel with the tartar, and thus spoil the teeth for ever. The common tooth-brushes are liable to the same objection.

To prevent the tartar from settling on the teeth, they ought to be kept clean, by washing them every morning and evening. Certain articles of food and drink should likewise be mentioned, as having a tendency to produce and accumulate the tartar—such are all viscous and saline substances, as salted and smoked meat, cheese, roasted eggs, the flesh of tame and wild animals kept too long for the sake of making it more tender and palatable, truffles, and all species of mushrooms; beans, peas, chefnuts, vinegar; tart wines, and all kinds of acid fruit.

An expedient equally safe and effectual, for removing the tartar, is, to cover the teeth with a fine powder of *Gum Tragacanth*, or with soft wax, and by that means to extract the tartar at once, together with this adhesive covering.

Although it does not enter into the plan of these Lectures to treat of the various diseases to which the teeth are subject, or to describe the different methods pursued in curing them, yet I judge it necessary to point out some of the most simple and approved remedies in that

very painful affection, the tooth-ach. If the complaint proceed from a hollow and carious tooth, some soft extract of the Peruvian Bark may be placed in the cavity of the tooth ; if this should not remove the pain, a few drops of *Cajeput oil* upon cotton may be applied to the hollow tooth, or rubbed externally upon the painful side of the cheek. THUNBERG, the Swedish Traveller, introduced the use of *Cajeput oil* into Europe, having often witnessed its powerful and almost instantaneous effects in the East Indies, where it is the last and only comfort of gouty and rheumatic sufferers.

Dr. Richter, an eminent Physician of Göttingen, informs us that he has frequently relieved the most violent tooth-ach, by applying externally the essence of *pimpinella*, or Burnet-saxifrage, with an equal quantity of laudanum, adding to it a drop or two of the essential oil of cloves. Though external remedies are not likely to effect a radical cure of this malady, yet in urgent cases they may be safely resorted to, especially if applied so as not to injure the skin of the face ; for they will often produce a temporary relief. If, however, the tooth-ach proceed from *no local cause* ; if, for instance, it be owing to a corrupted stomach, to catarrhal, rheumatic, hysteric, venereal, or other affections ; all the specifics ever discovered cannot remove the pain, until the cause also be, wholly or in part, removed. In my own practice, I have found the oil of Savin, or Juniper oil, preferable to laudanum, in its effects on a hollow tooth ; the latter is at best an uncertain remedy.

In scorbutic affections of the teeth and gums, a vegetable diet, consisting chiefly of ripe fruit, and mucilaginous vegetables, will be found the best corrective. Beside these, a fine powder, made of three parts of double-refined sugar, and one part of burnt alum, may be employed with advantage for the purpose of rubbing them. Sugar is an excellent antiseptic; and IMBERT DE LONNES, a French Physician, reports, that a whole ship's company was once cured of an alarming scurvy, by living for some time, from necessity, upon sugar alone. We should also consider the connexion subsisting between the teeth and the stomach; if the former be unequal to the purposes of mastication, the digestive powers will be gradually impaired, and the soundest stomach corrupted. To neglect the teeth, therefore, is to neglect the stomach; and if the stomach be weakened, the whole mass of the fluids, and particularly the blood, will ultimately be tainted with crude, unassimilated, and acrimonious humours.

To dissolve and wash away the superfluous, slimy, and unctuous matters which produce the tartar, fresh water is sufficient; or it may be rendered a little more acrid by the admixture of a small quantity of common salt. Acids and alkalies, so frequently employed as dentifrices, are of too corrosive a nature; and alkalies in particular injure the gums, perhaps the teeth themselves, while acids deprive them of their enamel, and thus occasion a speedy external corruption and inevitable gangrene within.

The most simple dentifrice is a crust of bread hard toasted, and reduced to a fine powder. This is fully calculated to absorb the viscid, oleaginous particles, and to remove the stony or tartarous matter. The bread, however, should not be toasted too black, as in that case it would evolve an acrid alkaline salt, which might prove hurtful. A still better dentifrice is a moderately fine powder of the Peruvian Bark, particularly of the genuine red species, which strengthens the gums, without inflaming them.

In cleaning the teeth we ought not to make use of brushes or sponges, but of the finger, which being provided with the finest papillary vessels, is a much better and more proper instrument, and precludes the necessity of resorting to artificial means. Besides, the finger has the advantage of being soft and pliable, and of feeling any immoderate pressure too sensibly, to permit us to do injury to the teeth or gums:—hence, it is an ill-judged delicacy alone which can prevent us from making use of it, preferably to even the best tooth-brushes.

For cleaning the interstices between the teeth, we should not employ pins or needles, whether made of gold, silver, or steel; for all metallic substances are apt to canker the teeth. If toothpicks be at all advisable, they should be made of soft wood, or quills cut in a blunt point. In my own opinion, none should be used; for, of whatever materials they are made, they open, loosen, and injure the teeth, by making room for the tartar and

other matters, to prey upon the teeth and gums. To answer every purpose of tooth-picks, a thick and soft cotton cloth should be used, to rub the teeth over gently after every meal: but if people have once accustomed themselves to regularly picking their teeth, then indeed the cotton frictions may perhaps be too late.

Lastly, the cleaning and brushing of the teeth, however useful and necessary, is insufficient to prevent the settling of the tartar, and the consequent injury to the teeth; for the source of both evils does not exist in the mouth, but really proceeds from the stomach, and a corrupted state of the fluids. For this reason, the medical treatment of the teeth requires a particular regimen and diet, according to the individual case of every patient.

Of the Use of Baths.

THIS important branch of dietetic regimen is of excellent use and efficacy, both in the cure and prevention of diseases. Though the ancients could less dispense with the use of the bath, on account of the frequency of their athletic exercises, as well as from the want of linen, which was then much less in use than at present, yet in our times it would be of great service, if the use of baths were more general and frequent, and this beneficial practice not confined to particular places or seasons, as a mere matter of fashion. Con-

sidered as a species of universal domestic remedy, as one which forms the basis of cleanliness, bathing, in its different forms, may be pronounced one of the most extensive and beneficial restorers of health and vigour. I am not so sanguine, however, in my expectations, as to think that the cure of all maladies and diseases may be effected by the bath, as was lately promised by a noted empiric in this country, who most sagaciously impregnated his vapour baths with the collective produce of the vegetable kingdom. Such a general remedy is just as chimerical as the most famous panaceas, the tincture of gold not excepted.

Bathing, whether in warm or cold water, produces the most salutary effect on the absorbent vessels; which would otherwise reconduct the impurities of the skin through the pores, to the no small injury of health. To those in a perfect state of vigour, the frequent use of the bath is less necessary than to the infirm; as the healthy possess a greater power to resist impurities, by means of their unimpaired perspiration, the elasticity of their minute vessels, and the due consistence of their circulating fluids. The case is very different with the infirm, the delicate, and the aged. In these, the slowness of circulation, the viscosity or clamminess of the fluids, the constant efforts of nature to propel the impurities towards the skin, combine to render the frequent washing of their bodies an essential requisite to their physical existence.

Baths, considered as the means of curing diseases and restoring health, if judiciously applied, are likewise of peculiar advantage; and though, in this respect, they do not properly make part of a regular system of dietetics, yet I shall request the indulgence of the reader, while I make a few necessary remarks relative to the proper application of the bath, it being so frequently used as a mere dietetic remedy. Much depends on a clear and accurate knowledge of the properties and effects of the different baths. I shall therefore divide them into two principal classes, the *warm* and the *cold* bath.

The *warm*, that is, the tepid or lukewarm bath, being about the temperature of the blood, between 96 and 98° of Fahrenheit, has usually been considered as apt to weaken and relax the body; but this is certainly an ill-founded notion. It is only when its heat exceeds that of the human body (as in the *Hot Bath* and *King's Bath* at BATH, both of which are from 18 to 20 degrees higher than blood-heat) that the warm bath *can* produce a debilitating effect. Indeed, baths of the above immoderate heat ought not to be used in their natural state, that is, without reducing their temperature by cold water, except in particular cases, and under the immediate advice of a physician. On the contrary, the lukewarm or tepid bath, from 96 downwards to 85, is always safe; and is so far from relaxing the tone of the solids, that it may justly be considered as one of the most powerful and universal restoratives with which we are

acquainted. Instead of heating the body, it has a cooling effect; it diminishes the quickness of the pulse, and reduces it in a greater proportion, according as the pulse has been more quick and unnatural, and according to the length of time the bath is continued. Hence tepid baths are of eminent service, where the body has been over-heated, from whatever cause, whether after fatigue from travelling, or severe bodily exercise, or after violent exertion and perturbation of mind; as they allay the tempestuous and irregular movements of the body, and consequently, in the strictest sense, invigorate the system. By their softening, moistening, and tumifying power, they greatly contribute to the formation and growth of the body of young persons, and are of singular benefit to those, in whom we perceive a tendency to arrive too early at the consistence of a settled age; so that the warm bath is particularly adapted to prolong the state of youth, and retard for some time the approach of full manhood. This effect the tepid baths produce in a manner exactly alike, in the coldest as well as in the hottest climates.

From what has been advanced, it will not be difficult to discover, in what particular disorders the tepid bath may be of the greatest service, and the reason why they prove so eminently useful (particularly in a parched and rough state of the skin) in paralytic, spasmodic, bilious, consumptive, hypochondriac, hysteric, and insane cases, as well as in an acrimonious and corrupted state of the fluids,

such as scorbutic and leprous eruptions, lues, &c. One obvious effect of the habitual use of the bath, particularly the tepid, is, that it softens and renews the external integuments of the body. It considerably increases the pressure on the body from without; hence breathing, particularly on entering the bath, is frequently somewhat difficult, until the muscles have by practice become inured to a greater degree of resistance. Yet this effect, which in most instances is of small importance, requires the greatest precaution in some particular cases, so far as to prevent the use of the bath altogether; for instance, in persons of a full habit, who are in danger of breaking some of the internal blood-vessels, by the precipitate use of the bath, whether warm or cold.

These few hints will be sufficient to determine the cases, in which the lukewarm bath may be resorted to with safety and advantage, as a *dietetical* remedy. Its application in the treatment of diseases is foreign to the object of this Chapter, and demands the most minute inquiry into the nature of the cases which indicate the use of it, as it is of itself a potent remedy, which, if improperly used, may produce a contrary effect.

Bathing in rivers, as well as in the sea, is effectual for every purpose of cleaning the body; it washes away impurities from the surface, opens the cutaneous vessels for a due perspiration, and increases the activity of the circulation of the blood. For these reasons, it cannot be too much recommended, not only to the infirm and debilitated, under cer-

tain restrictions, but likewise to the healthy. The apprehension of bad consequences from the coldness of the water, is in reality ill-founded; for, besides that it produces a strengthening effect, by its astringent property, the cold sensation is not of itself hurtful.

The same precaution, however, is requisite in the use of the cold as that of the tepid bath; for after having overheated the body, especially in the hot days of summer, it may prove instantly fatal, by inducing a state of apoplexy. Hence the plethoric, the asthmatic, and all those who perceive a great determination of the blood to the head, should be very circumspect in its use. For although the consequence may not prove immediately fatal, yet the too great strain and pressure may easily burst some of the smaller blood-vessels in the head or breast, and thereby lay the foundation of an incurable disorder. To such as are of a sound and robust constitution, bathing may be rendered an agreeable exercise, by swimming against the stream; for, the fibres and vessels being obliged to resist the power of the undulating waves, the nerves are thereby excited into action.

Before I proceed to lay down dietetical rules for the use of the bath, I shall premise a brief historical narrative of this excellent practice, and generally explain its sensible effects.

Among the Greeks, and particularly the Spartans, bathing was not intrusted to the caprice of individuals, but considered as a public institution, being governed and arranged agreeably to the express laws of the State. We

learn also from Sacred History, that among the Jews, at a much earlier period, persons under certain circumstances were pronounced unclean, and consequently unfit to hold any intercourse or communion with others, until they had performed the appointed ablutions. The Greeks, according to their own historians, learnt this practice from the Egyptians, and the Romans from the Greeks. With those celebrated nations, public and private baths formed an important branch of useful and ornamental architecture. Many opulent individuals courted the favour of the people by lavishing their treasures in the establishment and decoration of public baths; and to this day we frequently discover the valuable remains of these national edifices. Among the Romans, the baths were in time converted into regular and luxurious dwelling-places, in which the sons of the patricians and of the wealthy were educated; a circumstance sufficiently ascertained in the history of CHARLES the Great.

The changes which the contact of cold water produces on the body, naturally lead us to inquire into the physical nature and properties of the cold bath. The lightest water is at least 800 times heavier than air; from which it has been concluded, that the former presses upon the human body with a force proportionally great. If, therefore, the column of air, which presses upon our body with a force equal to 39,900lb. could be converted into water, the whole weight of that pressure would amount to 31,920,000lb. Yet, as our health

is affected by a difference in the pressure of the air, occasionally varying from 3 to 4000lb. we may easily understand, that the human body is not calculated to sustain, for any length of time, the great pressure of water. From this cause, the most experienced negro divers dare not venture beyond a certain depth of the sea ; well knowing it would be impossible to rise up against the additional weight of water incumbent upon their bodies.

The sensible *properties* of the *Cold Bath*, in general, consist in its power of contracting the solid parts, and of inspissating the fluids. Any part of the body, which is exposed to the sudden contact of cold water, experiences at the same instant a degree of tension and contraction, and becomes narrow and smaller. Not only the blood-vessels, but likewise the small capillary tubes, are liable to this contraction and subsequent relaxation. What is vulgarly called *goose-skin* is an effort of the cutaneous fibres, a contraction of the orifices of the absorbent and exhalant vessels, occasioned by mental perturbation, spasms, or the effect of cold.—Hence it happens, that by the cold bath all the blood-vessels of the skin, and of the muscles in immediate contact with it, are so constricted and diminished, that at the time of this violent exertion they are unable to receive the usual quantity of blood. The smaller vessels of the skin are likewise closed, and press upon the humours contained in them, so as to prevent all perspiration during this pressure. Thus all the fibres of the skin and muscles are brought into close contact ; and

if the humours contained in these tubes had no other outlets, by which to discharge themselves, they would become thick or inspissated, and lose their natural warmth. Were this inspissation of the fluids really to take place, it would be attended with dangerous stagnations and obstructions. That it does not, however, produce these fatal effects, may be ascribed to the following cause. As soon as the pressure is made against the external vessels, the blood retreats from them, in search of places where it may find less resistance. All the great vessels within the body afford receptacles, into which it now flows, till the principal arteries, and the veins of the intestines, being filled, extended, and enlarged, it rises to the heart. Although the effect consequent on the cold bath may be considered as altogether mechanical, yet this simple operation is frequently productive of the most important and beneficial effects.

All other strengthening remedies, operating, in general, only on the fluid parts of the body, require to be previously dissolved by the fluids, blended with the mass of blood, and thereby conducted to the solid parts. The cold bath, on the contrary, acts almost instantaneously on the solid parts themselves, and produces its bracing effect, before a single drop of blood has been commuted. From which remedy, therefore, is it most likely we should derive the desired effect, that which immediately answers the purpose, or that which must pass through so many canals, and undergo so many changes, before it arrives at the

place where it is to exert its efficacy? The sudden changes arising from the application of the cold bath contribute in various ways to brace the human body. The relaxed fibres of the skin and the muscles acquire more solidity and compactness from contraction. Their elasticity is increased, and thus a considerable defect removed: the nerves are stimulated and incited to those powerful exertions, on which the ease, vigour, and habitual sprightliness of the body so much depend. From that degree of irritability which the nerves possess, when in a debilitated state, arise all hysteric, spasmodic, and convulsive symptoms and affections. These may be mitigated or removed by the cold bath; because it greatly affects and alters the state of the nerves; it shakes and animates them, and by its forcible operation overcomes their tendency to preternatural rigidity and other disagreeable sensations. Here then we have two causes, which illustrate the excellent effects of this remedy: there remains, however, a third, more important and powerful, yet to be explained.

The blood, which by external pressure is driven into the internal vessels, extends and enlarges them, without diminishing that contractile force or tendency which is peculiar to every artery. At the moment when the external pressure ceases, all the internal vessels exert their powers of self-contraction more forcibly than usual, as they are more strongly extended, and consequently enabled to exercise a greater force. The blood returned to the cutaneous and muscular vessels, finds its

reservoirs contracted and invigorated; it flows through muscles, the fibres of which have acquired greater elasticity and power of resistance. It is accelerated in its new motion by these improved fibres and veins, and the result of the collective powers is a fresh impulse and rapidity given to its circulation. Although, at the first immersion, the uniform course of it is somewhat interrupted, this temporary stoppage serves afterwards to re-establish and promote it. The blood can now penetrate with ease into the smallest capillary vessels; and it can circulate freely through every part of the animal machine, without affecting or relaxing the solids.*

* Such are the advantages which the theory of bathing holds out. I shall, however, quote a respectable authority, which may be of use to remove some erroneous notions hitherto very prevalent, in the practice of cold bathing.

“ In the earlier stages of exercise, (says Dr. CURRIE, of *Liverpool*,) before profuse perspiration has dissipated the heat, and fatigue debilitated the living power, nothing is more safe, according to my experience, than the cold bath. This is so true, that I have for some years constantly directed infirm persons to use such a degree of exercise, before immersion, as may produce some increased action of the vascular system, with some increase of heat, and thus secure a force of reaction under the shock, which otherwise might not always take place. The popular opinion, that it is safest to go perfectly cool into the water, is founded on erroneous notions, and sometimes productive of injurious consequences. Thus persons heated and beginning to perspire, often think it necessary to wait on the edge of the bath, until they are perfectly cooled, and then plunging into the water, feel a sudden chilliness that is alarming and dangerous. In such cases the injury is generally imputed to going into the water too warm, whereas in truth it arises from going in too cold.

“ But though it be perfectly safe to go into the cold bath in the earlier stages of exercise, nothing is more dangerous than this practice, after exercise has produced profuse perspiration, and terminated in languor and fatigue; because in such circumstances the heat is not only sinking rapidly, but the system parts more easily with the portion that remains.

“ In his Essay on Swimming, FRANKLIN makes the following observation:—‘ During the great heats of summer, there is no danger in

The healthy and the vigorous, who resort to the cold bath, on account of its cleansing and bracing effects, may continue in it, with safety, for a considerable time. But to strengthen and to give elasticity to the solid parts, every thing depends upon the sudden impression of the cold. This primary effect will be weakened or frustrated by remaining in the bath till the water feels warm, whereby the pressing or vibrating action on the nerves at length ceases. The most proper time of bathing is, when the stomach is not employed in digestion; as in the morning or forenoon, or from three to four hours after dinner.

The cold bath, between 65 and 32° of Fahrenheit, is not, strictly speaking, a dietetic

bathing, however warm we may be, in rivers which have been thoroughly warmed by the sun. But to throw ourselves into cold spring water, when the body has been heated by exercise in the sun, is an imprudence which may prove fatal. I once knew an instance of four young men, who, having worked at harvest in the heat of the day, with a view of refreshing themselves, plunged into a spring of cold water; two died on the spot, a third the next morning, and the fourth recovered with great difficulty. The authority of the American Bacon is of great weight in Medicine, as in every branch of science, and particularly in what respects immersion in water; for doubtless he spent more time in this element, than any philosopher of modern days. It may, however, be easily supposed, that he adapted the commonly received opinion, that the injury arose from the persons in question going in *when hot*, instead of from going in *when cooling, after having been heated*; to which last circumstance it can hardly be doubted, that the fatal accident he relates was to be imputed."

These remarks are worthy of the learned Dr. Currie;—at the same time, instead of advising any person to use the cold bath after exercise, I would certainly prefer the tepid or lukewarm bath, both on account of the greater safety attending the use of it, and because it possesses nearly all the advantages of the cold bath, without being liable to so many strong objections. Besides, the cold bath is altogether improper in a weak state of the lungs, in all complaints of the breast, in dropsies, in plethoric habits, and for very corpulent individuals; in all which cases the lukewarm bath may, if duly modified, produce effects highly beneficial.

remedy ;—its effects are not so much calculated for the healthy and robust, as for the infirm and diseased, under peculiar circumstances. The external use of cold water is of singular benefit, when applied to particular parts of the body, where its use may be much longer continued without danger, and where we may accomplish the intended effects, in a manner, by compulsion and perseverance.

Of all the parts of the body, the head receives most benefit from the affusion of cold water ; this is a simple and effectual remedy against too great an impulse of the blood towards the head, where persons are threatened with apoplexy ; in disorders of the brain and cranium ; in wounds and other complaints, to which the head is subject. In these instances, its effects may be still farther improved by frigorific or cooling salts. The affusion of water upon the abdomen has likewise been employed with great advantage, in cases of obstinate costiveness, affording almost instantaneous relief, when internal remedies have produced no effect. This should not, however, induce any person to try that remedy indiscriminately, or without proper advice.

On the contrary, in all those cases where the cold bath might repel certain eruptive humours, which Nature determines towards the surface of the body, it cannot be resorted to without danger. Apoplexies have been the frequent consequences of an unwary use of the cold bath ; more frequent, indeed, than is generally suspected. And yet the popular opinion still prevalent, is, that there can be no

better practice, than to plunge into the cold bath at all times, and in all states of the body, in order to strengthen the nerves. Children, in particular, are indiscriminately accustomed to it from their infancy, to restore them to that degree of bodily vigour, for which our ancestors were so famed. That many children, by the daily practice of bathing them in cold water, grow and continue healthy and strong, proves as little, as that many infants become vigorous and robust in the most unwholesome climates, and under the most unfavourable management.—Some think to fortify the body, by the use of the cold bath, against the vicissitudes of the weather; but it can be proved that children, who from their infancy have been bathed in cold water, are as much exposed to coughs and catarrhs, as those who have not been habituated to this violent practice, provided they have not been mismanaged by effeminating indulgence. In general, all artificial plans of hardening and bracing the bodies of children, are commendable only, when the child shows no strong and lasting aversion to them.

It should be considered that, as the cold bath powerfully contracts the fibres by its frequent use, it imparts to the juvenile body an unnatural degree of solidity and compactness, whereby it too early acquires the properties of an adult. The skin of such children as have been too frequently bathed, is generally much drier and harder than it ought to be at their age. It is a remark of GALEN, that the cold bath does not agree with a growing per-

son, and he advises young people not to bathe at all till the body be completely formed. Is it not inconsistent, that by cold bathing we expect to bring the body of youth to the vigour of age, and that afterwards, when age approaches, we should wish to render it softer, and restore its energy, by lukewarm bathing? Hence the cold bath, for the purpose of strengthening children, must ever be considered as a doubtful remedy.

We now proceed to lay down some rules for the use of the cold bath, in the cases where it may be of service. 1st, Every cold bath applied to the whole body ought to be of short duration; all depends upon the first impression the cold makes on the skin and nerves, it being this impression which hardens us against the effects of rough and cold weather:—2d, The head should be always first wetted, either by immersion, or by pouring water upon it, or the application of wet cloths, and then plunging over head into the bath:—3d, The immersion ought always to be sudden, not only because it is less felt than when we enter the bath slowly and timorously, but likewise because the effect of the first impression is uniform all over the body, and the blood in this manner is not driven from the lower to the upper parts. Hence the Shower Bath possesses great advantages, as it pours the water suddenly upon the whole body, and thus in the most perfect manner fulfils the three rules above specified:—4th, The due temperature of the cold bath can be ascertained only in relation to individual cases: as it

extends from 33 to 56° of Fahrenheit, except in *partial* bathings, where, as has been already observed, the degree of cold may, and often ought to be, increased by ice, nitre, alum, salt, sal ammoniac, or other artificial means:—5th, Gentle exercise ought to precede the cold bath, to produce some reaction of the vascular system in entering into it; for neither complete rest nor violent exercise are proper, previous to the use of this remedy:—6th, The morning or forenoon is the most proper time for cold bathing, unless it be in a river,—then the afternoon, or towards the evening, when the water has been warmed by the sun, and the dinner has been digested, are the most eligible periods of the day. A light breakfast will not be detrimental before using the bath:—7th, While in the water, we should not remain inactive, but move about, in order to promote the circulation of the blood from the centre of the body to the extremities:—8th, After immersion, the whole body ought to be wiped, as quickly as possible, with a dry and somewhat rough cloth. Moderate exercise out of doors, if convenient, is proper, and indeed necessary.

To specify the various situations, in which the cold bath may be used with perfect safety and advantage, would lead me too far, and does not belong, strictly speaking, to the subject of this book. I shall, however, enumerate generally certain cases, in which we must absolutely refrain from the cold bath. 1. In a general plethora or full habit of body, and in the febrile disposition which attends it; in he-

morrhages or fluxes of blood, and in every kind of inflammation. 2. In constipations or obstructions of the abdominal intestines. 3. In diseases of the breast, difficult breathing, and short and dry coughs. 4. In an acrimonious state of the fluids, bad colour of the face, difficult healing of the flesh, and the scurvy, properly so called. 5. In gouty and rheumatic paroxysms. 6. In cutaneous diseases. 7. In a state of pregnancy. And lastly, 8. In a deformed or ill-shaped state of the body, except in some particular cases to be determined by a physician.

The best method of cold bathing is in the sea or a river. Where, from necessity, it is done in the house, I recommend the *Shower Bath*, for which a proper apparatus is to be had at the tinman's. Where the saving of expense is an object, it may be effectually supplied by the following easy expedient: Fill a common watering-pot with cold water; let the patient sit down undressed upon a stool, which may be placed in a large tub; and let the hair, if not cut short, be spread over the shoulders as loosely as possible; then pour the water from the pot over the patient's head, face, neck, shoulders, and all parts of the body progressively down to the feet, till the whole has been thoroughly bathed. Let the patient then be rubbed dry, and take gentle exercise, as has been already recommended, until the sensation of cold be succeeded by a gentle glow all over him. When we first resort to this kind of bath, it may be used gently, and with water having some degree of warmth,

so as not to make the shock too great; but, as the patient becomes accustomed to it, the degree of cold may be increased, the water may be allowed to fall from a greater height, and the holes in the pan may be made larger, so as to make the shower heavier. A large sponge may, in some measure, be substituted for a watering-pot.

Although the Shower Bath does not cover the surface of the body so universally as the usual cold baths, this circumstance is rather favourable than otherwise: for those parts, which the water has not touched, feel the impression by sympathy, as much as those in actual contact with it. Every drop of water becomes a partial cold bath in miniature, and thus a stronger impression is excited than in any other mode of bathing. The Shower Bath, for the following reasons, possesses advantages superior to all others. 1. The sudden contact of the water, which in the common bath is only momentary, may here be prolonged, repeated, and made slow or quick, or modified at pleasure. 2. The head and breast, which are exposed to some inconvenience and danger in the common bath, are here at once secured, by receiving the first shock of the water; the blood is consequently impelled to the lower parts of the body; and the patient finds no obstruction in breathing, or undulations of blood towards the head. 3. The heavy pressure on the body occasioned by the weight of the water, and the free circulation of the blood in the parts touched by it, being, for some time at least, interrupted,

make the usual way of bathing often more detrimental than useful. The Shower Bath, on the contrary, descends in single drops, which are at once more stimulating and pleasant than the immersion into cold water, and it can be more readily procured, and more easily modified and adapted to the circumstances of the patient.

I shall conclude this Chapter with some account of what is called the *Aërial* or *Air Bath*. This is a late invention, the effects of which have not yet been sufficiently ascertained. Experience informs us, that by exposing the naked body for a short time to an agreeable cool, nay to a cold air, we perceive effects somewhat similar to those produced by the cold bath; particularly that of a pleasant sensation of heat diffused over the whole body, after having again dressed. There is little danger of catching cold upon this occasion: for in a place where we already feel a certain degree of cold in our usual dress, the sensation of it will not be much increased, if we undress altogether. It may also be remarked, that with the *whole* body naked, we have much less to apprehend from the effects of cold, than by exposing or keeping one part of it less covered than another.*

* *Lord Monbaddo*, the author of "*Ancient Metaphysics*," who died in May 1799, in his 90th year, till very lately accustomed himself to take violent exercise, when quite undressed, in the open air: He also anointed his body, like the ancients, with aromatic oils, especially in certain states of the atmosphere: in the severest weather he never would enter a carriage, which he looked upon as an unjustifiable effeminacy; but annually rode from Edinburgh to London, and took other long journeys on horseback. And this venerable judge and amiable man found himself, long after the age of 70, as hale, and in many respects as vigorous, as he had been at 30 or 40.

This species of bath certainly deserves farther trials. A spacious apartment, with open windows, may serve every purpose of moving in the free air. And here I would recommend to all who are engaged in sedentary and literary pursuits, to walk with their heads uncovered in an open, and even in the coldest air, as being a simple and excellent means to strengthen the head, and to remove those complaints which arise from intense thought and close mental application.

To rub the body with woollen cloths, or with soft brushes, is of great advantage, by gently stimulating the fibres, increasing the circulation of the fluids to the external parts, and promoting a free perspiration, together with all the other evacuations. Persons of a delicate habit, of a sedentary life, and those who are liable to sudden twitches of the tendons, cramps, and lameness, may effectually relieve, or rather prevent these complaints, by causing the whole body, particularly the limbs, to be rubbed every morning and evening, for about half an hour, with rough cloths or soft brushes, till the skin becomes red. This friction is still more beneficial to the aged than to the young; and it may in a great measure produce the salutary effects of bodily exercise.

Frequent cutting the hair is of advantage to the eyes, the ears, and to the whole body. So the daily washing of the head with cold water, is an excellent remedy against periodical head-achs. In coryzas, or defluxions of the humours from the head, and in weak eyes,

the shaving of the head often affords immediate relief; while at the same time it opens the pores, and promotes perspiration. It is altogether a mistaken idea, that there is a danger of catching cold from the practice of washing the head, or leaving it exposed to the free air, after having been washed. The more frequently the surface is cleansed of scurvy and scaly impurities, the more easy and comfortable we feel. The oftener the hair is cut, the more quickly it grows again; and this easy operation supplies the place of a constant blister or artificial issue.*

Friction of the soles of the feet is very advantageous; but, on account of the great number of highly sensible nerves in them, such practice must not be carried to excess. A proper degree of warmth and perspiration in the feet is always a favourable symptom of health. Besides, they should often be bathed in cold, or, still better, in lukewarm water, well rubbed, and the nails cautiously cut. There will then be no danger of the nails growing into the flesh, or of corns or other callosities arising in the feet. All the methods hitherto discovered of extracting corns, afford only

* All secret compositions or pomatums for making the hair grow long and thick, are little better than fraud and imposition, and generally consist of noxious ingredients. In place of them, I recommend a simple mixture of olive oil and spirits of rosemary; to which may be added, a few drops of oil of nutmeg. With this mixture let the hair be anointed every night; but sparingly at first.

To change the hair to a darker colour, the liquid remedies sold by the perfumers are generally dangerous, as consisting of lead, antimony, and other metallic solutions. The only method to be pursued with safety is, to cut the hair pretty close to the head, and comb it morning and evening with a leaden comb, which simple process cannot injure or check the perspiration of the head.

temporary ease ; and it is very dangerous to cut them too deep, on account of the many nerves running in every direction of the toes. Easy shoes, frequent bathing the feet in lukewarm water, with a little salt and pot-ashes dissolved in it, and a plaster made of equal parts of Gum Galbanum, Saffron, and Camphor, are the only remedies I can recommend against this troublesome complaint.

C H A P. IV.

Of Dress;—the advantages and disadvantages of the usual mode of Clothing considered, together with proposals for remedying its defects.

IN considering the various articles of Dress, attention must be paid both to their *substance* and *form*. Our mode of clothing may occasion trouble, disease, and death—1. When we attempt by it to improve some supposed defects of the body, which cannot be done without injury; and, 2. When it consists of improper substances, whether used from necessity, or in compliance with fashion and caprice.

To avoid ridicule, we comply with the prevailing fashions of the day; but, if this compliance be prejudicial to health, it shows great weakness to allow ourselves to be carried away with the stream; and although a deviation from the mode may, for the moment, excite the ridicule of the thoughtless, yet those who have the boldness to oppose the Tyrant, when his dictatorial mandates are injurious to health, will in the end triumph, and they may themselves have the satisfaction to introduce dresses, at once healthful and elegant. Happily, in this respect, people begin in some degree to think for themselves; that rigid adherence to the mode, which heretofore dressed both men and women as much in uniform suits as a regiment of soldiers, does not now disgust us.

The general properties of a good dress are the three following :—1. That it be not so hard and unpliant, as to obstruct the free and easy motion of the joints, and be uncomfortable, either from its weight or tightness :—2. That it preserve the body in that degree of temperature which is most agreeable, as well as most suitable to the different functions and motions in a healthy state ;—and, 3. That it do not produce any detrimental effects, by increasing perspiration in an unnecessary degree, or too much absorbing the vapours of the atmosphere.

On the Materials used for Articles of Dress.

THE property of receiving, repelling, and emitting heat and cold, depends not only on the substance from which our dress is made, and its shape or form, but also on the colour. Clothes of a light colour have the least attraction for heat, and therefore are the most proper in hot weather. Substances of a very smooth and shining surface strongly reflect the rays of the sun, which cannot penetrate through them ; hence the advantage, in hot climates, of hats covered with oil-skin, particularly of a green or white colour, of smooth and shining shoes, glazed gowns, and the like. Dazzling colours are offensive, and a person who suffers from weak eyes will injure them still more by wearing crimson or scarlet, or being much in company with others thus dressed. For a similar reason, splendid white

dresses, steel buttons, gold and silver lace, and all ornaments of this sort, are detrimental to vision.

Animal Wool produces a moderate warmth, on account of the stimulus and gentle friction it occasions on the skin. By its use, animal electricity is elicited, perspiration promoted, the perspired humours are absorbed, and again easily evaporated, on account of the porous nature of this substance.

Linen Cloth, by diminishing the elasticity of the skin, increases the internal warmth, and at the same time, from its compactness, retains too readily the perspirable humours, and does not part with them so readily as wool. Soiled shirts therefore produce a disagreeable cooling sensation, and stop perspiration, especially if made of thick strong cloth, and not regularly changed every day.

Silk occasions a gentle stimulus, but does not sufficiently promote perspiration, though it attracts less humidity from the atmosphere than linen.

Oil-skin, or wax-cloth, increases perspiration in an uncommon degree, but does not admit it to evaporate again, and is therefore applicable only in certain diseases.

Cotton stands in the middle between animal wool and linen; it increases warmth and perspiration, imbibes and retains the perspired humours, to the injury of the wearer, and like wool readily attracts infectious matter.

All kinds of *Fur* are more noxious than useful, both with respect to their structure and constituent parts. They contain many alka-

line and oily particles ; they are generally too compact and unequal on the surface ; they too much stimulate and increase perspiration, by promoting the access of humours to the skin ; they do not allow the perspirable matter to escape, soon acquire an intolerable smell, and, more than any other substance, attract and retain contagious effluvia. Experience informs us, that nations who dress in fur, particularly in hot countries, are frequently exposed to diseases, owing to a want of cleanliness and free perspiration ; such are the putrid fevers of Hungary, the plague among the Turks, and the singular disease of the hair in Poland, called *plica polonica*, which curls the whole hair into a number of twists, that have the appearance of so many greasy strings, and afford a ghastly spectacle.

We ought, therefore, to choose a dress agreeable to the season and weather, as well as to the constitution of the body. Woollen clothes are the most proper in spring, autumn, and winter ; because they moderately warm the body, do not weaken it by the abstraction of too many exhalations, and have the fewest points of contact, or, in other words, do not attach so close to the body, as any other materials of dress.

In summer, most people are accustomed to wear thin clothes, which are scarcely proper in our changeable climate. It is not, in that season, advisable to take much exercise in thin dresses, particularly in the heat of the day. Nor should we venture to wear such clothes early in the morning, when the air is cool,

and the pores of the skin have been dilated by the warmth of the bed ;—but still less in the evening, when the heat of the day has so much opened them, that perspiration may be easily checked, and health materially injured.

In our variable climate, it would be preferable to adopt a species of dress, which is nearly uniform in all seasons ; for as thin clothes are more immediately pervaded by heat, during the least exercise, it certainly would be more prudent and rational to wear a dress that is calculated to withstand the effects both of cold and heat. That there is no danger in adopting a general dress for all seasons ; that, on the contrary, it is the most beneficial plan of managing the body, with regard to the most important function, namely, that of perspiration, I shall endeavour to prove in the next Section.

On the immediate Covering of the Skin.

THE first and principal rule with respect to this subject is, that *the covering of the skin ought to be always the same, and not be changed according to the season and the weather.* The usual consequence of this change is, in the first place, an uneasy and painful sensation. A skin accustomed to fine linen only, cannot endure the sensation occasioned by a coarser kind ; and cotton is still more disagreeable, but, most of all, animal wool or flannel. In the next place, to change the dress according to the weather,

occupies more time, and requires more expence, than is convenient to the great mass of the people.

Nevertheless, there are many who, from mistaken maxims of health, accommodate the covering of their skins to the seasons: they dress themselves in winter in flannel, towards spring and autumn in cotton, and in summer in linen; a method as absurd as it is dangerous. Notwithstanding the difficulties, which each of these changes must produce, while we undergo this new trial on our skin, we expose ourselves at the same time, in every such change, to all possible dangers arising from cold and repelled perspiration. This custom is the more dangerous, as it is usually practised by the infirm, the tender, and the aged, who regulate themselves less by the temperature of the weather, than by the days of the almanack, when they are periodically accustomed to change their dresses.

The question, then, which is the *most proper covering of the skin*, is easily answered. *Animal wool* seems to recommend itself to us by the very circumstance, that hair is the general covering of those animals which most resemble man in their structure. If men were habituated to go naked in the colder climates, the human body would, no doubt, also be better covered with hair. Animals, in winter as well as in summer, have the same coat, except that in the coldest season their hair is uniformly somewhat thicker and longer, consequently also warmer than in summer, especially in the northern countries.

Not only analogy, but experience also proves, that wool worn next the skin has indisputable advantages over all other substances. For,

1. Flannel is but a slow conductor of *external* heat to the body, and it the more easily attracts *internal* heat, and allows it to evaporate the more readily, as it is more porous than any other texture.
2. A sultry atmosphere is extremely troublesome, particularly where great heat is combined with moisture, the humidity checking perspiration, and at the same time conducting too many aqueous particles to the absorbent vessels from without. Here then flannel is of incomparable service, since it keeps the vessels of the skin constantly open, causes them to perspire freely, and admits but a very small degree of external moisture.

The principal good effect of flannel, however, consists in its gentle and beneficial stimulus, or that friction which it occasions on the skin, and by which it opens the pores. We must not imagine, that flannel *of itself* heats more than linen or cotton; for it is not the heat which occasions inconvenience, but the circumstance of the perspirable matter adhering to the skin. In flannel, we may perspire without danger, and undertake any exercise of the body, without disagreeable sensations; not so, when linen remains wet on the skin. If we take violent exercise in flannel, perspiration is necessarily increased, but the perspired matter is communicated through the flannel to the atmosphere, and the skin remains dry, warm, and comfortable. If we take the same exercise in linen shirts, perspiration is

indeed also increased, but the perspired matter is not imparted to the atmosphere, but is inspissated in a fluid state, clogs the linen, and remains in contact with the skin.

Another advantage which flannel possesses over linen and cotton is, that people perspiring profusely in flannel shirts, may safely venture into the open air, and will not easily catch cold, because flannel does not absorb the perspired humours. If we do the same in linen shirts, the skin will soon be wetted by perspiration, which will occasion a sensation of coolness and shivering; in most cases a violent cold, and very frequently an inflammation of the lungs, will be the consequence. This danger arises from the fluid matter settling on the skin; and we may be still more severely injured, if we at the same time expose ourselves to the action of the wind, or a current of air.

Numberless writers, both ancient and modern, confirm the good effects of flannel next the skin: of these I shall only quote COUNT RUMFORD, who says, in one of his earlier Essays, that he is convinced of the utility of flannel shirts in all seasons; that he has worn them in all climates, in the warmest apartments, and in the most fatiguing exercise, without the least difficulty; that he was relieved, by the use of flannel, from a pain in his breast he had been frequently subject to, and never since knew an hour's illness; and that nothing exceeds the agreeable sensation of this dress, when people have been once accustomed to it.

Indeed after the praises bestowed upon flannel, by so many respectable authorities, and by men who from long experience have ascertained its beneficial effects, it is surprising that any individual, however great his reputation, should be whimsical or hardy enough to dispute its *general* salubrity, merely with a view to establish a favourite hypothesis.

It has been objected, that flannel worn next the skin is debilitating, because it too much increases perspiration; but this is not founded on truth, since perspiration, *as long as the skin remains dry*, never can be hurtful, nor immoderate. Such mistaken notions have been propagated, from the circumstance, that flannel is frequently ordered by physicians, to increase perspiration in some diseases, where it is necessary to the recovery of the patient: *but the copious perspiration is then the effect of the disease, and not of the flannel.*

The uneasy sensation occasioned by flannel is of very short duration. That it may make the skin red and inflamed, if it be too much rubbed and scratched, cannot be denied; but it is a palpable falsity that it produces cutaneous eruptions. It has quite a contrary effect; as it preserves the pores open, increases perspiration, and thus removes the cause of cutaneous diseases, which arise chiefly from a checked and irregular state of excretion by the pores.

In answer to another objection against the wearing of flannel, it is certain, that a flannel shirt or waistcoat may preserve the body as

clean, and much cleaner, than linen, *if as frequently changed.**

Wool, on account of its rough surface, is more calculated to absorb infectious morbid matter, than a more smooth substance; but we have nothing to apprehend from flannel on the skin, and under the usual dress. I am rather of opinion, that it is a better preventive against contagion than any other; because, while it encourages perspiration, it at the same

* This preliminary condition, I presume, sufficiently answers the objection of a learned writer, according to whom a flannel dress requires a more frequent change than linen, *to promote cleanliness*, and consequently would produce a contrary effect among the lower classes of people. Yet, in other respects, I fully agree with the celebrated HUFELAND, who lays down the following conditions and limitations in what relates to the use of flannel:—"Upon the whole, says he, I am of opinion that it would not be advisable, at least to children and young persons, *universally* to adopt a woollen texture for the covering of the skin. It is, however, a *salutary* dress to those who, in all probability, have commenced the second half of their life; to all cold or phlegmatic temperaments; to all who lead a sedentary life; to individuals subject to catarrhs, or frequent colds, gout, diarrhoea, and partial congestions of the blood; to all nervous patients and convalescents from severe chronic disorders; to persons who are too susceptible of the impressions of the atmosphere; and, lastly, in such climates and pursuits of life as are exposed to frequent and sudden changes of air.—It is, on the contrary, *hurtful* to all those, without exception, who are already subject to violent perspiration, or troubled with cutaneous eruptions, and who cannot afford to change their under dress as often as is consistent with cleanliness."

Professor Hufeland, doubtless, meant to say that the wearing of flannel next the skin is *then only hurtful*, if none of the conditions before specified reconcile its use; for, even in cases apparently doubtful, the temporary wearing of flannel is not attended with such danger as might perhaps result from neglecting its application. But although it be obviously conducive to health, the Professor recommends only such a texture of wool, as is sufficiently porous, and neither too rough nor too thick. Coarse woollen stockings in winter, and thin ones in summer, ought in his opinion to be more generally worn. Those persons, lastly, who are in a good state of health, and have no particular reason for wearing flannel, or whose skin is too irritable, may find it, he thinks, beneficial to wear a cloth fabricated of a mixed texture of cotton and linen.

Medical and Physical Journal: No. I. p. 40 and 41.

time removes the inhaled poisonous particles, particularly if, in cases of danger, perspiration be increased by other suitable means. Hence people wearing flannel on their skin, never suffer from cold. I have been informed, that the manufacturers in the different founderies of Birmingham, as well as at the iron-works of Colebrook-Dale and Kettleby, in the most intense heat, wear no other but flannel shirts; and that without these it would be impossible to prevent continual colds, and the most fatal diseases. With this beneficent intention, the British soldiers upon the Continent, some years ago, were furnished with flannel waist-coats, by the liberal subscriptions of individuals, which, I am convinced, saved many lives that must otherwise have fallen victims to the effects of a cold and moist climate.

These advantages strongly recommend the use of flannel to every one anxious to preserve his health, but particularly to those who are exposed to all kinds of weather, as husbandmen, fishermen, mariners, soldiers, and travellers. As flannel is suitable to all seasons; as it requires no great changes in the under dress; and as it is a tolerable substitute for a deficiency of upper dress; it deserves every attention among those who provide for orphan and poor-houses, as well as for the indigent of every description. Many desperate diseases in the legs of the common people, many inflammations of the throat, breast and lungs, might be prevented, and many lives saved, both of children and adults, if flannel were more generally worn.

Those who complain of cold legs and feet, are never comfortable nor healthy; if they could be prevailed upon to wear worsted stockings and flannel drawers, they would acquire a quicker circulation of the blood in the lower extremities, and prevent many troubles and indispositions, from which, without this precaution, they cannot escape. Most valetudinarians and patients slight this advice, because they imagine that the wearing of flannel is attended with uneasy sensations. This idea, however, ought not to prevent them from giving it a fair trial; for the uncomfortable feeling continues only for a few days, as I have myself experienced; and this trifling sacrifice cannot be compared with the salutary effects, which flannel next the skin almost uniformly produces. By continuing it sufficiently long, and changing it frequently, the most obstinate gouty and rheumatic complaints have often been removed, and many other imminent dangers averted. Children afflicted with rickets, cannot be better relieved than by a proper diet, and flannel shirts, which may be daily fumigated with amber, petroleum, or other fragrant substances; a process, which has been frequently productive of the most beneficial effects.

Of Stockings.

COTTON stockings, which are so generally worn at present, are highly objectionable.—

There is no part of the human frame, which perspires so much as the feet. The disagreeable sensation cold feet produce is well known; for the connexion between the feet and head, the stomach, the uterus, and many other important parts of the human system, is so intimate, that gout, suppression of the critical evacuations, pain in the excretory organs, nay cancer, inflammation of the uterus, and abortion, may be the consequence of cold feet and legs, which are the necessary effects of wearing cotton and silk stockings. Cotton and linen worn next the skin, if once filled with perspirable matter, do not admit any more to pass through them; a glutinous and cooling moisture accumulates, and it is not easy to keep the feet thoroughly clean in this dress. Those who alternately wear cotton and worsted stockings, must soon observe the difference in the exhalation and moisture peculiar to each. Cotton, though somewhat better than linen, is still much inferior to wool, which is alone calculated to absorb and exhale the noxious humours emitted by the pores.

The reciprocal effect of the perspiration of the feet, and of the leather of the shoes, is greater than is commonly believed. Hence those, who wear cotton stockings; ought, from respect to cleanliness, as well as health, to change them according as their exercise increases perspiration.

Although the feet are the principal sources or conductors of exhalation from the body, little attention has been paid to them, with a

view of promoting this salutary secretion. Instead of profiting by this hint of nature, mankind have been imprudently and unaccountably studious to stop that canal; imagining this to be the safest way of preserving the feet dry, and free from all disagreeable smell. Dry feet are certainly preferable to moist: but the means of promoting perspiration are also the only means capable of keeping the feet dry, and free from any unpleasant fetor. It is also improper and unhealthy to wear any other but woollen gloves, which ought to be worn by all females, who wish to improve the skin of their hands and arms; no cosmetics or washes are so certain and so powerful in their effects: on the contrary, all external applications, unless assisted by internal remedies, are attended with the positive ruin of skin, bloom, and health.

Persons who have a great tendency to perspire in their feet, and who increase this exudation by much walking or dancing, will no doubt be sensible, that their cotton, thread, or silk stockings, instead of removing the transpired matter, actually absorb it; bring it in contact with the skin; preserve it in a state of heat favourable to putrefaction; and check all farther perspiration.

That the feet are more exposed to the effects of cold, and to stagnations of the fluids, than any other part of the body, is unquestionable: 1st, because they are the most remote parts from the heart, and the quickness of the circulation of the blood decreases in proportion to that distance; and 2d, the

blood circulating downwards makes its way to the heart somewhat slower, on account of its own gravity. By this slowness in the circulation, more watery particles are deposited by the blood. It is therefore necessary to keep the feet somewhat warmer than the rest of the body, in order to encourage the motion of the fluids to the upper parts. Woollen stockings are excellently adapted for that purpose, and they ought to be chosen rather thicker than those flannels used for shirts and drawers. For the same reason, it is proper to prevent all moisture from without, by means of water-proof shoes, provided with thick cork soles for the winter, or with elastic socks of horse-hair.

The most disagreeable sensation produced by the feet in perspiring, is between the toes: this can only be prevented by wearing stockings made with toes, like the fingers of gloves; because these alone can absorb and prevent the viscid and fetid particles from settling there. But as this proposal is not likely to meet with the approbation of the votaries of fashion, I shall substitute an easier method of remedying the unpleasant effects of violent perspiration in the feet. A powder of burnt alum will overcome this fetor, by neutralizing the acrid particles; and, at the same time, will not obstruct the necessary perspiration.

Of Dress, as to its Form.

ALL coverings of the head, of whatever kind, produce more mischief than benefit.

The well known and excellent rule of keeping the head cool and the feet warm, is too much neglected, especially by the lower classes of the people in many countries, as in Scotland, Holland, and Germany, and likewise among people of a certain age and description in this country. The Scotch peasant wears his heavy bonnet, the Dutchman his cap, and the Turk his turban, without considering that such heavy loads are stupifying, and that, while no attention is paid to keep their feet warm and dry, their heads are virtually converted into vapor-baths. In all countries, the man who lives at his ease, carefully covers his head with a warm night-cap; he spends perhaps one half of the day in this unnatural dress, and prepares his head for frequent colds, at every sudden change in the atmosphere. Besides, weakness of the head, pains, eruptions, local plethora or fulness of blood, loss of the hair, lethargy, and at length stupor or insanity are often the effects of this imprudence.*

In our moderate climate, we might safely accustom our youth to go with the head uncovered; as Nature has already provided it with hair for that purpose. In very cold and hot countries, however, the head must be

* For some years the ladies, instead of those horrid masses of frizzled hair, which used at once to injure their health, and disfigure their faces, happily returned to beautiful and elegant nature; having their hair hanging down in graceful ringlets, while the only artificial covering was a simple turban, or an ornamental bandeau. Of late, however, this tasteful style of decoration has been succeeded by unnatural, disgusting, and unhealthful wigs; a fashion probably introduced by some ugly and bald woman, to reduce her gay and beautiful imitators to her own standard of deformity.

slightly covered, to shelter it from cold, or from the still more dangerous vertical rays of the sun.

It is an instance of improvement in the education of children in England, that their tender heads are not so much shut up in close caps, and fur bonnets, as those upon the Continent. A practice so injudicious and hurtful deserves no imitation; and yet there are advocates for *warm* night-caps and wigs; they would starve their feet, while the head is enclosed in an artificial stove, which enfeebles their mental faculties, and diminishes their bodily vigour.

New-born children, and those who are most tender, require only an easy and moderately warm covering for the head, and this chiefly during the first weeks, on account of the softness of their cranium, then but imperfectly ossified. Yet such a cap should be loosely tied, that it may not press the head, nor cripple the muscles of the ears.

That the ear is naturally capable of some motion, is proved by the muscles with which it is provided. Its form, resembling a shell, is admirably adapted to receive and convey sound. In the vain conceit, that a projecting ear, so as the Author of nature has created it, is a deformity, nurses and overwise matrons endeavour to press the child's ear, from its first appearance, close to the head. Thus they render the shell of the ear immovable, and diminish the capacity of hearing. A properly-expanded ear not only strengthens the acuteness of hearing, but likewise preserves this

useful sense to a great age, when the muscles of the internal organs of hearing become relaxed.

To go with the head uncovered, in sunshine, is certainly improper, both for children and adults; but our common black hats are ill calculated to avert the mischief, as they do not reflect the heat, but rather concentrate it in the most sensible manner upon the head. Hats of a white, or any other light colour, made of straw or similar light materials, would be far preferable, particularly for people labouring in the fields, soldiers, and travellers. In very hot weather, a piece of white paper may be fastened with advantage on the crown of the hat.

As the hat ought likewise to shelter the eyes from too vivid a light, the brim should be broad enough to protect them, and the inner side of a green or blue, but not of a black, nor a dazzling colour. From the present mode, however, it appears that both ladies and gentlemen think a brim almost, if not altogether unnecessary, even when the power of the sun is most oppressive.

Persons suffering from periodical head-achs, or whose heads are otherwise unhealthy, should have their hair cut short. By this petty sacrifice, they will promote the necessary perspiration, the head will remain cool, and the cold bathing of it can be practised with more advantage. In this point of view, wigs cannot be *altogether* condemned, as long as hair-dressing, artificial braids, and other ornaments, form an essential part of fashionable

dress. Besides, the wearers of wigs are, in a great measure, exempt from many inconveniences and evils attending the use of powder and pomatum. Lastly, if we must choose one of the two maladies of the times, it is most rational to adopt the least noxious to health : and so far I think a *light wig* is justly preferable to a head enveloped in an artificial paste of powder and pomatum. Those, however, who are once accustomed to wear a wig, should not upon any account again let their hair grow in order to have it dressed, pasted, and powdered anew.

With respect to *Shirts*, the most proper substance having been before investigated, I shall only add, as to their form—that they may be seriously prejudicial to health, if too narrow in the collar, and in the wristbands. I have seen several instances of people attacked with shortness of breath and difficulty of speech, from this reason only, because the blood cannot circulate freely, if the neck and wrists be tied or buttoned up too closely. I was once present where a young man, playing at rackets, was suddenly seized with an apoplectic fit, the cause of which seemed at first inexplicable. As soon, however, as his shirt-collar, wristbands and garters were loosened, he recovered.

Neckcloths, cravats, ribands, and necklaces of all sorts, *when they are too tight*, stop the access and retreat of the blood to and from the head, occasion accumulations of the blood and other fluids, head-achs, faintings, stupor, apoplexy, corrosive ulcers of the skin,

and innumerable other maladies. All coverings of the neck ought therefore to be constantly worn loose. People who are liable to sore throats, and diseases of the breast, might gradually accustom themselves, in mild and dry weather, to go with their necks as slightly covered as possible, and if fashion would permit it, to have no other covering but the collar of the shirt. In cold and moist weather, a thin handkerchief might be added. But the modern cravats, filled with a stiffening of cotton or wool, are extremely injurious to the part which they are intended to protect. For, by occasioning too great heat, they render the neck unnaturally sensible to every change of the atmosphere. It is rather surprising, that from a due sense of their perniciousness, we have rejected all coverings of the neck in children, as being troublesome and useless; and yet, in defiance of reason and experience, we continue to incumber our own necks with such bandages.

Necklaces and ribands, likewise, are generally tied so close, as to press with violence on that supposed deformity of the throat, vulgarly called the *Adam's apple*, which projects less in the female than in the male sex. These ribands and necklaces, when worn tight, are the more inconvenient and dangerous, if they be narrow and edged. Upon taking them off, which is too frequently neglected at night, they leave an impression on the neck, clearly proving the impediment they are to free muscular action, and what stagnations, pain, and dangerous consequences they

may occasion. The neck and throat, being alternately expanded and contracted, in speaking, chewing, and swallowing, it is the highest degree of imprudence to obstruct its motion, for the sake of appearance, vanity, or fashion.

Equally objectionable are those black stocks, that were formerly much in fashion, and are still worn by some old beaux and military men. The latter indeed deserve our compassion, from being obliged to wear these uncomfortable collars; but the former ought to consider, that they expose themselves to dangers, increasing as they advance in age, and rendering them every day more liable to apoplexy. I knew a regiment of soldiers on the Continent, whose Colonel was so excessively fond of what he considered a martial appearance, that he caused his officers and men to have every article of their uniform remarkably tight, particularly the stocks, waistbands, and knee-garters. The consequence was, that in the course of a few months above the half of his regiment became subject to very obstinate cutaneous diseases, and other obstructions, so that they were unable to perform duty. Other regiments in the vicinity also suffered from this destructive custom; but the proportion of their disabled soldiers was like one to ten in the former. The late Dr. FOTHERGIL asserts, that these tight stocks are productive of apoplexy, if a person look for some time, with his head turned, without moving his body. By this alone, he believes, people have brought on apoplectic symptoms.

For such a turn of the neck, when the body stands fixed, diminishes the diameter of the jugular veins so much, that a proportionate quantity of blood cannot return to them, from the vessels of the head and the brain.

Neckcloths or cravats, loosely tied, and not too thick, are therefore the only proper ones for *Men*; but as to *Women* and *Children*, it cannot be disputed, that they would be better without any.

Laced Stays are, among the better ranks of society, at present out of fashion; since the Grecian form is justly preferred to all artificial shapes. Yet, when we have adopted an useful habit ourselves, it is our duty to recommend it to those also who are still following a destructive practice. And with this intention I cannot but reluctantly observe, that nine tenths of the community still wear these oppressive *strait jackets*, merely because their mothers and grandmothers have done the same. I shall therefore briefly state a few of the consequences, arising from this unnatural part of female dress, namely, diseases of the breast, external callosities, and cancer itself; the ribs are compressed; the spine is bent out of its place; the free expansion of the lungs is prevented; hence shortness of breath, indurations and tubercles of the lungs, cramp of the stomach, defective digestion, nausea, irregularities in the secretory and other organs, and the like: in short, the list of the maladies thus produced is too long to be here detailed; and both married and unmarried ladies, for the sake of compassion, should ex-

ert all their influence, to convince the common people of the injuries occasioned by stiff laced stays. If any such part of dress be at all admissible, it ought to consist of soft and pliable materials, such as fine chamois leather, hatter's felt, or, what is still better, the knitted and more elastic texture used for gloves and stockings.

All that has been said, with regard to laced stays, is also applicable to small waists, and tight coverings of the breast and the abdomen.*

Narrow sleeves in gowns and coats, tight wristbands in shirts, and bracelets, occasion a swelling of the veins on the back of the hand, rigidity, weakness of nerves, and incapacity of bending the arm. If the arms be in this manner twisted from infancy, their growth and formation are impeded; and it is probably owing to this cause, that we see so many persons with short, thin, and ill-formed arms.

Women suffer much more by this bandage than men, whose arms possess more muscular strength, and have not the interstices of the muscles filled with fat, like the former. In this respect, the modern fashion of tying the sleeves of ladies' gowns close to the elbow, deserves particular censure; as the circulation of the blood, together with the motion of the

* Fashion delights in extremes. No sooner had the fair sex abandoned the unnatural and unhealthful custom of long taper waists, than they in a manner concealed the waist altogether. Instead of the cinchure round the middle of the body, as nature and taste directed, they bound themselves over the breasts,—a custom not less preposterous than injurious to health.

arms, is thus obstructed, and many disagreeable consequences wantonly induced. Farther, the female arm is naturally somewhat fuller from the shoulder downwards, and again becomes smaller towards the joints of the hand; but in man, it is always more muscular a little below the elbow. From this difference in the structure, it is obvious, that the sleeves in a female dress lie close to the whole arm, while those of a man's coat but partially attach to it.

Many of the remarks already suggested, respecting the form and substance of other parts of dress, are likewise applicable to the article of *breeches*. If these be made of improper materials, or too tight in the waistband, they must occasion both uneasiness and injury to the body. Yet the ingenious observations, lately published on this subject by Dr. FAUST, an eminent physician in Germany, are by no means so conclusive, as to induce us to abandon an article of dress, not only rendered necessary by the laws of decorum, but which, when properly constructed, is even of considerable service; inasmuch as breeches, by their moderate pressure, tend to strengthen the relaxed parts of the body, particularly at a tender age.

The most proper form of this vestment is, upon the whole, that of *pantaloons*; but they ought to be sufficiently wide, of a thin cooling substance in summer, and of a warm elastic woollen cloth in winter. Tight and contracting leather breeches, purposely contrived to display an elegant shape of the limbs,

are extremely inconvenient, occasion numbness and chilliness all over the hip and thigh, and a painful pressure of the *pudenda*. Leather is also an improper substance for this part of dress; as, on account of its close texture, it is apt to check insensible perspiration. If the waistband be too strait, the free motion of the internal parts of the abdomen will be obstructed, the absorbent vessels of the intestines prevented from performing their offices, and hypochondriacal complaints be easily induced. This inconvenience may be entirely avoided, by the use of *braces*, now almost generally adopted, and which, as they render a tight cincture altogether unnecessary, cannot be too much recommended, both to men and women, for the sake of health as well as comfort.

There are many reasons, which delicacy forbids me to mention, why it would be highly beneficial to the physical and moral condition of females, to wear some kind of drawers, at least after a certain age. This additional piece of dress would effectually prevent several inconveniencies to which women are subject.—There are other circumstances attending their usual dress, which contribute to bring on a premature sexual impulse, and are apt to induce them to habits equally irregular and injurious to health. This hint cannot be misunderstood by judicious mothers, and, it is humbly presumed, will not be totally disregarded;—especially as young females but too readily accustom themselves to sit in an improper posture.

Concerning the clothing of the legs, I must in the first place censure the use of tight *garters*, particularly in men, to whom they are altogether unnecessary. Whether females can do without them, is scarcely fair to question: but if any substitute or contrivance can be adopted in their place, it will amply compensate any little trouble or inconvenience: the stockings can easily be tied to some tape fastened to the waistband. This apparently trifling improvement is of greater moment, than many are inclined to imagine; for garters are undoubtedly the cause of much mischief, whether tied below or above the knee. The part to which they are applied, acquires an unnatural hardness; they dispose the thighs and legs to dropsy, induce great fatigue in walking, and are very probably the cause, that certain persons so frequently stumble, fall, and dislocate or break the knee-pan. The great difference in walking, with and without garters, I have myself sufficiently experienced. Many years ago, when in compliance with early habits and prejudices, I was accustomed to the use of garters, I could not walk or ride half a dozen miles without fatigue; which inconvenience I found immediately remedied, on abandoning those improper ligaments.

The advantages of woollen *stockings* have been already pointed out. Upper stockings of silk, cotton or linen, will be no impediment; and they may be chosen of thicker or thinner quality, according to the weather and season. But the best stockings may become hurtful, if

too short in the feet, and may bring on a spasmodic rigidity, and distortion of the toes. If, on the other hand, the feet of the stockings are too wide, so that they make folds in the shoes, they will injure the skin by their friction, and be attended with painful consequences. The stockings of children ought neither to cover the knees, nor be tied in any other manner, than by fastening them with strings to the waistband; otherwise they will increase the size of the knees, render them preternaturally thick, and may produce white swellings, and other dangerous maladies.

Boots, if too tight, and made of thick leather, are so injurious to health, and so troublesome in walking, that no reasonable being will be inclined to force his feet and legs into them. The consequences of a practice, as hurtful as it is injudicious, are obvious from the preceding observations.

The constant use of boots contracts the size of the legs, particularly the calves, as may be daily observed in military men, and the fashionable loungers of Bond-street and Pall-Mall.

I now proceed to the last, but not the least important part of our dress, namely, *Shoes*. The celebrated Dutch anatomist, CAMPER, did not consider this subject unworthy of his attention, as he published a particular work, "*On the proper Form and Size of Shoes*," as late as the year 1781. The shoes ought to be of the size of the foot; they should be also accommodated to the degree of motion or exercise, and to the nature of the soil and place, in which we wear them; circumstances that

are at present too little attended to. A shoe that is bigger than the foot, prevents a firm step; while one which is too narrow occasions pain and troublesome corns. Many volumes have been written on the Art of Shoeing that noble and useful animal, the Horse:—it is considered as a fundamental rule in Farriery, that the shoe must be neither smaller nor larger than the hoof; and yet mankind can submit to screw their feet into a narrower compass than is intended by Nature. How frequently do we smile at the Chinese, who, from a tyrannical custom, squeeze and compress their feet, that they may remain small and crippled. Yet these feeble Orientals proceed more rationally in this practice, than their European rivals. *They* begin with it gradually, and from the earliest infancy. *We* do not think of contracting the feet of our children, till they have almost attained the natural size, and thus endeavour to counteract the progress of Nature, when it is too late to do it with impunity. Who then are the greater slaves of fashion, the Chinese, or their enlightened antipodes?—It is pitiable to see the young and old, of both sexes, advancing into an assembly or ball-room, with the most painful sensations. Without consulting Lavater's Physiognomy, it is easy to discover, by their distorted features and compressed lips, what many whimsical persons suffer from too tight, or, what is still worse, from short shoes. Our knees would be more flexible, and our toes more pliable, more useful, and better adapted to perform the various

motions of the feet, if they were not continually pressed and palsied by this improper *case-work*. Nature has designed the toes to be as moveable as the fingers. Those unfortunate beings, who are born without hands, learn to perform with the toes the most astonishing tasks, to write and cut pens, to sew, to draw; in short, to supply almost completely the want of their hands.

Our feet, no doubt, would be more comfortable, easy, and useful, if we were not at the greatest pains to deprive them of their elasticity and vigour. The numerous nerves, crossing the feet in every direction, plainly evince that Nature has endowed them with peculiar powers, of which we can scarcely form an adequate conception. The untutored Indian, or the wild African, excels not only the enlightened European, but likewise the lower animals, in running, leaping, and, in short, in swiftness and agility of every kind, where muscular motion is required. Either of them would heartily laugh at us, when we are obliged to employ professional operators for extracting corns, and to contrive ointments and plasters for the cure of those evils, which we have wantonly brought on ourselves.

The judicious BUCHAN says: "Almost nine tenths of mankind are troubled with corns; a disease that is seldom or never occasioned but by strait shoes;" and I presume to add, that the remaining tenth part do not envy their fellow-creatures for this modern improvement. Our ancestors, even within

my memory, wore their shoes with broad toes, which showed at once their good sense, and due attention to health and comfort. He who is regardless of the pain and trouble occasioned by warts, excrescences, and callosities of various forms; he who wishes to convert his feet and toes into so many barometers, to indicate the present state, and to foretel the future changes of the weather, will ever agree with his shoemaker, to save as much leather as possible; and he is scarcely to be pitied for his imprudence. Such a person will not unfrequently be disappointed in his excursions, when his crippled feet require temporary rest. I am further persuaded, that such cessations of exercise are extremely detrimental to health in general, and that they may be registered among the predisposing causes of the gout, rheumatism, and dropsy. Many people are thus almost deprived of the use of their legs; and the pain of the more virulent species of corns, as well as of the nails, when grown into the flesh, is excruciating.

For these obvious reasons, the soles of the shoes ought to be sufficiently broad, especially under the toes, where we are accustomed to see them so pointed, that they appear to be intended for weapons of attack or defence. If, for instance, the greatest breadth of the foot be four inches, the shoe should not be three and a half, but rather four and a half inches broad, since the bulk of the foot, and the seam of the leather, require an allowance of half an inch. The soles also ought not to be bent hollow, as is frequently done in wo-

men's shoes; for since the foot is not so constructed as to present a spherical surface, it is improper to deprive it of that firm hold, which Nature has given it by a nearly flat form. The foot must necessarily suffer from this ill-contrived shape, which deprives it of its flexion, occasions difficulty in walking, and renders every step unpleasant and unsafe.

In the same manner as some persons strangely endeavour to diminish the breadth of the foot, others are equally dissatisfied with its length. Hence we see them make use of an instrument, to force their feet into shoes perhaps an inch shorter than is requisite for an easy motion. This custom is the most destructive of any, and, though not much practised at present, since a long and narrow pointed shoe is the most fashionable, yet the inconvenience and danger is not thereby removed. Instead of bending the toes with their nails inwards, as was formerly the case with short shoes, we now squeeze them together, and often lay them crossways over one another, so as to carry them about without motion, like a mere insensible mass of matter. Upon striking the foot against a stone, we feel the punishment due to such outrage. Shoes of this kind may be aptly compared to the wooden boxes worn by the Dutch and French peasants, from necessity, in wet seasons, and which admit of quite as much motion as the long and sharp pointed machines, in which our beaux and belles cramp their feet from choice.

A convenient shoe, therefore, ought to be somewhat round at the toes, sufficiently long, with thick soles, and the upper leather soft and pliable. If it be deficient in any of these requisites, the skin will be rendered callous; the perspiration indispensable to these parts will be stopped; warts and corns will appear in numbers; the nails will grow into the flesh, and various complicated maladies be produced, which not only affect the feet, but the whole body. Beside these more serious consequences, a person walking with narrow shoes will be much sooner and more sensibly fatigued, than he whose shoes are sufficiently wide and easy.

The poor, as well as country people, who wear shoes sufficiently large, have not only a much safer step, but their feet are less subject to the multiplicity of complaints, with which ours are annoyed. Those who, either from inclination or frugality, go barefooted in summer, have not even to plead the reason of the Ancients, who considered it as a mark of chastity; and I cannot help remarking, that it is both indecorous and unwholesome, as well as an injudicious species of economy. The shoe, in our climate and mode of life, is a necessary defence against many accidental injuries, to which the foot is liable; and it is likewise a crime against decency, to expose any part of the human body to dust and mire.

With respect to the *substance* of which shoes should be made, no other general rule can be given, than that it ought to be sufficiently com-

fact, to prevent the water from penetrating it ; so elastic and soft, as to admit an easy motion of the whole foot ; and accommodated to the weather, exercise, and soil in which it is used. To those who have not the means or opportunity of procuring the patent water-proof leather, I shall suggest a method of preparing this species of leather, at a very small expense. One pint of *drying oil*, two ounces of *yellow wax*, two ounces of *spirit of turpentine*, and one ounce of *Burgundy-pitch*, are to be carefully melted together, over a slow fire. Those to whom the smell of pitch and turpentine is unpleasant, may add a few drachms of some cheap essential oil, as of *lavender*, *thyme*, and the like. With this composition new shoes or boots are rubbed, either in the sun, or at some distance from a fire, with a sponge or soft brush : this operation is to be repeated as often as they become dry again, until they be fully saturated. In this manner, the leather at length becomes impervious to wet ; the shoes or boots made of it last much longer than those made of common leather, acquire such softness and pliability, that they never shrivel nor grow hard and inflexible, and, thus prepared, are the most effectual preservatives against cold and chilblains.

To conclude, I shall only remark, that it is not advisable to change the shoes from one foot to the other. Let us rather tread one of the shoes somewhat crooked, than injure our feet and health, by an adherence to a custom, which has nothing but custom to recommend it. If it be our serious wish to avoid

corns and other painful accidents, to which the rage of fashion subjects the feet of its votaries, we should persuade the shoe-makers to provide us with a particular shoe for each foot; and this can be done only by keeping *separate double lasts*, for every wearer. Is it not injudicious and absurd, to have both shoes made of the same size and form, when Nature has not formed both feet alike, or at least not in the same direction?

It gives me great satisfaction to add, that since the first edition of these Lectures was published, the rational practice of having separate shoes purposely made for each foot, has already been adopted among the more enlightened classes of society. From a full conviction of its great utility, I sincerely wish that it may soon become universal!

C H A P. V.

Of EXERCISE and REST ; their occasional advantages and disadvantages explained ; their manner and limits ascertained ; together with directions for regulating both.

MOTION, or bodily exercise, is necessary to the preservation of health, which is thereby promoted, while the bounds of moderation are not exceeded. Too violent exercise, and a total want of it, are attended with equal disadvantages. Much also depends on the kind of motion, and the various postures of the body.

The essential advantages of exercise are the following : bodily strength is increased ; the circulation of the blood and all other fluids promoted ; the necessary secretions and excretions are duly performed ; the whole mass of the blood is cleared and refined, so that it cannot stagnate in the minutest capillary vessels ; and if any obstruction should begin to take place, it will be effectually relieved.

That exercise is enjoined by nature, we may learn from the whole structure of the human body, from the number of muscles formed for motion, and from the mechanism in the circulation of the blood itself. There are, indeed, no healthier people than those who have continual strong exercise. Man in a state of health is instinctively induced to muscular exertion ; and children that are per-

fectly healthy are constantly running about, and in almost uninterrupted motion.

But if exercise, either by its violence, or too long duration, exceed the proper limits, it naturally quickens both respiration and the circulation of the blood, which may occasion the bursting of small blood-vessels, miscarriages, inflammations, and collections of blood towards certain parts of the body, such as the heart and the brain. The saline acrimony of the fluids is thus more disengaged; the fat is dissolved; and inflammatory fevers, hemorrhages, and palsies, may be the consequences.

Violent exercise is particularly hurtful to those who are unaccustomed to it, or who have committed excesses in drinking, and, what is still worse, in eating more than is necessary: and those whose bodies have not been sufficiently nourished by food and drink, may also be injured by too much exercise.

The sudden transition from a state of rest, to violent action, is likewise hurtful, and still more so in hot than in cold weather. After strong emotions of the mind, every species of bodily exercise ought to be avoided, till the tranquillity of mind return with the rest of the body; yet we ought to guard against the effects of cold, as it may prove extremely prejudicial in such a state.

WITH respect to the manner of taking exercise, three principal points are to be attended to :

1. As to the *kind* of exercise,—the various species of which may be aptly divided into *active* and *passive*. The active are of a very diversified nature; *walking, running, leaping, swimming, riding, fencing, the military exercise,* different sorts of *athletic games*, as well as every other kind that requires muscular exertion.—*Passive* exercise comprises *riding in a carriage, sailing, friction, swinging, &c.*

The more active species of exercise are beneficial to youth, to those of a middle age, to the robust in general, and particularly to the corpulent, the plethoric, and those whose evacuations are not in due proportion to their supplies. The passive kinds of exercise, on the contrary, are better suited to infants, to old, dry, and emaciated persons, to the delicate and debilitated, and particularly to the asthmatic and consumptive.

2. As to the *time* in which exercise is most proper to be taken—this depends on so great a variety of concurrent circumstances, that the rules by which it may be regulated, cannot be universal, and must therefore be collected from the preceding observations on the properties and effects of Air, Food, Drink, and so forth. Other particulars, such as relate to greater or less degrees of fatigue attending the different species of exercise, and the utility of it, in certain states of the mind and body, must determine this, as well as

3. The *duration* of it ;—for it is almost impossible to lay down positive rules, how long every individual, in every particular situation, may continue a certain species of exercise, so as to derive advantage. These rules, as far as they can be established, may be collected from the subsequent remarks, and then applied to the particular kinds of exercise, by which we may be benefited in different cases and situations.

It is necessary first to observe, that any kind of exercise which we are accustomed to take, with a view to brace the body, is far preferable to an unusual one, which may be attended with a contrary effect. We ought always to begin gently, and to finish gradually, never abruptly. Exercise in the open air has great advantages over that in houses and close apartments. Besides, strong bodily exertions, such as dancing, fencing, turning, and the like, if practised in small and confined places, on account of the increased perspiration, soon vitiates the air, and render it unfit for breathing.

If we take exercise for the sake of health, we ought to employ ourselves during that time with some agreeable object, and not perform any labour nor seriously occupy the mind. Hence certain kinds of exercise cannot be unconditionally recommended to every individual, as means conducive to health ; though they should of themselves be proper, and in other respects agree with the constitution. He who forces himself to any exercise, or performs it with reluctance, will thence derive more injury than benefit : motions or

tasks, therefore, which we impose upon ourselves, as recreations after work, or after sitting and long thinking, ought to be strictly relaxations, not toilsome exertions.

Persons of an active mind find a species of relaxation, and even satisfaction, in a change of their pursuits, and particularly in the transition from hard and difficult, to more pleasant and easy avocations. To such individuals any exercise is frequently of great advantage, especially if it answer, or appear to them to be conducive to any useful purpose. To one who has habituated himself to grave and serious pursuits, it should not be recommended to join in amusements requiring bodily exertion, and attended with dissatisfaction and irksomeness; for his health will not be improved by exercise, at once unusual and unpleasant.

To continue exercise until a profuse perspiration, or a great lassitude, take place, cannot be wholesome. In the forenoon, when the stomach is empty, or at least, not too much distended, muscular motion is both most agreeable and healthful; it strengthens digestion, and heats the body less than with a full stomach. A good appetite after it, is a proof that it has not been carried to excess. But it is not advisable to take violent exercise immediately before a meal; as this might occasion a deficiency of those humours, which are necessary to promote digestion. If we sit down to a substantial dinner or supper, immediately after a fatiguing walk, when the blood is heated, and the body is in a state of perspi-

ration, the worst consequences may ensue, especially if we begin with the most cooling dishes, or with salad, or a glass of cold drink.

Exercise is likewise hurtful directly after meals; since it obstructs digestion, and propels those fluids too much to the surface of the body, which are designed for the stomach, to promote the solution of food, and without which many crude and undigested particles are forced to enter, and to mix with the blood. The old rule of the *Salernitan School*, "*Post cœnam stabis, seu passus mille meabis,*" (i. e. after supper stand, or walk a mile) is as frivolous as it is absurd; for experience sufficiently informs us, that most persons, particularly the nervous and irritable, are liable to the heartburn, eructations, and even vomiting, when they are obliged to move about or to take any exercise immediately after meals. The instinct of the lower animals also contradicts this rule; because the wildest creatures are inclined to rest after food.

Persons who are under the necessity of moving immediately after their meals, or who have no other spare time for walking, must endeavour to overcome these inconveniencies by custom, and a more rigid temperance: they should first take the most gentle kind of exercise, and gradually increase it; and, as the late hours of dining, now so generally in fashion, have in a manner abolished heavy suppers, a moderate walk after a slight evening's repast cannot be injurious. But at all events, fatiguing exercise, after a full meal, should be delayed till the stomach has digest-

ed and assimilated the food, which generally takes place in the third or fourth hour after eating. The most proper occupations after dinner, are such as can be performed without trouble, or great efforts of reflection and bodily exertion, and such as afford a kind of amusement.

Walking, the most salutary and natural exercise, is in the power of every body; and we can adapt its degree and duration to the various circumstances of health. By this exercise, the appetite and perspiration are promoted; the body is kept in a proper temperament; the mind is enlivened; the motion of the lungs is facilitated; and the rigidity and contraction of the legs, arising from too much sitting, is relieved. The most obstinate diseases, and the most troublesome hysteric and hypochondriacal complaints, have been frequently cured by perseverance in walking.

The most proper walk for health, is in an agreeable country, in a healthy, pure, dry air, amidst social and cheerful conversations, in a mild sunshiny day, whether in spring, autumn or winter; in the summer mornings and afternoons, but by no means in the oppressive heat of the sun. To walk in towns, although it gives exercise, is less conducive to health; because the atmosphere is generally filled with vapours arising from impure exhalations.

Those who are not hardened against the vicissitudes of the weather, must avoid not only hail and rain, but also the cold mornings and evenings, and ought, therefore, in rough and moist cold weather, rather to take exercise

within the house, but without preventing the access of air. Violent wind should also be avoided; and if we are obliged to face it, we ought not to walk too fast, particularly in winter, when the small pores of the skin are compressed by the air.

In walking, the proper choice of places is a matter of much importance. Marshy and damp fields should be avoided; and in autumn, when the foliage is decaying, it is not advisable to choose woods, groves, and damp meadows, for our pleasure-walks. In summer, on the contrary, a walk in the forests or meadows is both agreeable and healthful. Hills and elevated situations deserve particularly to be visited, not only on account of the purer air we breathe, but also of the body enjoying a variety of exercise, in ascending and descending.

The inhabitants of towns require longer walks for the preservation of their health than country people. The latter, even with less exercise, derive vigour of body and serenity of mind, from a purer air, and more simple manners. Regular and daily walking, therefore, cannot be too much recommended to the citizen, who in the present age is so much harassed with nervous and hypochondriacal complaints; but, though this be an useful and excellent species of exercise, yet some rules ought to be observed, if we expect to derive from it the wished-for advantages.

1. We should contrive to procure as much pleasure and recreation after serious occupa-

tions, as is possible and consistent with our situation in life.

2. To read during a walk, whether the subject be of a grave or amusing nature, is a custom improper in itself, and detrimental to the eyes, besides the danger it occasions of falling : this practice not only deprives a person of the principal advantages of a walk, but people easily accustom themselves to an unsafe and ungraceful manner of carrying the body. It is attended with the worst consequences to the eyes, because the focus is continually shifted, and the retina is thus excessively fatigued.

3. We should not frequent the same, perhaps often a dull and unvaried walk, though most convenient. It is better to change the walk occasionally, and gradually to extend the distance. The most agreeable prospects should be chosen for variety ; otherwise the perpetually uniform walk will excite melancholy and unpleasant sensations, as much as the closet or the study.

4. We ought to accustom ourselves to a steady and regular, but not a quick pace.

5. An agreeable companion contributes much to serenity of mind : but let us rather go alone, than in dull or frivolous company, if we at all possess the art of profiting by solitude.

6. In the choice of our companions, we should attend not only to congeniality of character and taste, but should also, in this exercise, associate with those whose pace accords with ours ; for if the heavy and corpulent man make a lean and light-footed person

the companion of his walks, he will remain behind, or be overheated and fatigued, if he endeavour to keep pace with his partner, who must likewise suffer from the constraint of slower motion.

7. Some people cannot speak or converse in walking, without frequent stops, and thus make little progress. From this singularity, they are generally much fatigued at their return, without having reaped any benefit from their exercise.

Running not only shakes the body with greater violence than walking, but it heats the head and face, and too much quickens the circulation of the fluids. Soon after a meal, it prevents digestion, mixes the pure fluids with the impure, and obstructs the secretion of humours. If long continued, it is hurtful to every one, particularly to those unaccustomed to it, to the plethoric, to those subject to hemorrhages, gravelly complaints, and frequent nervous head-ach, and to sedentary persons employed in mental labour. To run up a hill, too much fatigues and strains the muscles; and to run against the wind, produces giddiness in the most robust, and makes them liable to various accidents, that may be attended with danger.

Dancing, considered in itself, and under proper limitations, is an admirable exercise, especially in winter, when the heavy atmosphere, much rest, and sitting, render the blood thick, and dispose persons to hypochondriasis. Moderate dances have every advantage of a gentle exercise, besides the beneficial effects

produced on the mind by cheerful company and music. On the other hand, the more violent dances may be, and frequently are, attended with the most pernicious effects. The exertion of so many muscles, the quick inspiration of a warm atmosphere in a crowded assembly, impel the blood to circulate with a rapidity equal to that in the hot stage of a fever, and propel it to the head and breast, so that the vessels seldom possess a sufficient power of resistance. If we add to this, the effect of heating liquors, of too sudden an access of the cold air, so eagerly courted, of exposing the face, head and breast, suddenly to its influence, together with the imprudent use of cooling drink, and ice itself, we can no longer be surpris'd, that spitting of blood, consumption of the lungs, and inflammatory disorders, are the frequent consequences of such excesses.

This violent species of exercise is particularly dangerous to females; and the use of fans, in order to cool themselves, and thus check perspiration, (which is wisely designed by nature to produce the same effect, in a more salutary degree, if not wantonly repelled) is extremely imprudent. Delicate persons ought, for their own sakes, to join in no other but the shorter and less fatiguing dances, especially in summer.

A dancing-room ought to be cool, but without admitting currents of air, and without too much smoke from candles. It would be advisable for the whole company, after dancing is over, and before they venture into

the open air, to change their linen, and afterwards to wait a quarter or half an hour before they return home. During that time, they may be refreshed by tea, and thus encounter the open air without danger. Every dancing assembly ought to conclude with minuets. Persons of an indisposed and debilitated body, such as the consumptive, those troubled with ruptures, gravelly and similar complaints, should not attempt to dance. Lastly, this exercise is hurtful to every person in the hot and sultry days of summer, when nature renders cooling drink indispensable, and when we are much inclined to perspire, without any additional inducement.

Riding in carriages is an exercise the more conducive to health, that the gentle jolts tend to resolve stagnations in the intestines of hypochondriacs, corpulent people, convalescents, and the consumptive. But, if the motion of the carriage be too rapid, it is hurtful, as it not only accelerates perspiration before the matter of it is properly prepared, but also injures the solid parts, especially the kidneys, generates congestions of the blood towards the head, and consequently head-ach, giddiness, vomiting, and obstructions. If, however, we wish to derive all the good effects from riding in a carriage, the body of it ought not to be too nicely suspended in straps and springs, nor should the motion be too slow. One of the windows, at least, ought to be kept open, that the perspiration and breath of several persons, inclosed in so narrow a place, may not too much vitiate the air.

The infirm, who cannot enjoy the free air in bad weather, should take exercise upon rocking horses, or similar contrivances, in halls and spacious apartments, while the upper part of the windows is kept open, guarding, however, against a current of air. Lastly, the furious driving in open carriages, in sultry weather, may be indeed pleasant, on account of the agreeable current of air; but it may also become dangerous to persons subject to violent perspiration.

Leaping, fencing, the fashionable military exercise, and manœuvring with horses, are violent kinds of exercise, which cannot be recommended to those who are not in a perfect state of health, or to the corpulent and plethoric, whose blood-vessels may be so overstrained as to burst, by motions which require the muscular exertion of the whole body.

To those who are otherwise healthy, but cannot afford to take sufficient exercise, either by their particular situation in life, or from want of time, I would recommend a *new species*, which, in its salutary effects *on the whole body*, is equal if not superior to any other. It simply consists in moving the whole body, in the middle of a room, (and, if convenient, with open windows) and let the operator, while he inclines forward upon his toes, raise his arms, and drop them with the alternate motion backward on his heels. Thus the *whole* muscular system will be duly exercised, without confining the motion to one particular part. This is even preferable to the *dumb-bells*, which, like every other species of

partial exercise, if persevered in, are so far objectionable, as they require the uncommon exertion of certain muscles, while the due and uniform circulation of the blood to those parts is disturbed, to the detriment of others which are at rest.

To persons who are deprived of the use of their limbs, and are weak and delicate, the motion of a sedan chair is of great benefit, if it be continued for a sufficient time ; for it disposes the body to a free perspiration. Of the same nature is the sailing in barges or boats, either on lakes or rivers.

A much more active kind of bodily motion is produced by short voyages at sea. Those who are unaccustomed to it, generally experience giddiness of the head, nausea, and vomiting : hence it is beneficial to an impure stomach. To consumptive patients it frequently is the last resource ; but it is wrong to delay it, till all other remedies have failed. For it is not in the last stage of consumption, when the lungs are already ulcerated, or when an abscess has already burst in the thorax, and the ichorous matter has been communicated to the blood, that we can expect any benefit from voyages. The changes of scene and climate, indeed, powerfully co-operate in effecting changes in the human system ; but, if the disease has preyed too much on the vitals of a patient, or if he is spitting blood, the motion of the vessel must necessarily prove injurious. On the other hand, the debilitated, the nervous, and particularly the hypo-

chondriac, cannot resort to a better remedy than a short voyage.

Riding on horseback is, in a certain respect, an excellent medical remedy, by which all the muscles, from the toes to the head, are in reciprocal motion, and which manifests its principal effects on the intestines of the abdomen. It clears the intestinal canal, promotes the evacuation of crude substances, strengthens the stomach and bowels, improves digestion, prevents or resolves incipient obstructions, and facilitates the perspiration of the whole body. To the hypochondriac it is an inestimable remedy; but, if the obstructions should be too far advanced, riding ought either not to be attempted at all, or practised in as slow a pace as the horse can walk. In short, it is to be undertaken with the same precaution as sailing, in those stages of consumption which admit of these remedies.

Farther, riding is not advisable in cases of hemorrhoids, ruptures, and gravel. The feeble and relaxed ought to begin with a gentle pace, and to increase it gradually; for a moderate trot is the proper medicinal mode of riding: and, if they expect to derive real advantage from riding on horseback, they must neither trot too fast, nor make use of a heavy and jolting horse. Such patients as are unaccustomed to this exercise, particularly hypochondriacs, generally ride with great timidity. Their lives are, as it were, in continual danger; by the awkward posture of their bodies on horseback, they are frequently hurt in parts accessible to injuries; stitches in the

sive, congestions of blood in the head, and violent perspiration, counterbalance every advantage received from their excursions. To most of these patients, if they can afford it, the riding-school cannot fail to be extremely useful; for the regular manner of training the horses there, their uniform and steady motion, the attention paid to the proper posture of the rider, by keeping his breast and abdomen erect, and the legs properly extended; all are circumstances very favourable to the patient and convalescent. But, even here, it is the moderate kind of exercise only, that promises real benefit in a medicinal sense;—continued furious driving and hard trotting are always extremely dangerous.

For similar reasons, riding on horseback, as well as in carriages, immediately after a meal, is still more dangerous than walking. The most proper time for riding is the morning, when the stomach is empty. It should, however, not be long continued; one hour, in general, is quite sufficient; and in this respect, riding is preferable to any other exercise, as it can be practised by persons, whose business does not permit them to devote much of their time to that purpose.

Swimming is likewise an useful exercise, which at the same time has the additional advantage of a cold bath. The motions and muscular exertions, which it requires, increase its utility: some rules and precautions, however, must be attended to. They have been stated at considerable length in CHAP. III. “On the use of Baths.” I shall, therefore,

at present only remark, that we should not enter with the feet, but with the head, into a cold bath ; that the body should be neither too warm nor too cold in applying this bath ; and that we should not choose dangerous rivers, or ponds, nor enter the water before the rays of the sun have in some degree warmed it, and rendered it more temperate. The sensation produced by cold water is indeed less to be apprehended, than the consequences arising from imprudently plunging into it, when the body is either too much cooled or heated.

Playing at Hand-ball, Cricket, and the like, have a more powerful effect on the muscles than the abdomen ; and are therefore, in one respect, unavailing to sedentary people, and on the other hand unnecessarily fatiguing. *Carouffels*, or riding on machines in a circle, are movements which require too much muscular exertion of the debilitated, whose strength admits only of a moderate exercise. These, as well as *swinging machines*, and the lately contrived *swinging cars*, moving on a wheel with perpendicular pivots, are the least proper for those who are inclined to giddiness, and nervous symptoms in general, on account of the fear, and sometimes the dangerous accidents attending them. But, at the same time, both species of exercise are extremely favourable in such states of health, as require an uniform and gentle motion of the whole body, in the pure and open air, particularly in the high swinging cars, which are well calculated for that purpose.

Speaking is one of the most healthful and necessary species of exercise; and, without any ludicrous idea, I may assert, that this practice is particularly salutary to the female sex, who are more confined at home than men. Here, however, as in other cases, excess is prejudicial. Loud reading and speaking are of singular advantage to literary men, affording them good substitutes for other kinds of exercise, for which they seldom have sufficient leisure or opportunities. It is to this cause we may justly ascribe the longevity of many schoolmasters, and teachers in universities, who, notwithstanding their sedentary employments, and the vitiated air which they daily breathe in school-rooms, attain to a long and healthy life. To speak very loud, and to exercise the voice immediately after a meal, is pernicious to the lungs, as well as to the organs of digestion.

Singing promotes the lively circulation of the blood through the lungs, and all parts of the body; the lungs, as well as the abdominal intestines, are shaken by the vibrating motion of the air, in a manner very conducive to their salubrity. The phlegm, and other noxious matter, collected about the pulmonary vessels, are thereby resolved and carried away, so that they cannot mix with the blood, and the most dangerous stagnations in the smaller vessels are thus prevented: the blood is uniformly distributed and driven to the larger veins and arteries. For the same law of nature, by which river-water is preserved sweet and fresh, while that of pools and ditches stag-

nates and putrifies, is also fully applicable here. The air inhaled in singing is of similar service to us, as the current to the water: perspiration is thereby promoted, and the mind is enlivened with the body. Those sedentary artificers or mechanics, who from habit almost constantly sing at their work, unintentionally contribute much to the preservation of their health.

All *Wind Instruments* are more or less hurtful; for, as much air is thereby introduced into the lungs, and as it is but gradually and partially emitted, that organ soon becomes debilitated. Hence persons of weak lungs, who are very fond of playing the flute, haut-boy, or French horn, are frequently afflicted with spitting of blood, cough, shortness of breath, and pulmonary consumption. Besides, blowing checks the circulation of the blood through the lungs, accumulates it towards the head, and disposes such musicians to apoplexy. By the violent expulsion of the air, the abdominal muscles are contracted, all the parts of the abdomen are compressed, the circulation of the fluids is retarded, and many unpleasant and frequently fatal consequences are induced.

There are other kinds of *musical instruments*, which, in a dietetical view, deserve to be condemned. Such is the *Harmonica*, which, by the rotation of the glasses on the fingers, (a kind of negative electricity) induces a great degree of nervous weakness. And this effect is much accelerated by the acute and vibrating sounds of this instrument, by which the

organs of hearing are intensely affected. Perhaps all stringed instruments, which are played by the touch of the fingers, such as the harp, the guitar, and the violin, produce a similar effect on the nervous system; especially if it be true, that the *papillæ*, or the points of the fingers, are the strongest conductors of the supposed nervous fluid. It is at least probable, that to be able to play on such instruments, with expression, requires a more than common sensibility of the nerves, which indeed may be sometimes artificially acquired, but to the detriment of health. For it cannot be doubted, that a local excitement of irritability may be gradually propagated over the whole nervous system; and that, from raising some parts of the body to a preternatural state of sensibility, the common character of those who are called *Virtuosi*, is generally marked with nervous debility. Every body knows in how extraordinary a manner music may influence the mind; that the passions of persons of sensibility may be most effectually roused and allayed by it; nay, that in some individuals, every feeling of the mind can be affected at pleasure, by the various modifications of harmony. As, therefore, sadness, grief, and other depressing passions, may be alleviated by appropriate music, it is an exercise deserving every commendation. Yet we must neither expect to cure by it diseases of the mind, nor their concomitant bodily disorders: this is beyond the power of music, which acts as a palliative only, or as a nervous stimulus, the effect of which is instantane-

neous, but of short duration. For, as soon as the exciting cause ceases, it is succeeded by an uncomfortable sensation of debility and relaxation. It is even probable, that music, like all other anodyne and soothing remedies, may in the end increase the disposition to nervous weakness, by its too frequent repetition.

Lastly, the posture of the body, in practising music, also deserves attention; as the breast and abdomen may be compressed by stooping, so as to cause very serious complaints; and as the eyes may be injured by reading the notes, at too great or short a distance, especially for the double keys of the harp and harpsichord: indeed, reading music is in general more fatiguing to the eyes, than any other kind of exertion.

Friction of the body, which can be performed either by the naked hand, a piece of flannel, or still better by a flesh-brush, is one of the most gentle and useful species of exercise. The whole body may be subjected to this mild operation, but principally the abdomen, the spine, the arms, and legs. It clears the skin, resolves stagnating humours, promotes perspiration, strengthens the fibres, and increases the warmth and energy of the whole system. In rheumatism, gout, palsy, and green-sickness, it is an excellent remedy.

Daily friction of the whole body was with the ancients, and still is in the East Indies, considered one of the most indispensable requisites of a people, who by their indolent manner of life seem to have adopted it, more with a view of indulging in sensual pleasures, than

as the means of preserving health. It is, however, one of the most salutary expedients, by which the whole body receives nearly as much benefit as from a tepid bath, and which, as being in the power of every person, ought to be more frequently and more generally used. To the sedentary, the hypochondriac, and persons troubled with indigestion, who cannot afford leisure to take sufficient exercise, the daily friction of the belly, in particular, cannot be too much recommended as a substitute for other means, in order to dissolve pituitous stagnations, which may be forming in the abdomen, and to re-invigorate the vessels. And though it be not attended with all the advantages enjoyed from exercise in the open air, it still produces a powerful effect on the organs of digestion; for the moderate exercise of a whole day will scarcely invigorate the abdominal vessels, and particularly the stomach, so much as the friction of these parts, continued for half an hour. But, if it be intended for these beneficial purposes, it should be performed in the morning, on an empty stomach, or in bed before we rise, gently and steadily, in a circular direction, and at least for five or ten minutes at a time.

In a weak state of the abdomen, and the nerves in general, we may derive still more salutary effects from friction, if the stomach and the whole abdomen be rubbed every morning, and at night, before going to bed, with a sponge, or a piece of flannel dipped in cold water. This possesses still greater advantages over internal medicines, because it can

be safely employed, even in cases where the alimentary canal, from its obstructed state, scarcely admits of any other remedies, while friction, and the affusion of cold water, generally relieve these obstructions, and even habitual costiveness.

Motion or exercise ought to be continued only till we feel an agreeable lassitude, and a sensible degree of perspiration. If it be carried farther, it weakens instead of strengthening the body, and leaves behind disagreeable consequences to the lungs, filled with heated blood. Even the robust man will experience some, though less unpleasant effects than the debilitated, if he has committed an excess of this nature.

After having taken exercise, we should not venture to rest in a cool place, nor upon a green plot; still less should we expose ourselves to a current of air; but rather frequent a place warmed by the mild rays of the sun in summer, or a moderately warm apartment in winter, so that the sudden change of temperature may not injure us, by suppressing perspiration.

For the same reasons, the thirst we generally feel after exercise, ought not to be instantly satisfied by cooling drink. It is however allowable to drink some warm or diluent liquors, if we cannot wait till the natural warmth be restored. The late Dr. Fothergill very properly advised, that people in a state of perspiration should, to avoid all danger, eat a mouthful of bread, with a little salt, and thus gain time, till the blood and the liquor

to be drunk had acquired a more equal temperature. A small quantity of vinegar, or the juice of lemons in water, is well calculated to quench thirst, and at the same time to promote perspiration. Travellers on foot ought to be upon their guard against too much drink ; for, the more liquids they take, the more they will perspire, and the greater will be the subsequent relaxation and danger of catching cold, when their clothes are saturated with perspirable matter. They should also abstain from drink productive of a laxative effect, which would cause debility, and even faintings. The most suitable of all substances to mix with water, is the pure or essential acid of tartar, with a small quantity of sugar. This affords a cooling and refreshing beverage, without relaxing the bowels, like lemonade. Persons with whom vitriolic acid agrees, may take a tea-spoonful of a mixture, consisting of six or eight parts of spirits of wine, and one part of vitriolic acid, to a pint of water. A beverage made of a weak acidulated wine and water is cooling and strengthening. In the very cold weather of winter, people ought to avoid all heating liquors, such as ardent spirits and strong wines. Warm diluents, such as tea and coffee, are equally improper, and a poor protection against cold ; for their warming property is of short duration ; they are productive of debility, a more torpid circulation of the blood, and consequently of an increase of cold. It is much better to eat previously some solid meat, by which the digestive organs may be exercised, such as cold

animal food and bread, and to drink after it some bitter ale or beer. On the other hand, when we suffer from intense cold, or have been exposed to the wind and weather, a few cups of strong tea, with plenty of cream and sugar, is then the best and safest refreshment: and it is equally invigorating in summer after extreme heat and fatigue. Feeble individuals, whose stomachs generate much acid, and who are frequently troubled on their journies with a sudden voracious appetite, are liable to the most painful attacks of weakness on the road, and on that account they ought always to be provided with some kind of solid food in their excursions. Such persons should carefully abstain from the use of wine, brandy, or other heating and stimulating cordials, while travelling, especially in the morning: they might with more advantage eat some bread and butter, warm or buttered ale, strong broth, gruel, or the like nourishing substances.

We are now to consider the consequences arising from the *want of exercise*. This, indeed, is still more debilitating than too violent motion. The solid parts of the human frame are relaxed by it; the circulation of the fluids is retarded; they gradually stagnate in the smaller capillary vessels; the secretions are diminished; and abundance of moisture or fat is generated, which renders the body, as well as the mind, more indolent and lifeless:—relaxation of the muscles, obstructions of the intestines, hemorrhoids, apoplectic fits, various species of dropfy, and at length a pre-

mature death, are the sad consequences. Men of letters are the most unhealthy of all human beings, because their bodies have scarcely any other exercise but the imperceptible motion of the arms. Want of appetite, flatulency, anxiety, at one time obstructions, at another diarrhœa, and the most diversified nervous symptoms, are their attendants. Sleep is beyond their reach; a thousand tormenting inconveniencies, hypochondriasis, and at length a complete state of melancholy, is too frequently their lot. Temperance alone will not remedy all these evils; for since we cannot remain vigorous and healthy for two days together, with the same mass of blood, a new access of the purest and most subtle parts of our fluids must daily support the nervous system, in order to preserve its regular functions. If this be not continually restored, weakness and relaxation of body and mind are the inevitable consequences; with this difference only, that in a state of debility, from too much bodily exercise, the thick and coarse particles of the fluids are carried into circulation with the others, and the next meal, or the first sleep after it, very soon supplies the deficiency: in mental labour, on the contrary, digestion is interrupted, the crude and viscid parts of food remain unassimilated, and the body is prevented from receiving its proper nourishment. In like manner, the sedentary mechanics and artificers are affected; particularly shoe-makers, taylor, and weavers. They experience hardships similar to those, to which men of letters are subject; and it has

been frequently observed, that they are very liable to diseases of the mind, and especially to religious fanaticism.

Standing, though useful as a change after long sitting, is apt to occasion accumulations of blood, or rather of the ferous part of it, in the lower extremities. Swelled legs are therefore common among printers. It is a posture little calculated to relieve the studious, and the body is at the same time more fatigued by standing than sitting. If we sit much, we must attend to the two following rules: 1. that no part of the body be compressed: and 2. that it be not too long continued at one time. The common manner of sitting, with the head reclined, is extremely pernicious; for the circulation of the fluids in the abdomen is thus checked; the intestines are compressed, and the vessels of the breast contracted. The head also suffers by bending it too much forward; as the blood is thereby impelled to circulate towards it more copiously than is consistent with health. The studious, especially, would do well, not to perform all their avocations in a sedentary posture, but occasionally to relieve at once their body and mind, by standing, or walking about the room. The mode of sitting ought also to be made as convenient as possible, so that both the body and head may be kept in an almost perpendicular posture; that the breast and abdomen may not be obstructed in their alternate expansion; and lastly, that the arms and legs may not be held in a crooked and unnatural position: all this should be

particularly attended to, by those who teach children to read and write. The pressure of the abdominal muscles may in a great measure be prevented by high tables and desks, and by raised stools or chairs, upon which a person rather stands than sits.

To lie or rest horizontally is attended with a cessation of all exercise. If the head be placed low, and this too long continued, there may arise head-ach, by the increased pressure of the blood on the brain. Here, likewise, a frequent change of posture is necessary, in order to obstruct none of the bodily functions, and to prevent the stagnation of humours.

Finally, the *faculties of the mind* deserve no less attention than those of the body.

Alternate changes of tranquillity and activity are equally beneficial to the mind, as rest and exercise to the body. Too long continued, too frequent, and too profound reflections, are alike injurious to both. The same powers are diminished here as in bodily labour, and in a still greater proportion; for muscular exertions, though fatiguing, are reproductive of new vigour. This may indeed be also applied to mental labour, by which the mind improves in capacity, but the body is a sufferer from every unusual exertion of the mind; and, with the body, the mind by degrees also becomes diseased:—in profound meditations the vital spirits are, as it were, withdrawn from the organs of sense; the body is for the time almost deprived of sensation; and we frequently become in a manner

absent. Reflection always directed to one object, not only debilitates, but also suppresses the other faculties of the mind, and does not permit it to deviate from its favourite pursuit. Thus we sometimes see melancholy, nay madness itself, overwhelm persons devoted to the contemplation of one particular object. Intense and abstruse thought, in general, if not checked in time, may be attended with stupor or insanity.

To enable us to reflect seriously upon an important subject, time and place ought to be so chosen that the mind may be diverted by no other object; for two ideas cannot be conceived at one time. Hence we should study in an apartment which is not too light, and where we are undisturbed by noise:—the muscles should not be actively employed during study: it is therefore improper and pernicious, immediately after meals, or before digestion be completed. The morning, indeed, is the most profitable time for study; though necessity and custom make many exceptions; so that some persons, from gradual practice, are able to perform their mental tasks during the greatest noise, and in a room full of children.

Much and frequent inactivity of mind agrees, indeed, well with the body, which in that state fully performs its functions, but it becomes unwieldy, inasmuch as at length to stupify the mental powers: the ideas become obscure and confused; and a total loss of memory, or oblivion of the past, is but too often the consequent effect of such indolence.

C H A P. VI.

Of SLEEPING and WAKING : their just proportion with regard to age, the constitution of the body, mode of life, and other circumstances.

SLEEP and wakefulness are nearly in the same relation to each other as exercise and rest. Waking always presupposes a certain degree of activity ; all the *natural* functions, digestion, the preparation of the chyle and blood, assimilation, secretion and excretion, are then more vigorously performed, and would soon exhaust their powers, if sleep did not restore to them the beneficial and indispensable supplies.

Sleep is therefore necessary to existence and health, and it is an improper and fruitless attempt, to deprive ourselves, by an ill-directed activity, of the requisite portion of this refreshment ; for Nature will maintain her rights, in spite of our efforts to subvert them : and both body and mind suffer, without attaining any real advantage from an extravagant watchfulness.

Before I proceed to inquire into the consequences arising from either too much or too little sleep, it will be useful to premise a concise theory, or the physiology of this suspension of the mental powers.

When the body is fatigued, when the senses, together with the voluntary motions of the muscles, have been for some time active, we stand in need of the alternation of rest,

which is obtained by sleep. During a sound sleep, the senses, and the voluntary muscular motions, are not exercised; but the *vital* functions, such as respiration, and the circulation of the blood, as well as most of the natural functions aforementioned, are regularly though more slowly performed. During sleep, therefore, the motion of the heart and the blood-vessels, even the action of the brain and the nervous system, as likewise the peristaltic or vermicular motion of the stomach and the intestines, and the secretion of the fluids, are performed in an uniform and steady manner. Previous to sleep, we perceive a languor of the senses, and of the muscles which are subject to our will, and of those also which keep the body in an erect posture; the head inclines downwards, the upper eye-lid and the lower jaw-bone likewise sink, the venous blood accumulates towards the heart, and compels us to yawn, in order to facilitate the transition of the blood into the lungs, by the deep breathing which takes place: finally, the brain itself, as the organ of the mind, appears to be fatigued; hence our ideas become irregular, and there arises a kind of faint imbecility of the understanding. That the motions of the heart are stronger during sleep, and that perspiration is more active, must be ascribed to the warmth of the bed-clothes, by which the insensible perspiration softens and relaxes the skin. But a person, who sleeps in his usual dress, will feel chilly; and those animals that sleep long, as the hedge-hog, the murder-deer

(*Marmota Alpina*, L.) suffer an extraordinary degree of cold.

As the senses are inactive during sleep; as the nervous energy is less exhausted, and its secretion continued, a new supply of it is collected, and the organs of sense, as well as the muscles, receive additional vigour. This occasions us to awake, particularly if roused by any stimulus. While we are asleep, the nutritive particles can more easily attach themselves to the fibres, and fat also is more readily generated, from the retarded circulation of the blood. After we have slept sufficiently, we are apt, on awaking, to stretch the limbs and joints of the body, and sometimes to yawn: the latter, with an instinctive desire of promoting the circulation of blood through the lungs, which was retarded during sleep; the former, namely stretching, in order to assist the extensor muscles, which, by the flexion of the limbs in sleep, had been more extended, and in order to expand again the flexor muscles, that had been moderately contracted.

The proximate cause of sleep appears to be an impeded motion of the nervous fluid in the brain. This motion is produced by a kind of collapse of the subtle insertions of the nerves, as well as by a mechanical compression of them. Hence we can explain, how things so totally opposite are able to produce sleep, when they either exhaust or compress the tubes of the nerves. Of the former kind is every violent and fatiguing species of labour, a considerable loss of blood, perspiration

increased by external heat, and every thing that withdraws the blood from the head; for instance, warm baths of the lower extremities, a stomach filled with much food, &c. Of the latter kind of incitements to sleep, namely, those that act by compression, is every mechanical pressure on the brain, whether it proceed from water accumulated in its ventricles, from a local depression or fracture of the cranium, or from extravasated blood:—in like manner, the impeded regress of the blood from the brain, or the increased access of it to that organ, may effect such a pressure, by distending the blood-vessels, as is the case in using narcotics, or wine and other spirituous liquors; and, lastly, an intense degree of cold, as well as the state of an approaching apoplexy. Sleep is promoted by tranquillity of mind; by the absence of every stimulus to the body; by silence and darkness around us; by a complete rest of the senses; by gently and uniformly affecting one of the senses, for instance, by music or reading; and, lastly, by a gentle external motion of the whole body, as by rocking or sailing. On the other hand, every painful sensation, a great noise, a bright light, strong exertions of mental powers, and particularly violent passions, are calculated to prevent sleep. Thus likewise sleep may be impeded by hot, spicy, and other kinds of drink, which are said to occasion a more speedy secretion of the nervous fluid.

Dreams are vagaries of the imagination, and in most instances proceed from external sen-

fations. They take place only, when our sleep is unfound, in which case the brain and nervous system are capable of performing the motions above described. We seldom dream during the first hours of sleep; perhaps, because the nervous fluid is then too much exhausted; but dreams rather occur towards the morning, when this fluid has been, in some measure, restored. Every thing capable of interrupting the tranquillity of mind and body, may produce dreams. Such are the various kinds of grief and sorrow, exertions of the mind, affections and passions, crude and undigested food, a hard and inconvenient posture of the body. Those ideas which have lately occupied our mind, or made a lively impression upon us, generally constitute the principal subject of a dream, and more or less employ our imagination, when we are asleep. Animals are likewise apt to dream, but seldom; and even men living temperately, and enjoying a perfect state of health, are seldom disturbed with this play of the fancy. Nay, there are examples of lively and spirited persons who never dream. The great physiologist, HALLER, considers dreaming as a symptom of disease, or as a stimulating cause, by which the perfect tranquillity of the *sensorium* is interrupted. Hence, that sleep is the most refreshing, which is undisturbed by dreams, or, at least, when we have no clear recollection of them.

I have before observed, that most of our dreams are sports of fancy, and derive their origin chiefly from external impressions: al-

most every thing we see and hear, when awake, leads our imagination to collateral notions or representations, which, in a manner spontaneously, and without the least effort, associate with external sensations. The place where a person whom we love formerly resided, a dress similar to that which we have seen her wear, the objects that employed her attention, no sooner catch our eye, than she immediately occupies our mind. And, though these images, associating with external sensations, do not arrive at complete consciousness, within the power of imagination, yet even in their latent state they may become very strong and permanent. I have been informed, for instance, of a young man, who was attacked with convulsions, every time he heard the name of *Jesus* repeated; owing, it seems, to the circumstance of his mother having once invoked the name of Jesus in a terrific voice and manner, when she, as well as the boy, were much frightened by a tremendous peal of thunder. But this is only an indirect demonstration of the existence of a faculty, which is very active in dreams, and which may be aptly called the *subreasoning faculty*, or the power of abstracting similarities. The conclusions, thus formed, are more frequent and active, than in the waking state; because they are seldom controlled by the reflections of reason. I shall make use of one illustration only.

Very frequently we find, that in a dream a series of representations is suddenly interrupted, and another series of a very different kind

occupies its place. This happens, as soon as an idea associates itself; which, from whatever cause, is more interesting than that immediately preceding. It then becomes the prevailing one, and determines the association. Yet by this, too, the imagination is frequently re-conducted to the former series. The interruption in the course of the preceding occurrences is remarked, and the power of abstracting similarities is in search of the cause of this irregularity. Hence, in such cases, there usually happens some unfortunate event or other, which occasions the interruption of the story. The representing power may suddenly again conduct us to another series of ideas, and thus the imagination may be led by the subreasoning power before defined, from one scene to another. Of this kind, for instance, is the following remarkable dream, as related and explained in the words of Prof. MAASS, of *Halle*: "I dreamed once," says he, "that the Pope visited me. He commanded me to open my desk, and he carefully examined all the papers it contained. While he was thus employed, a very sparkling diamond fell out of his triple crown into my desk, of which, however, neither of us took any notice. As soon as the Pope had withdrawn, I retired to bed, but was soon obliged to rise, on account of a thick smoke, the cause of which I had yet to learn. Upon examination, I discovered, that the diamond had set fire to the papers in my desk, and burnt them to ashes."

This dream deserves a short analysis, on account of the peculiar circumstances which occasioned it. "On the preceding evening," says Prof. Maafs, "I was visited by a friend, with whom I had a lively conversation upon Joseph II.'s suppression of monasteries and convents. With this idea, though I did not become conscious of it in the dream, was associated the visit which the Pope publicly paid the Emperor Joseph at Vienna, in consequence of the measures taken against the clergy; and with this again was combined, however faintly, the representation of the visit, which had been paid me by my friend. These two events were, by the subreasoning faculty, compounded into one, according to the established rule—that things which agree in their parts, do also correspond as to the whole;—hence the Pope's visit was changed into a visit made to me. The subreasoning faculty, then, in order to account for this extraordinary visit, fixed upon that which was the most important object in my room, namely, the desk, or rather the papers locked up in it. That a diamond fell out of the triple crown, was a collateral association, which was owing merely to the representation of the desk. Some days before, when opening the desk, I had broken the glass of my watch, which I held in my hand, so that the glass fell among the papers. Hence no farther attention was paid to the diamond, being a representation of a collateral series of things. But afterwards, the representation of the sparkling stone was again excited, and

became the prevailing idea ; hence it determined the succeeding association. On account of its similarity, it excited the representation of fire, and was indeed confounded with it. Hence arose fire and smoke. But, in the event, the writings only were burnt, not the desk itself ; to which, being of comparatively less value, the attention was not at all directed."

It is farther undeniable, that there are in the human mind certain obscure representations, and that it is of great advantage to be convinced of the reality of these images, if desirous of perceiving the connexion subsisting among the operations of the imagination. Of the numerous phenomena, founded on obscure ideas, and which consequently prove their existence, I shall only remark the following. It is a well known fact, that many dreams originate in the impressions made on the body during sleep ; that they consist of analogous images, or such as are associated with sensations that would arise from these impressions during a waking state. Hence, for instance, if our legs are placed in a perpendicular posture, we are often terrified by a dream, that implies the imminent danger of falling from a steep rock or precipice. The soul must represent to itself these external impressions in a lively manner, otherwise no ideal picture could be thus excited. But, as we do not become at all conscious of them, they are but faintly and obscurely represented.

If we make a resolution of rising earlier in the morning than usual ; and if we imprint

this determination on our mind, immediately before going to bed, we are almost certain to succeed. Now it is self-evident, that this success cannot be ascribed to the efforts of the body, but altogether to the mind; which probably during sleep perceives and computes the duration of time, so that it makes an impression on the body, whereby we are enabled to awake at an appointed hour. Yet all this takes place, without our consciousness, and the representations remain obscure.

Many productions of art are so complicated, that a variety of simple conceptions are requisite to lay the foundation of them; yet the artist is almost entirely unconscious of these individual notions. Thus, a person performs a piece of music, without being obliged to reflect, in a conscious manner, on the signification of the notes, their value, and the order of the fingers he must observe; nay even without clearly distinguishing the strings of the harp, or the keys of the harpsichord.— We cannot attribute this to the mechanism of the body, which might gradually accustom itself to the accurate placing of the fingers.— This could be applied only where we play a piece of music, frequently practised; but it is totally inapplicable to a new piece, which is played by the professor with equal facility, though he has never seen it before. In the latter case, there must necessarily arise an ideal representation, or an act of judgment, previous to every motion of the fingers.

These arguments, I hope, sufficiently evince the occurrence of such obscure notions and

representations, as lay the ground-work of all our dreams. That among the thousands and millions of fanciful and supposed ominous dreams, some are occasionally realized, is not a matter of astonishment; but many people, particularly the victims of the lottery, too frequently find reason to regret, that these omens are not always to be depended upon; if those deluded visionaries would permit themselves to reason, and to calculate, they would discover, that there are as many chances against their dream being realized, as there are against their ticket turning up a twenty thousand pounds prize.

Before I quit this subject, I shall relate an extraordinary dream of the celebrated Italian, GALILEO. When this great man, at a very advanced age, had lost the use of his eyes, he was once conducted in his walks over a beautiful plain, by his pupil, TORICELLI. "Once," said the aged sage, "my eyes permitted me to enjoy the charms of these fields. But now, since their light is extinguished, these pleasures are lost to me for ever. Heaven justly inflicts the punishment which was predicted to me many years ago. When in prison, and impatiently languishing for liberty, I began to be discontented with the ways of Providence; COPERNICUS appeared to me in a dream; his celestial spirit conducted me over luminous stars, and, in a threatening voice, reprehended me for having murmured against him, at whose *fiat* all these worlds had proceeded from nothing. "A time shall come," said he, "when thine eyes shall refuse to assist thee in contemplating these wonders."

After this long, though I hope not uninteresting digression, I proceed to state the consequences arising from too much or too little sleep.

To continue in a waking state, beyond a proper time, consumes the vital spirits, disorganizes the nerves, and causes so many uneasy sensations, that a considerable while must elapse, before we can fall asleep, namely, until their greatest violence has abated. The fluids of the body become acrid, the fat is consumed, and there arises at length an inclination to vertigo, violent head-ach, anxiety, actions without connexion, without design, and without consistency. Those who indulge themselves in much sleep, are seldom liable to very strong passions. Persons, on the contrary, who sleep too little, frequently contract a violent and vindictive temper. Long-continued wakefulness is capable of changing the temper and disposition of mind of the most mild and gentle; of affecting a complete alteration of their features, and, at length, of occasioning the most singular whims, the strangest deviations in the power of imagination, and, in the end, absolute insanity.

Excess of sleep, however, is not less prejudicial. The whole body sinks gradually under a complete state of inactivity, the solid parts become relaxed, the blood circulates slowly, and remains particularly long in the head: perspiration is disordered, the fluids are incrassated, the body increases in fat and thick humours, and is rendered incapable of being the medium of mental exertion, the

memory is enfeebled, and the unhappy sleeper falls into a thoughtless lethargic state, by which his sensibility is, in a great measure, destroyed.

Persons troubled with hypochondriasis and hysterics do themselves much injury by sleeping too long, especially in the morning, when the body is much weakened by its too long continuance in a heated and unwholesome atmosphere. To such individuals, it is also dangerous to remain for a length of time in a state of inactivity. Indeed, excess in sleeping is detrimental to the muscular powers of every person; to the phlegmatic, especially, whose fluids will thus soon be universally corrupted; and sanguine temperaments thereby acquire a superabundance of blood. The melancholy, whose blood circulates slowly, must suffer inconveniencies in their secretions and excretions by this indulgence; and we generally find, that long sleepers are afflicted with costiveness and obstructions.—Early rising, and timely going to bed, may alone render them more healthy and vigorous.

If it can be advantageous to any description of persons, to sleep beyond the usual portion of time, it is to the choleric. To sleep immediately after supper, is apt to occasion the night-mare, or a stagnation of the blood, which, by its pressure, produces the sensation or idea of this troublesome bed-fellow. It is principally the nervous, the debilitated, and those of an impaired digestion, who are visited by such terrifying dreams.

The proper duration of sleep, in youth and adults, is usually settled at six or seven hours; in children and the aged, from eight to nine hours. Yet the individual deviations in the constitution of the body, and its various wants, scarcely admit of any accurate rules. The more bodily weakness we feel, the more we may indulge in sleep, provided it be refreshing. If people in a state of health are perfectly cheerful in mind and body, when they first awake, this is the most certain criterion, that they have slept sufficiently.

We should, however, be on our guard, not to confound the natural wants of the body with a blameable custom. For most persons habitually sleep too much, or remain longer in bed than they ought. The principal cause of this destructive custom undoubtedly arises in infancy; when children are permitted to sleep in very soft and heating beds, and encouraged to lie longer than is proper, from a mistaken notion that they cannot sleep too much. From this injudicious treatment, they cannot attain a solid texture of the body, and a foundation is laid for many subsequent diseases. The rickets, so very common in many families, in the present age, often originate in such indulgencies, since the general relaxation of the body, and the tendency to profuse perspiration, is thus promoted in an extraordinary degree. At the age of puberty, this effeminacy of the body, and the inclination to sleep, together with the pleasant sensation, which a soft and warm bed affords in a waking state, are certainly the first and most fre-

quent causes of a vice, that might be effectually prevented by early rising.

The custom of sleeping long, when continued to the state of manhood, becomes so habitual that it cannot be relinquished without great struggles, and a firm resolution. Those, then, who are not possessed of this firmness, instead of attaining a strong constitution, will acquire a phlegmatic, relaxed, and cold temperament, which will render them irresolute, and incapable of energetic efforts; and from which the mind, by degrees, becomes as indifferent towards every object, as the body is unfit for muscular exertion.— Hence, to listen to the voice of Nature, in this respect, will contribute more to our happiness, than to shorten our repose by many of the usual but violent means of excitement, when the body is in want of rest.

To children, at a very early period of life, no limits of sleep can be prescribed; but, after the sixth or seventh year of age, some regulations become necessary, to habituate them to a certain regularity. The just proportion of sleep can be ascertained only, by their more or less lively temperament, by their employments, exercise and amusements through the day, and according to the more or less healthy state of their bodies. In pursuing this measure, however, we must not attempt to awaken children from their sleep, in a violent or terrifying manner, which is frequently done, and is extremely pernicious.

In great disquietude of mind, and after violent passions, sleep is the more necessary, as

these agitate and exhaust the frame, more than the most fatiguing bodily labour. Hence, many persons never sleep so sound, as when they are afflicted with grief and sorrow. A fretful and peevish temper, as well as a fit of the hypochondriasis, cannot be more effectually relieved, than by a short sleep. Frequently, after a sleep, of a few minutes only, we awake refreshed, we can reflect on our difficulties with a calm mind, and again reconcile ourselves to the troubles of life. In such situations, though we should not be able to sleep, even a quiet posture of the body, with the eyes closed, is of some advantage.

There is scarcely any misfortune so great, that it cannot be relieved or alleviated by sleep; as, on the contrary, we should inevitably sink under its pressure, if this beneficent balm did not support us. Yet, frequently too, uneasiness of mind, by its continual stimulus on the *cenforium*, prevents all sleep: hence the unquiet repose and even whole sleepless nights of those, whose heads are filled with cares or important schemes. As mental labours exhaust our strength more than those of the body, literary men, who employ themselves in long and profound reflections, require more sleep than others. Though some persons, whose body and mind are equally indolent, have a greater inclination to sleep, than the lively and laborious, yet it is not so beneficial to them; since they are destitute of the essential requisites to health, namely, activity and vigour.

The most healthy, and those who lead the most regular lives, frequently have an uneasy and very short sleep: they also require less rest at one time than another. He who digests easily, stands less in need of sleep than others. After taking aliment difficult of digestion, Nature herself invites to the enjoyment of rest, and to sleep in proportion to the time which is required for the concoction and assimilation of food.—Excessive evacuations of whatever kind, as well as intoxication by strong liquors, render additional sleep necessary. In winter and summer, we require somewhat more time for sleep than in spring and autumn; because the vital spirits are less exhausted in the latter seasons, and the mass of the blood circulates more uniformly, than in the cold of winter or heat of summer, when it is either too much retarded, or accelerated.

It is very improper to sit up too late in the long winter evenings, whether at the desk or the bottle, either of which is then more hurtful than in summer, because the want of sleep is greater. Those who wish to spend the winter in good health, and useful labour, should retire to bed at eight o'clock in the evening, and rise at three or four o'clock in the morning. A winter morning, indeed, is not very charming, but the evening is *naturally* still less so; and there is no doubt, that we can perform every kind of work, with more alacrity and success, in the early part of the day than at night; and that our eyes would likewise be benefited by this regula-

tion, after sleep has enabled them to undertake any task in the morning; but they are fatigued at night, from the exertions of a whole-day.

Every stimulus may interrupt sleep, or at least render it uneasy, and often occasion dreams, the cause of which is generally owing to an irritation in the stomach, or in the intestinal canal. Dreams are, as it were, a middle state between sleeping and waking, and generally indicate some defect in the body, unless they give representations which originate in the occurrences of the preceding day.

An uneasy sleep, which is obvious from starting up, or speaking in it, and from a frequent change of the posture in bed, is at no time a good symptom; it is as frequently a forerunner, as it is the effect of disease, and may be owing to the following causes:

1. Emotions of the mind and violent passions always disorder the vital spirits;—at one time they increase, at another diminish, and sometimes altogether check their influence, the consequences of which extend to the whole circulation of the blood. Sorrows and cares produce a similar effect. Hence the nocturnal couch is a very improper place to prosecute moral researches, or to recollect what we have done, spoken, and thought through the day.—To read interesting letters, received late in the evening, usually too occasions an unquiet sleep.

2. A bad state of digestion, and especially hard or corrupted food, on account of the connexion of the brain with the stomach.

3. A repelled perspiration, if we have not covered ourselves conformably to the climate, season, and weather.—In this case, a current of air is still more hurtful than intense cold.

4. An apartment or bed to which we are not accustomed may also occasion an uncomfortable sleep, as travellers frequently experience. It is therefore an essential part of a good and healthful education, to accustom children to sleep alternately upon different, and harder or softer couches, in various parts of the house, more or less temperate, which consequently enables them to sleep comfortably in a simple but clean bed, in whatever place or situation they may find it.

Debilitated persons injure themselves much by sleeping during the day, against the order of Nature, and keeping awake the greater part of the night. Day-light is best adapted to active employments; and the gloom and stillness of the night to repose. The evening-air which we inhale soon after sun-set, and night-air in general, which is vitiated in the country by the exhalations of plants, is very detrimental to the delicate. The forced watchfulness of those who apply themselves in the night to mental pursuits, is exceedingly prejudicial. A couple of hours sleep before midnight is, according to old experience, more refreshing than double the quantity after that period.

The question, whether to *sleep after dinner* be advisable, must be decided by a variety of concurrent circumstances; custom, bodily constitution, age, climate, and the like.

In a weak and slow state of digestion, after having taken hard or solid food, we may indulge ourselves in a short sleep, rather than after a meal consisting of such nourishment, as by its nature is easily concocted. But debilitated young people especially should not sleep too much, though their weakness incline them to it; for the more they indulge in it, the greater will be their subsequent languor and relaxation.

Individuals of a vigorous and quick concoction may undertake gentle, but not violent exercise, immediately after meals, if they have eaten food that is easily digestible, and which requires little assistance, but that of the stomach and its fluids. And even such persons, if they have made use of provisions difficult to be concocted, ought to remain quiet after dinner, and may occasionally allow themselves half an hour's sleep, in order to support digestion.

To rest a little after dinner, is farther useful to dry and emaciated persons, to the aged, and persons of an irascible disposition; to those who have spent the preceding night uneasily and sleepless, or have been otherwise fatigued, in order to restore regularity in the insensible perspiration; but in this case the body must be well covered, that it may not be exposed to cold. Such as are fond of sleeping at any time of the day, are usually more indolent and heavy after it than before. A sleep after dinner ought never to exceed one hour; and it is also much better sitting than lying horizontally; for, in the latter case, we

are more subject to fluctuations of the blood towards the head, and consequently to head-ach.

Much depends upon the manner of lying in bed, and on the posture to which we accustom ourselves. To lie on the back, with the arms over the head, prevents the circulation of the blood to the arms, and is not unfrequently productive of serious consequences. It is equally pernicious to lie in a crooked posture, or with the breast very low and bent inwards; for the intestines are thereby compressed and obstructed in their motions, and the blood cannot easily circulate downwards; whence may arise giddiness and even apoplexy. Lying on the back is equally improper, and produces frightful dreams, together with many other inconveniencies; the reverse posture is likewise noxious, as the stomach is thus violently oppressed, the free respiration much impeded, and the whole circulation of the fluids in the chest and abdomen wantonly prevented, to the great injury of health.

The most proper posture, then, is on one side, with the body straight, the limbs slightly bent (not stretched, because they ought to rest) so that the body may lie somewhat higher than the legs. When the head is laid high, a short sleep is more refreshing than a longer one when it is reclined too low. To healthy people it is a matter of no consequence on which side they lie, and they may safely, in this respect, follow their own choice. Some dietetical observers allege, that it is better to lie in the evening on the right, and in the

morning on the left side ; that in the evening the food may more readily leave the stomach, and that afterwards this organ may be better warmed by the liver.

In the evening we should eat light food only, and that sparingly, wait for its digestion, and consequently not lie down till two or three hours after supper. The mind ought to be kept quiet and cheerful, previous to going to rest : we should then, as much as possible, avoid gloomy thoughts, which require reflection and exertion. It is therefore a pernicious and dangerous practice to read ourselves asleep in bed. We would do much better, to exercise ourselves a little before bed-time, by walking up and down the room.

Sleep without dreams, of whatever nature they may be, is more healthful than when attended with these fancies. Yet dreams of an agreeable kind promote the free circulation of the blood, the better concoction of food, and a due state of perspiration. The contrary takes place in unpleasant dreams, which excite anxiety, terror, grief, fear, and the like. In the latter case, they are of themselves symptoms of irregularity in the system, of an approaching disorder, or of an improper posture of the body. The functions of the body before mentioned are impeded by such dreams ; and the vital spirits, which ought to be restored and cherished, are again dissipated by violent emotions, insomuch that the body and the mind continue unrefreshed.

In order to preserve the body warm, we make use of feather-beds and covers :—in

summer, at least, we ought to sleep upon mattresses. It is a most essential requisite to every person, who wishes to lead an agreeable, active, and useful life, to provide himself in time with a *proper* couch. To insure all the advantages which may be derived from this quarter, nothing is better than a mattress filled with horse-hair, or, if cheapness be an object, with dry moss, at least six inches thick. Several of such mattresses may be placed one above another; the bolster ought to be well stuffed and elastic; in winter with feathers, and during the summer with horse-hair, more or less high, according to circumstances, but always so that the head may lie considerably more elevated than the breast and the rest of the body.

The cover should never be tucked in too closely, that the access of external air may not be altogether excluded. If we make use of a bedstead or a sofa provided with steel springs, one of the mattresses above described, with a similar bolster, and the light cover of a double blanket, will be found sufficient. These beds are not only the most convenient for early risers, but also the most conducive to health. The higher classes of society in Ireland appear to be so well convinced of the salubrity of this mode of sleeping, that their children, instead of being placed on enervating feather-beds, are habituated to sleep upon bags filled with cut straw, with blankets laid over the bags for softness, and but slightly covered. I understand, that this praise-worthy practice is every day becoming more general.

Indeed, there is no doubt that the muscles and nerves are more braced by a proper elastic couch, than either by the most exquisite down of Norway, or the most powerful tonic or strengthening remedies taken internally. Yet these remarks are applicable only to the healthy state of the body, when Nature requires no additional aid or precaution, in managing the organs of perspiration.—Every bed ought to be so regulated, that it may slope down imperceptibly towards the feet; and if the particulars before stated be attended to, a healthy person will never sleep too long: he will generally awake in six hours, feel himself refreshed, rise with cheerfulness, and be fit to undertake any exertions, either of body or mind.

What has been remarked in a former Chapter on Dress, and the advantages derived from covering the skin with animal wool, particularly in enervated and infirm people, is likewise applicable here, with respect to the dress, and the immediate covering of the skin, when in bed. Though we usually undress ourselves as far as the shirt, partly for the sake of cleanliness, and partly with the view of relieving the body from every pressure and incumbrance, and of promoting a free circulation of the blood; yet we should be cautious, lest we materially hurt ourselves by a sudden exposure to the air, when undressing, especially after the hot and sultry days of summer. A long and commodious night-gown of flannel would be a proper night dress; especially for those who retire to their bed immediately

after the bath, in order to preserve a gentle degree of perspiration.

The head should not be covered with a warm flannel or worsted night-cap, as it were to make it a vapour-bath; the thinnest cotton or linen cap being fully sufficient. The consequences resulting from the pernicious practice of keeping the head too warm, have been explained on a former occasion. The shirt-collar should be loose, the wristbands open; and if from a bad habit we have been accustomed to wear neckcloths during sleep, they should be tied as loosely as possible. Persons who are naturally chilly in the lower extremities, or are liable to pains of the stomach and abdomen, would do well to sleep in woollen stockings, but not in the same which they have worn through the day.

The *feather-beds*, in which we usually sleep, are certainly hurtful in many diseases, some of which they may even produce. For they absorb or imbibe the perspired vapours thrown out of the body, without our being able to cleanse them of these impurities, which are again re-absorbed and re-conducted through the pores, to the great injury of health. For this reason, mattresses filled with horse-hair, or moss, are in every respect preferable. But, as many individuals have not sufficient resolution to use these, or are apprehensive of the consequences attending a sudden change, they may at least cause their feather-beds to be frequently and carefully shaken, aired in the sun, and provided with a new covering. For the same reason, the bed ought not to be made

immediately after rising, as is generally practised; but the clothes should be taken off, spread out, and not laid on the bed, until the time of going to rest draws near. Farther, it is highly improper to sleep in beds overloaded with clothes: they heat the blood more than is consistent with health, and produce an immoderate and enervating perspiration, which still more weakens the organs already relaxed by sleep.

The custom of sleeping with the curtains drawn close, is pernicious to health, because the copious exhalations which then take place, cannot be properly dissipated, and are consequently again absorbed. It is also imprudent to hide the head almost entirely under the bed-clothes. Persons who cannot sleep without curtains, should tuck up the lower ends of them, or place them over chairs, so that they may not lie close to the bed, but admit a more free access of air; that side alone, which is next the wall, ought to be entirely covered with the curtain.

For similar reasons, the large common sleeping halls, or wards in public schools, as well as in hospitals, are extremely prejudicial to health; though they may be necessary evils, and cannot be easily remedied in the great seminaries of education. Neither the most healthy situation, with high, lofty, and spacious apartments; nor the daily practice of airing and cleaning them, are sufficient to counteract the bad effects arising from this baneful custom of crowding so many persons together to breathe in a common and confined atmosphere.

From these considerations, as well as in many other respects, the sleeping together in one bed, whether children or adults, is at best a disgusting and immoral custom; besides the positive disadvantages it has with respect to health. Unless poverty or necessity render this custom unavoidable, it ought not to be practised, either among married or other persons, and still less among children. It has been remarked, even in the domestic economy of barbarous nations, that, in general, every individual has a separate couch.

The old custom of warming the bed also deserves to be condemned; as it has a direct tendency to produce weakness and debility. This will be still more dangerous, if it be done with a charcoal fire, which, by its poisonous vapours, may prove very pernicious. A person who is accustomed to sleep in a cold bed, will not feel much inconvenience in the severest cold; for, after being a short time in bed, the natural warmth of the body will overcome it: as, on the contrary, those who sleep in a warmed bed, will be the more liable to feel cold, as soon as this artificial heat is dissipated.

If it can be avoided, the bed-room ought not to be on the ground floor, nor towards the North. Many people prefer this situation in summer, on account of the cool air; they should, however, consider that, in such an apartment, the morning as well as the night-air, is damp and unwholesome. A bed-chamber ought to be exposed to the early rays of the sun, which awake man in a state of health

at a proper time, and enliven, strengthen, and incite him to leave the bed, after having been refreshed by rest. It is, farther, more advisable to endure a moderate degree of heat, which may be modified at pleasure, by various means, than to inhabit damp and low-situated apartments, from which the moisture cannot be easily dried up in summer.

A spacious and lofty room should always be chosen for a bed-chamber; for small closets and, above all, concealed beds are extremely objectionable.—The windows should never be left open at night; and as damp rooms are very prejudicial to health, we ought to pay particular attention, that the bed may not be placed near a damp wall. It is in every case preferable to place the bed so, that all the sides of it stand free. This method of placing the bedstead, in or about the middle of the room, has another advantage which, with timorous persons, is perhaps of importance. It is well known, that a flash of lightning, if it accidentally enter through a window, will take its direction along the walls, and not touch any thing placed in the middle of a room.

Lastly, no candle or rush-light should be kept burning during the night in a bed-room; for it not only vitiates the air in a very considerable degree, but it disturbs and prevents the rest of those whose sleep is uneasy, particularly the aged. In a dark apartment, sleep generally comes without much invitation;

as, on the other hand, the light of a candle stimulates the brain, consequently the whole nervous system; and the approaching comforter, whose arrival we so fondly wish, is thereby prevented, or easily interrupted, and banished to calmer regions.

END OF THE FIRST VOLUME.

ADVERTISEMENT TO THE FIRST EDITION.

THESE Lectures, with the exception of the Eighth and Ninth Chapters, were delivered last winter* at Bath, and in the spring at Bristol, to numerous and respectable audiences. The Author had no intention, at that time, to publish them; but as he found no Work, in the English language, comprehending such a systematic view of the various and important objects which came more immediately under his consideration, and conceived that the dissemination of the rules selected by him might be generally useful, he was induced to alter his resolution, and submit them to the candour of the Public.

To many English and German writers he must acknowledge his obligations, in the composition of his Work. Among the former, he has occasionally availed himself of the excellent Writings of PRIESTLEY, on the subject of *'Air and Weather;'* of FOTHERGILL and VAUGHAN, on *'Dress;'* and of ARMSTRONG, CULLEN, and FALCONER, on *'Food and Drink.'* To Dr. FOTHERGILL also, on the subject of *'Sleeping and Waking,'* he is much indebted, as well as to Mr. ADAMS's useful Treatise on the *'Treatment and Preservation of the Eyes.'*

Beside the valuable observations drawn from all these sources, he has been greatly assisted by the opinions of several German writers, viz. INGENHOUS, HAHNEMANN, HUFELAND, MARCARD, SÆMMERING, UNZER, ZIMMERMANN, and others; having derived considerable advantage from the general result of their respective inquiries on the subject of Diet and Regimen.

Although it can scarcely be expected that a Work of this nature should be perfect, or free from inaccuracy, the Author has spared no pains to render it deserving of the public favour, and trusts it will be found a domestic guide both to families and individuals.

Should the rules and cautions, interspersed throughout, tend, in the smallest degree, to increase the knowledge of the inquisitive, dissuade the unwary from injurious habits, or rescue the sensualist from the brink of destruction, the exertions of the Author will be amply compensated.

* In the months of January and February, 1798.

ADVERTISEMENT

TO THE SECOND LONDON EDITION.

THE first Edition of these Lectures having met with a degree of approbation beyond the most sanguine hopes of the Author, he has testified his grateful sense to a discerning Public, not only by correcting and improving every page of the Work, but likewise by enlarging and rendering it as complete as the limits of a single volume would admit.

Many important and useful articles have been added, especially in the Fifth Chapter, "Of Food and Drink." The principal *new subjects* the Reader will, on consulting the Alphabetical Index, find under the terms—*Arrow-root—Artichokes—Asparagus—Barley—Beans—Beet-root—Cow-pox—Consumption—Exercise—Figs—Game—Lobsters—Manna-grass—Metallic Tractors—Millet—Oats—Oil—Olives—Parsnips—Rice—Sago—Salsafy—Salt—Skirret-root—Small-pox—Tamarinds—Vinegar, &c. &c.*

The quotations translated from Dr. Mead's "Medical Precepts," and inserted in the conclusion of these Lectures, will be deemed interesting by every reflecting mind.

To this edition the Author has added a "*Postscript*," to which he refers the Reader with respect to the limited design of the present book, and the practical tendency of a new work, "On the Dietetic Treatment and Cure of Diseases;" which will contain the farther application of these Lectures in a diseased state of the body.

With this view, he has thought proper to subjoin a series of *Queries*, addressed to those patients who are anxious to give an accurate and satisfactory account of their disorder, when consulting medical men, especially if they cannot have the benefit of an interview.

