The code of health and longevity : or a general view of the rules and principles calculated for the preservation of health, and the attainment of long life.

Contributors

Sinclair, John, Sir, 1754-1835.
University of Glasgow. Library

Publication/Creation

London, 1816.

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pleasures of domestic life,—the satisfaction of having a numerous, and thriving family*,—or the gratification of public applause. Though exposed to obloquy, as all Public Characters are, yet my exertions have been extensively celebrated, and my labours have been fully appreciated, both at home and abroad, as coming, not only from a British Patriot, but from one who ought to be considered "*a Benefactor to Mankind.*"

I trust, however, that my *race of public utility* has not yet been completed. I wish to leave behind me, "*Condensed Digests,* or *Codes,*" of the knowledge that has been accumulated, during both the present and former ages, regarding the four most important branches of human inquiry:

1. Agriculture.
2. Health.
3. Political Economy;—and,
4. Religion.

Codes of the two first of these subjects have been already published, and gone through several editions, both at home and in foreign countries†. They require

* Twelve of whom are now living.

† The Code of Agriculture was originally published anno 1817. It was afterwards translated into the French, the German, and the Danish languages. It has gone through three editions in this country, and one in America. A fifth edition, *in the English language*, will soon be ready for the press.

The Code of Health has gone through four editions in this country, and has been translated into the French and German languages.

mankind, from the superior knowledge which greater experience and longer observation generally furnish, what can be more important, than to endeavour to preserve our health and strength, that we may be the better enabled to perform beneficial and useful actions to our fellow-creatures? For, THE POWER OF DOING GOOD, IS THE CHIEF OBJECT FOR WHICH EXISTENCE IS DESIRABLE.

It is the more necessary that the attention of the public should be frequently directed to these most interesting subjects, because men, when living in an artificial or civilized state, are more apt to become unhealthy, and to perish at an earlier age, than in a more simple state of society. In periods of civilization and luxury, it frequently happens, that men have been bred up with too great indulgence; that their food is less wholesome; and that fermented liquors, or ardent spirits, are taken in destructive quantities. In great cities, the rich neglect to take regular exercise; are improperly clothed, out of caprice or fashion; and are in some measure obliged, by the force of prevailing custom, if they wish to live in society, to follow, in regard both to food and rest, the pernicious practice of late and irregular hours. On the other hand, the poor are crowded in mean houses, use unwholesome food, and are employed in various unhealthy occupations, the sources of numerous complaints. As the intercourse of nations also becomes more frequent, all ranks are subject to a number of infectious disorders; and from an ardent desire, at all hazards, of acquiring wealth, great numbers are induced to reside in unhealthy climates, amidst disease and contagion.

In civilized society, likewise, there is an additional source of debility and disease, from the

influence which the mind has upon the body. The pursuits of ambition; the contests for power; the rage for commercial speculation; the pressure of public burdens; the vexation and anxiety resulting from inordinate expenses; the distress which frequently arises from the misconduct of near relatives and friends, more usual in luxurious and degenerate ages; to which may be added, the horrors attending those revolutions, by which, in more recent times, the world has been afflicted;—are all calamities by which the mind is deeply affected; the health of the individual suffers; and man becomes afflicted with many disorders from which he would otherwise have been exempted.

When all these circumstances are considered, it surely can require little apology from any person, who has directed his attention to such enquiries, for venturing to lay before the public his sentiments concerning them.

It may be proper, however, briefly to explain, how an individual, unconnected with the medical profession, has been led to pay such particular attention to the subjects of Health and Longevity, as to consider himself competent to the task, of submitting his opinions to others regarding such interesting particulars.

Sect. II.

Circumstances which led to the Undertaking.

Though naturally possessed of a sound constitution, untainted by any hereditary disease, yet, about the year 1797, the Author having fallen into a weak and enervated state, found himself unequal to the task, of managing his private con-

cannot be too strongly recommended. " I beseech " all persons, (says he), who shall read this " work, not to degrade themselves to a level with " the brutes, or the rabble, by gratifying their " sloth, or by eating and drinking promiscuously " whatever pleases their palates, or by indulg- " ing their appetites of every kind. But, whe- " ther they understand physic or not, let them " consult their reason, and observe what agrees, " and what does not agree with them, that, like " wise men, they may adhere to the use of such " things as conduce to their health, and forbear " every thing which, by their own experience, " they find to do them hurt; *and let them be as-* " *sured, that, by a diligent observation and* " *practice of this rule, they may enjoy a good* " *share of health, and seldom stand in need of* " *physic or physicians.*"

Cornaro is another memorable example of the efficacy of rules. Reduced, when he had entered the fortieth year of his age, to the very gates of death, and in a manner given up by his physicians, nothing but a regular system, strictly adhered to, could have saved him. His rules, to the extreme to which he carried them, are certainly but little calculated for general adoption. They have established, however, some important truths; in particular, that little sustenance, indeed so small a quantity as twelve ounces of solid, and sixteen ounces of liquid food, per day, is sufficient to preserve the health and existence of an old man, living in a retired and quiet manner, and not obliged to take much fatigue or exercise; and that, by great care, a tendency to passion, which is often so fatal to aged people, may be subdued.

A respectable prelate, Cardinal de Salis, Archbishop of Seville, who died anno 1785, at the

of hypochondriac and nervous people, who fill all the different watering places in the kingdom, whose complaints are commonly groundless, and who, by wishing to cure imaginary illness, often make themselves actually sick. To their attention, the famous epitaph engraved on the tombstone of an Italian noble, who fell a sacrifice to his own imprudence, may be recommended—'I 'was well;—would be better;—Here I am*.'

We shall now proceed to explain the plan of the proposed undertaking.

Sect. VI.

Plan of the Work.

The medical authors, who have hitherto written on health, have commonly arranged their observations under six general heads: 1. Air; 2. Diet; 3. Motion and Rest; 4. Sleeping and Watching; 5. Retention and Excretion; and, 6. The Passions of the Mind. To these they have given the singular name of the six NON-NATURALS; a term which originated from the jargon of the schools†. But as such a mode of explaining the doctrines of Health and Longevity, is in many respects defective and exceptionable, and as, by adhering to it, many important

* *Stavo ben—Ma per—Star meglio—Sto qui.*

† It was first mentioned by Galen, who divides things relating to the human body into three classes: Things which are *natural* to it; things which are *non-natural*; and things which are *extra-natural*; (Class 7, lib. de Occul. Partic. tertia, c. 2). From this fantastical distinction, the epithet non-natural first arose. See Mackenzie, in his History of Health, Introd. p. 4. Some authors on health have likewise gone into the discussion of *non-necessaries* (see Strother's Essay on Sickness and Health, p. 445), in which they include clothing, and the professions of life.

Such is the plan of the intended Work; which others might doubtless have executed with more ability, but none with a more anxious wish, that it may prove *substantially serviceable,* to the interests of mankind.

These general observations shall suffice for the nature of air,—of its constituent gases,—and of the substances occasionally combined with it. It will now be proper more particularly to consider those circumstances regarding air, which are more immediately connected with the existence of man, and the preservation of health. These may be treated of under the following general heads: 1. The general advantages of air to the human species. 2. Its particular uses for respiration. 3. The necessity of fresh air for that purpose. 4. The different qualities of air, and its effects on health. And, 5. The practical rules connected with the function of respiration, and with the nature and qualities of air.

Sect. I. *Of the general Advantages of Air to the Human Species.*

Without atmospheric air, constituted as it is, men unquestionably, could not enjoy any of the comforts of life, nor even continue in existence. Were it not *transparent*, they could not see: Were it not *elastic*, they could not hear*: Were it not *easily divisible*, they could not move from one place to another: Were it not *perpetually in motion*, it would become corrupt and poisonous; navigation could not be carried on, and many useful machines must be laid aside: Were it not *heavier* in the lower regions which men inhabit, than on the tops of the loftiest mountains, the finer vessels in the lungs would swell, and in many cases would burst, by expansion: And were it not that, by *respiration*, or breathing, we imbibe the salutary and vivifying principles with which the atmosphere abounds, the human race would become extinct†.

Sect. II. *Of the particular Uses of Air for Respiration*‡.

It is a well known fact, that though men have lived without food even for several days, they can hardly exist

* Cicero, de Nat. Deorum, lib. 2, c. 33, very happily expresses several of these advantages in the following words, where air is personified: "*Ipse "aer nobiscum videt, nobiscum audit, nobiscum sonat, nihil enim eorum sine eo fieri "potest.*"

† Haller Elem. Physiol. tom. ii. p. 155, has justly remarked, "*Aeris dotes "nondum satis notæ sunt.*"

‡ Dr. Menzies says, that by respiration we mean that function, in which, by the alternate dilatation and contraction of the thorax or chest, a quantity of air is received into the lungs, and afterwards expelled from them.

for a few moments without breathing atmospheric air; consequently, that article is, above every other one, essential for animal life.

The uses of breathing atmospheric air, are as follow: 1. It preserves life, which could not exist without it; 2. It restores the florid colour and stimulus of blood; 3. It makes the blood fitter to repair some of the most essential parts of the body; 4. It is the means by which the body is kept at nearly the same standard of heat or temperature; 5. It promotes the circulation of the blood, without the continuance of which death must ensue; and, 6. It enables the body to get rid of substances destructive to health and life.

1. As life cannot possibly be preserved without air, hence respiration goes on while we sleep, as well as when we are awake; and if respiration is stopt, either by a fainting fit, or temporary suspension of the faculties, or when a body is sunk in water, death would speedily ensue, if breathing were not soon to be restored.

2. Respiration gives a florid colour and useful stimulus to the blood. We shall endeavour, in a subsequent part of this work, (Chap. IV.) to explain the manner in which the blood is formed. It is sufficient, for our present purpose, to remark, that the food we eat, after being subjected to various operations, is at last converted into a soft milky juice, technically called *chyle*. This substance, in the course of its circulation, passes through the lungs, and comes in contact with the atmospheric air which is drawn in by those organs. By that contact it receives, from the oxygenous part the air, that red or florid colour by which arterial blood is distinguished. Besides this change in its colour or appearance, it is probable that other properties are acquired, such as the power of stimulating the large vessels in the heart, the lungs, and the arteries, to action.

3. It is from the blood that all the various parts of the body must be repaired; and, in particular, for supplying the waste made in the fleshy or muscular parts of the body, a substance called *fibrina*, must be formed in the blood. This has been hypothetically supposed to be effected by the azotic part of the atmosphere, which the lungs have

The first of these actions is called inspiration: the latter expiration. See a Dissertation on Respiration, translated from the Latin of Dr. Menzies, by Charles Sugrue, p. 2. The learned Etmullerus, in his Dissert. xi. chap. 10, sect. 1 and 16, gives a curious summary of the uses of respiration. See Derham's Physico-Theology, edit. 1798, vol i. p. 222, note. There is much information upon this subject, in Dr. Bostock's Essay on Respiration.

imbibed; and is another most important advantage arising from respiration.

4. There is no circumstance in the economy of man, more extraordinary than this, that his body, while in a state of health, should always remain of nearly the same temperature. This, in a great measure, depends upon respiration. Part of the air we inspire combines with the blood; it is supposed, that the combined heat, to which its gaseous form was owing, is thus set at liberty, and in some degree increases the temperature of the air we expire, which is partly absorbed by the lungs with the air it breathes*, and thence is diffused through the entire system, by means of the blood. Were it not for this constant absorption of heat, the temperature of men, and of other animals, could never be so much higher than that of the surrounding atmosphere, notwithstanding the heat which they are continually giving out to the colder surrounding bodies.

5. The circulation of the blood is absolutely essential for the continuance of animal life. Without respiration, this could not be effected†. By the heat, and other properties thus obtained from the atmosphere, the blood acquires those stimulating powers, by the action of which the heart is alternately contracted, and the circulation regularly carried on.

6. Nor is this all. Every animal would soon perish, unless it had the means of expelling those substances which are either noxious in themselves, or of which any great accumulation would be pernicious. This expulsion is most happily brought about through the medium of respiration. By the lungs, a quantity of about 37 ounces of carbonic acid gas, is usually emitted in the course of one day, by a full grown person; a quantity, which, if retained in the body, would be extremely prejudicial. By the same means, any superfluous moisture is extracted from the blood, and emitted. The quantity must vary; but generally exceeds 20 ounces per day. The blood is thus kept of a proper consistency, neither too fluid nor too dense‡.

Considering all these circumstances, is it not surprising, that while men are so attentive to their food, and employ so

* This point seems to be satisfactorily proved in Menzies's Dissertation on Respiration, translated by Sugrue, (8vo. Edinburgh, 1796), p. 34, 35, &c.

† The blood cannot circulate through the body unless it pass the lungs, which it does but partially, unless the lungs be inflated.—*Method of Preserving Health*, p. 197.

‡ The subject of respiration is ably explained in Thomson's System of Chemistry, vol. iv. p. 708.

7. *Inland Air.*—The air of inland districts must have qualities very different from those on the sea-coast. In the interior parts of a country, the air must partake much of the qualities of the soil and of its productions. Much, also, must depend upon the state of its cultivation. Even countries naturally unwholesome, if cleared of wood, and rendered fertile, become immediately healthy. It is also to be observed, that the central countries of great continents are colder, especially in winter, than those that have the sea-air. Moscow, in the same latitude with Edinburgh, is much colder, during the winter months, though perhaps warmer in the summer season*.

8. *Maritime Air.*—The nature of the air at sea is, in various respects, very different from that which is to be met with in the inland parts of the country. 1. Sea air is more humid, owing to the great quantity of vapour which is constantly arising from the surface of such an extent of water. 2. The air at sea is more frequently agitated, and storms are more violent, and continue longer there than at land†. 3. In the same country, the air is found of very different temperatures, in regard to heat and cold, and possessing very different qualities; but, at sea, the air is more uniform, and less susceptible of variety. 4. The air at sea never stagnates, having no impediments to its course, from mountains, hills, or forests, and being continually agitated by the winds, currents, and the constant flux and reflux of the tides. 5. Sea-air is warmer, more especially in the extreme cold of winter, than the air which is incumbent on

Indeed wherever there is a spitting of blood, it is a sign that the situation of the place is too high, and the air too light. The proper plan to pursue, therefore, is, to fly to a flat or deep country, where the air is heavy. The weight of that sort of air must prevent the vessels from being swelled to any improper size: and the spitting of blood, which originated from the extension, must be removed.

* Arbuthnot on Air, p. 78.

Strother, in his Essays on Sickness and Health, p. 26, contends, that the midland counties in England are the most healthy, and less subject to a variety of weather. He observes, that when the easterly or westerly winds give rains in abundance to the coasts, yet the middle way, between sea and sea, has then been calm and dry; the clouds brought from either sea, drop before they come mid-way. The accounts which are given of the air of Cheltenham seem to justify these observations.

† In the British Encyclopedia, *voce* Aerology, p. 155, it is stated, that Dr. Dobson of Liverpool found sea-water contained air, superior in quality to that of the atmosphere. Hence the utility of sea voyages to invalids may arise. Arbuthnot, on the other hand, contends, that were it not for constant winds, which blow off the coat of vapours which invest the ocean, sea-air would be intolerable to human bodies.—*On Air*, p. 70.

the earth*: hence those who obtain a livelihood by collecting limpets, and other shell-fish, and who are constantly inhaling sea spray, are never affected with cough†. 6. A portion of sea-salt is also generally raised by the spray, and perhaps by the vapour of the sea, which is found to be attended with rather beneficial effects‡. 7. Sea-air, also, is not so liable as land air, to be deteriorated by the putrefaction of animal and of vegetable substances, the respiration of animals, the support of combustion, and exhalations of all descriptions.

9. *Night Air.*—This is, in general, more unwholesome than what is breathed in the day time; and, about sunset, it is particularly injurious, for then a greater quantity of dew falls than even at midnight.

Such are the various sorts of atmospheric air, and the general qualities of each. It is proper, however, to observe, that, by custom§, man may be reconciled to different sorts of air; and that there is no animal so capable of being made to agree with so many various climates. Generally speaking, the animals of warm countries cannot subsist in cold. African animals can hardly endure the coldness of the open air of England, which is too warm for rein-deer; yet man can live in the hottest air under the sun, and also far within the polar circles of frigid zone. What makes the difference between mankind and other animals, is, that man is assisted by many contrivances of art to bear extremities of heat and cold. Brutes, left to their own choice, as far as they can procure their ends by local motion, chuse the countries and climates most adapted to their constitutions; and so perhaps would men also, if they were not endued with the faculty of invention, and

* It is the saline matter in sea-water that makes getting wet with it inoffensive. When seamen are exposed to rain at sea, they are apt to catch cold.

† See Buchan's Essay on Sea Bathing, p. 167. It is said, that persons employed in the manufactures of glass and salt, are likewise exempted from coughs and colds.

‡ These particulars are more fully explained in a valuable work, entitled, The Use of Sea Voyages in Medicine, by Ebenezer Gilchrist, M. D. one volume, octavo, London, 1757.

§ The effects of custom, in regard to air, cannot be more strongly exemplified than by this singular circumstance, that a mouse or a duck, accustomed to an exhausted receiver, can bear it longer than a fresh one, so much are all animals the children of custom.—*Arbuthnot on Air*, p. 97.—*Philos. Transactions*, abridged by Louth, p. 229, 230.

1. *Hot Climates.*—When the air is rarefied by heat, when the body is relaxed by it, and all its humours put in motion, besides a proper attention to clothing, diet, exercise, &c. which will be afterwards explained, it is also necessary to guard against the effects of heat, by rest, shade, ventilators, and by living even in grottoes, when the heat is intense *; nor is the latter part of this advice unsanctioned by experience. Lord Bacon ascribes the longevity of the ancients, partly to their living in caves; and I am informed from most respectable authority, that a lady, who had gone from London to Virginia, had found the summer heat so intolerable, that having fortunately discovered, near her house, a large natural cave, she, and many of her neighbours, frequently spent the day there, totally unmolested by the greatest heats, and found the utmost benefit from it. The Italians also seek for coolness in summer, either by sitting in dark rooms on the ground-floor, or those with a northern aspect; and in very hot climates, a part of every house ought to be constructed in the grotto style, or with arched vaults, so as to exclude the violence of the heat †.

2. *Cold Climates.*—In cold climates, as long as the inhabitants of a country continue uncontaminated by luxurious habits, exercise, and even fatigue, are habitual to them; their natural diversions being all of the athletic or violent kind. But the softness and effeminacy of modern manners has both deprived us of our natural defence against

marks, that the nature and effect of air are peculiarly entitled to the attention of medical men, for the choice of it is very often a necessary part of their advice. Some people find themselves much disordered in one sort of air and weather, yet are perfectly well in another, the causes of which will easily be discovered by any one who thoroughly understands the physiology of the air, and the constitution of his patient. Most people find the effects of good air, more especially in stomachic and pectoral cases, and ought to be sent to those places where it can be had in the greatest perfection.

* This is certainly the most effectual means of avoiding strokes of the sun, which are so fatal in hot climates. On this malady, and the means of preventing or of curing it, see Tissot's Advice to People in general, vol. i. chap. x. In climates where there is any chance of insolation, the head-dress should either be a turban, as the Eastern nations have adopted from experience, or a round hat with a high crown, and an interval between the head and the crown. Some travellers in Africa have also found benefit by cutting valves in their hats, to allow the heated or rarefied air to escape, and fresh air to be admitted.

† It has been observed in China, that wet clothes exposed to the air, are colder than the temperature of the atmosphere, as long as they retain any moisture. Accordingly, in that country, rooms and galleries formed of canvas, are kept constantly wet, to give coldness to the air within.—*Irwin's Essays on Chemical Subjects*, p. 215.

the diseases most incident to a cold climate, and subjected us to all the inconveniences of a warm one. Hence people are afraid of going out into a cold atmosphere, as in the highest degree hazardous. They certainly ought to avoid rushing from heated rooms into it, without great precautions. But if they have not been previously overheated, and will conduct themselves properly afterwards, they will never be in the least danger from cold air. Indeed, the action of cold, unless it be excessive, or accompanied with great moisture, rarely produces any bad effects*.

A common cold, the parent of so many other disorders, is generally produced in the following manner:—When a person in cold weather goes into the open air, every time he draws in his breath, the cold air passes through his nostrils and windpipe into the lungs, and, consequently, diminishes the heat of these parts. As long as the person continues in the cold air, he feels no bad effects from it; but as soon as he returns home, he approaches the fire to warm himself, and very often takes some warm and comfortable drink, *to keep out the cold*, as it is said. The inevitable consequence is, that he will first perceive a glow within his nostrils and breast, as well as over the whole surface of the body. Soon afterwards a disagreeable dryness and huskiness will be felt in the nostrils and breast. By and by a short, dry, tickling cough comes on. He feels a shivering, which makes him draw nearer to the fire, but all to no purpose; the more he tries to heat himself, the more he becomes chilled. All the mischief is here caused by the violent action of the heat; and the complaints, which are thence produced, might, with more propriety, be called *heats*, rather than *colds*.

These complaints may easily be avoided, by adopting the following rules.

When you come out of a very cold atmosphere, you should not at first go into a room that has a fire in it, or, if you cannot avoid that, you should keep for a considerable time at as great a distance as possible, and, above all, refrain from taking warm or strong liquors when you are cold. This rule is founded upon the same principle as in the case of any part of the body being frost-bitten. If it were brought to the fire, it would soon mortify, whereas, if

* Hence the maxim, "You need not be apprehensive of rain, *or* cold: But rain *and* cold are highly injurious."

rubbed with snow, no bad consequences follow from it. Hence, if the following rule was strictly observed, *When the whole body, or any part of it is chilled, bring it to its natural feeling and warmth by degrees*—the frequent colds we experience in winter would, in a great measure, be prevented. The application of the flesh-brush to the neck and hands, is with this view of great use. On the other hand, the practice, after a cold is caught, of making the room the person sits in warmer than usual, increasing the quantity of bed-clothes, wrapping himself up in flannel, and, particularly, drinking a large quantity of barley-water, gruel, or tea, almost boiling hot, by way of diluting, as it is called, and forcing a perspiration—all this will infallibly make the disorder worse, in the same manner as confining inoculated persons in warm rooms, would make their small-pox more violent *.

In regard to the cure of a common cold, it depends on attention to, 1. Temperature; 2. Diet; and, 3. Medicine.

1. *Temperature.*—In the early stages of a catarrh, rather a cold temperature, at least one not exceeding from 40 to 50 degrees, is the most likely to be salutary. The covering of the body also, both by day, and during the night, should be as light, as the external temperature will admit of.

2. *Diet.*—A rigid attention to regimen is not necessary whenever a slight cold occurs; but if it increases, or continues for any length of time, stimulating food is to be avoided, in particular, wine and spirituous liquors; the solid food should be light, and easy of digestion, and the liquid cooling, as toast and water, or acidulated soda water.

3. *Medicine.*—This branch of the subject, properly belongs to the medical department; and is ably discussed in a work, restricted to the investigation of the disorder in question †. Indeed professional advice, where attainable, ought

* See Garnett's Lecture on the Preservation of Health, p. 72, &c.; a work which contains a number of excellent observations, and renders the untimely death of the author a circumstance much to be lamented. Mr. Spence of Drypool, Hull, informs me, that he has ascertained the importance of Dr. Garnett's directions, for avoiding that plague of our climate, *a cold*, by his own experience. He adds, that however inaccurate some parts of the Brunonian theory may be, he is persuaded it is correct, in so far as regards the *general* cause of taking cold. Formerly, before he was acquainted with its doctrines on this point, he used to be scarcely ever free from a cold in the head all the winter; but since he has avoided coming to the fire, after being exposed to cold, he has rarely known what it is to be plagued with that disorder. The best remedies for a cold he finds to be temperance, and plenty of cold water.

† See White's Popular Essay on the disorder, familiarly termed a cold, 1 vol. 8vo. printed ann. 1807, p. 133.

tries, and that a greater proportion of the inhabitants of this island, at least on healthful farms and villages, where the people are generally most temperate, and undebauched by spirituous liquors, preserve better health, and live to a greater age, than those of the neighbouring continent.

3. *Moist Climates.*—Damp or moist air, when accompanied with great heat, or great cold, is peculiarly unfavourable to the human species. To any person who has witnessed the thick fogs which frequently take place in London and in Paris, (so thick, that light can hardly penetrate them, and sounds are heard indistinctly), it must be a matter of astonishment, that they do not prove more injurious to health than is generally the case; which is in a great measure owing to their being accompanied with cold, and not with heat. Such weather is peculiarly injurious to the eyes, to the throat, and the breast; and if the custom of smoking tobacco, and the moderate use of spirituous liquors, are at all to be justified, it is in such weather, where the fogs are accompanied with cold. But, in general, the best cure for the disorders of a moist climate, is to improve the country; and the effects thereof are very ably described in a communication from a very intelligent correspondent, (Dr. Kirkland), who had resided for about 30 years in that district of country called the Hundreds of Essex, which were so unhealthy, that hardly any stranger would venture into them. But the state of matters is now happily altered. Owing to the various improvements which have been made in its agriculture, more especially by laying the fields open and dry, the country has assumed a different appearance; the inhabitants now breathe in a different atmosphere; and are not only less subject to the ague, but that disease has become more tractable; and thus, enjoying better health, they have lost in a great measure that emaciated and jaundiced look, which formerly constituted the characteristic of the inhabitants*.

Another district in England, (the Isle of Ely), was greatly improved in healthiness, by its being cleared of moisture.

* See communication from Dr. Kirkland, Code of Health, 2d edit. vol. ii. Appendix, p. 214. The idea of moist climates being dangerous, may, however, be carried too far. On this subject, the late learned and respectable Dr. Percival states, that in Lancashire, October, November, and December, are generally very healthy, although the most rainy months in the year. Tables proving this fact, may be seen in his Essays, Medical, Philosophical, and Experimental, vol. ii. p. 24, edition 4th. Ireland also, though a moist, is a healthy country.

there is no other mode of counteracting it, but to harden one's self, by daily exposure to the open air*.

This custom, also, will be of infinite advantage in regard to the eyes, as it is certainly a great cause of weakness in our sight, that we are accustomed so much from our infancy, to live within four walls, by which the eyes at length lose their whole power of seeing objects distinctly. Hence, those who are the most accustomed to the open air, have in general the best eyes.

In walking for health, we should neither go abroad too late, nor too early. Before the rising of the sun the air is not so good, being then infested with noxious vapours, until its influence dispels them, and purifies the air; but, in fine summer weather, the morning air is wholesome, and breathing it, is much more pleasant and healthy than lying in bed†.

One of the greatest risks run during youth and manhood, arises from an unguarded practice of rushing from heated rooms into cold air; the difference being, in frosty weather, often from 50 to 60 degrees‡. Many have suffered even where they take the greatest precautions; but where this is done without any precaution, the consequences are often fatal.

4. *Sickness.*—Nothing could be more absurd, than the old mode of keeping out fresh air from entering the apartments of persons in sickness, or in a convalescent state, and for that purpose, carefully and anxiously stopping the smallest crevice by which it could be admitted.

Arbuthnot properly remarks, that innumerable mischiefs arise from keeping the air of the room of a feverish person too hot, and by depriving the patient of the benefit of refrigeration by cool air, when it is well known, by experience, that patients in fevers, are anxious to breathe cool air, and will use their utmost efforts to come at it, by getting out of bed, &c. As the air in sick chambers must be rendered impure by the bad effects of animal steams, &c. every safe means ought to be taken, to renew the air in a patient's room, giving it a free admission, by opening the door, the

* Dr. Garnett properly remarks, that going a short time to breathe the pure air of the country, every day, is much more effectual than spending whole days, or even weeks, in the country, and then returning into the corrupt atmosphere of the town, and residing constantly in it.

† Mainwaring on Health, p. 42.

‡ Adair's Medical Cautions, p. 58.

it can hardly be doubted, that the air of cities must be contaminated by a mixture of various effluvia prejudicial to health. We know, from the miasma of marshes, that such matters can exist in the air, undiscoverable by any tests; and, from the mischievous effects of cities on delicate constitutions, it is reasonable to suppose, that they exist in the air there. It is remarked, that erysipelas is more frequent in London than elsewhere, and that people coming from the country to reside there, are frequently seized with it. People in London, also, living in very close rooms, and thence going out into a stream of cold air, are more liable to colds, than in the country. When living in a town, it is desirable, not only to live in an open situation, but where trees and shrubs are planted; for, according to the admirable arrangement in the economy of nature, those gases which are most injurious to animal life, form the nutriment of vegetables, by whose absorbing vessels they are greedily imbibed, whilst, in return, they pour from their leaves, whilst they are under the influence of the sun's rays, streams of pure air, or oxygen *.

2. *Artificial Climate.*—It may be proper here to allude, to the plan of having houses built of a peculiar construction, for the aged and the sickly, in which the air should always be preserved at nearly the same temperature. In this way an artificial climate might be procured in a northern country, capable of answering the purposes of a warmer region. We are informed by Dr. Rush, that the late Dr. Dewit of Germantown, who reached nearly an 100 years of age, after he became an old man, lived constantly in a stove-room, and seldom breathed an air below 70°. In Sweden and Russia, by means of stoves, they always keep their chambers in the same temperature, notwithstanding the severity of the climate. In Britain, on the other hand, the aged generally die in winter; and many individuals, in a weak and consumptive state, are obliged to fly to warmer climates, as the only means of safety. Might it not then be of the greatest service, both to the aged and to the consumptive, to have houses erected, of such a peculiar construction, that the air could always be preserved, not only warm, but nearly of the same, and of rather an elevated temperature; so that the invalids, who resided in them, should never be affected by the vicissitudes of the seasons? Such an idea, it must be admitted, cannot be a general remedy

* Buchan on Sea Bathing, p. 157.

girl, and naturally possessed of good sense. She did not neglect to apply to her works and studies at proper times; but she had made it a rule to walk out whenever the weather permitted. Bad weather had seldom any other effect upon her, than to deprive her of her usual exercise. By these means, she enjoyed an excellent state of health; and, whenever she happened to have any complaint, her physician had the satisfaction never to be disappointed in the effects of his medicines *.

Justly, therefore, was it answered by the intelligent physician, who, being asked what was the best rule for the preservation of health, replied, "*To be as much in the open "air as possible, without fatigue.*"

* The importance of a knowledge of the properties and uses of the atmosphere, is very happily elucidated by the following anecdote. It is said, that the late Dr. Darwin, one day, at Nottingham, assembled a large crowd of people around him, and thus addressed himself to them:—"Ye men of Nottingham; listen to me. You are ingenious and industrious mechanics. By your industry, life's comforts are procured for yourselves and families. If you lose your health, the power of being industrious will forsake you. *That* you know; but you do *not* know, that to breathe fresh and changed air constantly, is not less necessary to preserve health than sobriety itself. Air becomes unwholesome in a few hours, if the windows are shut. Open those of your sleeping rooms, whenever you quit them to go to your work-shops. Keep the windows of your work-shops open, whenever the weather is not insupportably cold. I have no *interest* in giving you this advice. Remember what I, your countryman, and a physician, tell you. If you would not bring *infection* and disease upon yourselves, and to your wives and little ones, change the air you breathe. Change it by opening your windows several times a-day."

to no less a depth than 500 feet, and been amply repaid for the trouble and expence, by the purity of water thus attained. In consequence of a well having been sunk to nearly the depth above mentioned, and good water procured, the inhabitants of the parish of Steeple, in Dengy hundred, Essex, derived the greatest benefit to their health.

7. *River-water.*—There are certainly some objections to the water of rivers, from the impurities of the springs, or other fluids of which the water is composed, and from the substances thrown into it; yet, on the whole, there is no water better calculated for general use. Indeed, where their motion is rapid, and their bed either gravel or silicious sand, they are said to be purer than even spring-water, depositing every thing during their course, which was merely mechanically supended. Some rivers, however, like the Thames, in passing through rich and cultivated plains, or populous towns and cities, become considerably charged with foreign matter. Such water is easily improved by filtration; or when left to settle, will become as clear as spring-water. Hence, the water of the Thames is preferred for long voyages even to spring-water*.

8. *Lake-water.*—The water of lakes is merely a collection of rain and snow water, spring-water, and river-water, and of course must be impregnated with the same heterogeneous substances which they contain. It is seldom so transparent as river-water; but as the water of lakes is not so much agitated as that of rivers, any noxious substances frequently subside to the bottom, and do not injure the surface. An excellent mode of filtration is adopted by those who live on the borders of Loch Lomond, the largest and most beautiful lake in Scotland. Instead of taking it from the lake itself, they make a pit or hollow in any bank of gravel on its margin, into which the water naturally flows, cleared from any injurious particles.

pure distilled water. They are also liable to be tainted, in their passage under ground, by various inpurities, so frequent in the neighbourhood of so large a city. The nitrous acid in these waters makes the flesh boiled in them to become red. The tea and coffee infused in them are not palatable; and several physicians suspect, that they occasion many disorders, more especially among the infirm and children. There is also a work on pump-water, recently published by Dr. Lambe, which merits attention, though he seems to carry his apprehensions, regarding the unwholesomeness of pump-water, much too far.

* See Thomson's System of Chemistry, vol. iii. p. 428. Hooper's Lexicon, &c. Dr. Heberden states, that if two or three grains of alum are dissolved in a quart of thick river water, it makes the dirt very soon collect, and slowly to precipitate: If then filtrated, it is immediately prepared for use.

There is an excellent mode of preserving water, and by which it is filtrated at the same time, adopted at Paris. The water is put into what is called a *fountain*, which is a large and strong earthen jar, about four feet in height, placed on a wooden pedestal. At the bottom, there is gravel to the height of six or eight inches, which should be cleared once a year, or oftener if necessary. The fountain may be had for a Louis-d'or; and the waterman receives a trifle for filling it twice a week, which is sufficient for the generality of families. The water, thus filtrated through the gravel, becomes as pure as crystal, and is drawn by a cock, at the bottom of the fountain. As the water of the Seine is rarely pure, and in a dry summer even noxious, such a machine is very convenient, and even indispensible. It is not liable to the many accidents, and constant wear, of our filtering stones, nor does it require the attention of those with charcoal, recently invented at Paris*.

Another mode of preserving water in distant voyages, is, by charring the vessels in which it is preserved. This is taken notice of in a recent French publication†, but has long been practised in England, and is no new discovery.

3. *Mode of Improving Water.*—There are six modes by which water, without infusing any article to be retained it it, may be improved; namely, by, 1. Boiling. 2. Cooling. 3. Distilling. 4. Filtrating. 5. Charcoal: and, 6. Machinery.

1. Wherever there is any reason to doubt the purity of water, or to apprehend that it may be impregnated with noxious ingredients, there is no mode by which it can be so easily improved, as by the simple operation of boiling, more especially if it is afterwards strained or filtrated, and then suffered to cool. In ancient times, public buildings were erected for that purpose, where the boiled water was sold, both for drinking by itself, or mixing it with wine‡. In China, water used in diet, is always boiled§.

Boiling hard or pump water, however, is not alone found to be sufficient; for though boiling makes it to part with the earthy matters which were dissolved in it, yet it becomes more strongly impregnated with the saline substances which it contains, and, in that respect, it will be-

* Pinkerton's Recollections of Paris, vol. i. p. 521.

† Annales de Chymie, July, 1806, tome 95.

‡ See Barry's Observations on the Wines of the Ancients, p. 156, and 160.

§ Barrow's Travels in China, p. 547.

come worse. But if, besides boiling, 10 or 15 grains of any alkaline salt, to each pint of water, are boiled with it, all the noxious qualities of pump water, according to Heberden, would either be precipitated to the bottom, or rendered innocent.

2. After the ancients boiled the water, they were accustomed to cool it, by immersing the vessel containing it in snow or ice. This was practised by Alexander in his Indian expedition, and is recommended by Galen*.

3. The nature of distillation is now generally known. It is thus that ardent spirits are made: and if the steam or vapour that arises from water, when in a boiling state, is collected by proper instruments, the water which is thus produced, is purer than any other, and so uniform, in regard to that essential quality, lightness, as to become a standard for weight.

Distilled water, on account of the trouble of procuring it in large quantities, is seldom employed to any extent, either in the preparation of food, or as drink†; but for preparing a great number of medicines, and in a great variety of chemical processes, this species of water is an essential requisite‡. And Heberden is of opinion, that a course of distilled water might be as beneficial, in many chronical pains of the stomach and bowels, as the most celebrated mineral waters are in other disorders; and hence, that it might prove no inconsiderable addition to the Materia Medica.

Some instances are given, of persons having used distilled water as their common drink, who are said to have found benefit from it§; and by condensing the steam of salt water, it has been obtained at sea in considerable quantities. It acquires, however, a bad taste from the

* Meth. Med. Lib. vii. cap. 4. When first boiled, and then cooled with snow, it was called decocta. Juvenal, in Sat. v. V. 50, celebrates this mode of cooling water; and Martial, Lib. iv. Ep. 116, distinguishes this water by the appropriate name of *nobile frigus*.

† If by boiling water, as Wainwright, in his Mechanical Account of the Non-Naturals, p. 211, contends, the best part of the liquid is evaporated, that is certainly in favour of distilled water as a diluent.

‡ Quincy's "Lexicon Medicum," by Hooper, *voce* Water. Also Heberden on Water, "Medical Transactions," vol. i. p. 16. There are several medicines, which cannot with propriety, be made with any other than distilled water.

§ Tournefort mentions one Francis Secardi Horgo, who made distilled water his only drink, without any addition of wine, or any strong liquor, to the last, and lived, with remarkably good health, to the age of one hundred and fifteen years.—*Heberden on Water*, p. 22.

5. Another mode of improving water, and the one that has been most recently discovered, is by means of charcoal, a substance which enjoys the property of preserving water from corruption, and of purifying it after it has been corrupted. It has been found, that one ounce and a half of powdered charcoal, and twenty-four drops of oil of vitriol, (concentrated sulphuric acid), are sufficient to purify three English pints and a half of corrupted water, without communicating to it any sensible acidity. If no acid be used, two-thirds more of charcoal powder will be necessary; but when less of that powder is employed, the less is the quantity of water lost by the operation; which, in sea-voyages, is a material object. Other acids produce nearly the same effect, and even nitre and sea-salt; but sulphuric acid is preferable. A small quantity of it should be added to the water, before the charcoal-powder is put in. If a quantity of that powder were put in the casks intended for holding water for long voyages, or if the inside of the casks were charred, it would prevent the water from putrifying. It is also found, that filtrating water through charcoal, is an excellent mode of purifying it*.

6. Water is also improved by means of machinery. It is well known, that, by pouring water from one vessel to another, it is ameliorated; and the more it is agitated and put in motion, the more it acquires the qualities to be desired†. If, therefore, it were frequently to pass through the air, by means of machinery, water that had been distilled or boiled, and thus had lost its elastic fluids, might be again impregnated with the beneficial qualities of the atmosphere. Machines, on the principles of shower-baths, might be employed, but perhaps a barrel or other churn might answer that purpose more effectually. The common mode of impregnating water with fixed air, is troublesome and expensive, and, on that account, never can come into general use. Besides, fixed air is of a very volatile nature, and not in every case desirable to be taken in large quantities; whereas, the more that water can be impregnated with atmospheric air the better‡.

* See Encycloped. Britan vol. xviii. p. 816.

† The Chinese have a practice of agitating the water they are to drink, for two or three minutes, with a bamboo, in the hollow of which they put a piece of alum, by means of which the earthy particles of the water are precipitated to the bottom.

‡ To impregnate water with atmospheric air, the following plan may be adopted: After the water is prepared by boiling, and the infusion of toasted

the view with which decoctions of it are used in China); and, in the opinion of many, it ought, for such purposes, to be preferred to fermented liquors, so general in Europe. 2. There can be no doubt, that it has the property of correcting the pernicious qualities which some waters possess *. 3. The drinking of tea is said to have the effect of increasing the digestive action of the stomach, and hence is particularly useful in cases of surfeit and indigestion. 4. It also tends to exhilarate the spirits; though this, like every other stimulus, by constant use, loses its effect. 5. The use of tea has been found salutary in medicine. The simple infusion, without sugar or milk, is an excellent diluent and sedative, in ardent fevers; and, as it promotes perspiration, and other secretions, it is frequently drank with advantage in colds, coughs, rheumatisms, headachs, &c. 6. Since the introduction of tea, also, complaints of a gravelly nature have greatly diminished †. 7. The introduction of tea has certainly done more to promote sobriety, especially among the higher ranks, than almost any other circumstance. The temptation of the fragrant cup, prepared by a fair hand, induces many to remove to the drawing-room, who would otherwise have remained in the parlour, with their bottle companions. 8. The pleasing occupation which the tea-table furnishes, the beauty of the manufacture in which this preparation of *liquid cookery* is carried on and circulated, the cheerfulness and lightness of the meal, compared to the solemnity and business-like appearance of a substantial dinner, all tend to make those meals, where the drinking of tea is the principal object, a general favourite, excepting with those who have voracious appetites, or are severely addicted to the bottle. Lastly, *Where is the substitute that would answer equally well so many various purposes*, or in favour of which so many arguments can be brought forward ‡?

* The waters of the Seine and the Ness may be rendered safe to strangers, by boiling them with tea, and letting them stand till cool.

† It is stated, in Barrow's "Travels in China," p. 349, that the Chinese, notwithstanding their want of personal cleanliness, are little troubled with leprous or cutaneous diseases, and they pretend to be totally ignorant of gout, stone, or gravel, which they ascribe to the preventive effects of tea. Bathing the eyes with an infusion of tea, is also reckoned strengthening.

‡ An intelligent author, see "Practical Synopsis of the Materia Alimentaria," vol. i. p. 100, gives the following answer to this question. Let those who have been long accustomed to tea, substitute in its place, milk, milk-porridge, gruel, broth, cocoa, or the like, for breakfast; and in the afternoon with milk and water, orgeat or lemonade in the summer, and cof-

hardly now be abandoned, and as in moderation it may be rendered innocent, as well as palatable, it may be useful to ascertain those rules which ought to be observed in the consumption of this article.

The first rule to be adopted is, to avoid the high-priced and high-flavoured teas, which generally owe their flavour to pernicious ingredients, and abound most with those active principles, whence the noxious effects of the article arises, and to prefer those which have been prepared in a simpler manner. The green teas owe their colour and flavour, either to the leaves being plucked when young, or to some noxious mode of preparation; for they disagree with numbers of people, and even a single cup will occasion sickness and other unpleasant symptoms. In a view to wholesome diet, those sorts of tea, the infusions of which are of a dark, and not of a green colour, and which go under the general name of Bohea, are certainly to be preferred; and if a small quantity of green tea is put in for the sake of the flavour, by far the greater proportion ought to consist of Bohea, for the sake of health. 2. It is also of great importance to make the infusion properly; the water should be of the best quality, and in a boiling state when the infusion is made. 3. Only a moderate quantity of tea should be infused. 4. There is nothing more essential, than to have the tea mixed with such ingredients as are most likely to correct its noxious qualities, particularly with sugar, and a greater proportion of milk or cream used. 5. Tea should be considered, merely as calculated for the purpose of diluting our solid food, and assisting in its digestion. If it were never taken but either with solid nourishment, or soon after it, there is every reason to suppose, that its pernicious effects would, in a great measure, be prevented. But when taken, as it is too often, without solid nourishment, it cannot fail, greatly to injure the tone of the stomach, to undermine the health, and to justify the arguments which have been urged against it*.

It is certainly injurious to health, that the first meal we take to recruit the body, after it has long wanted sustenance, when it has suffered by the loss it must have sustained, in consequence of the insensible perspiration of the

hysterical, hypochondriacal, paralytic, and dropsical diseases, have become more frequent, to which *green teas* have particularly contributed.

* See Smith's "Essay on the Nerves, and on Foreign Teas," p. 60, in which he sums up the various symptomatic effects, attending the use of foreign teas, taken injudiciously, as a constant aliment.

vegetable ingredient, it is contended, is of little consequence, and that nothing can be more absurd than to be sending to such an enormous distance, for the leaf of a shrub to make a warm infusion, when we have so many shrubs of our own growth, which may be accounted, at least, as innocent, if not more salutary. Amongst these articles, the most celebrated are sage and balm.

The virtues of sage were formerly so much extolled, that it was said,

Why do men die whilst sage in gardens grows *?

But it is much less thought of at present, though it is frequently used by the Chinese in the form of tea, as a tonic, for debilities in the stomach and nervous system. Of the twelve species of sage, the *Tomentosa*, or what gardeners call the *Balsamic Sage*, is preferred to all others for making tea†. Sir William Temple recommends it, as not only a wholesome herb for common uses, but as admirable for consumptive coughs, having cured some very desperate ones, by continuing for a month, a draught every morning, of spring water, with a handful of sage boiled in it‡. It was formerly considered highly serviceable in palsies, apoplexies, and cold rheumatic defluxions; and it has been remarked, that if it had come like tea, from some remote region, its virtues would have been more prised§.

Balm is another article, an infusion of which has been used for tea. The species of this herb, called by botanists the *Melissa Hortensis*, or Garden Balm, is preferred for medicinal or dietetic purposes. As a medicine, it is reckoned cordial, and beneficial for all disorders in the head and nerves; and even as tea, according to Miller, it is greatly esteemed. One or two examples are not sufficient to establish any particular system; but it is asserted, that John Hussey of Sydenham, in Kent, who lived to 116, took nothing for his breakfast for fifty years, but balm-tea, sweetened with honey; and herb teas were the usual break-

where so much money is made by the sale of quack medicines, no attempt has been made to introduce domestic teas but one, namely, Dr. Solander's *Sanative Tea*. Some of our strongly aromatic flowers, as the woodroof, excel in flavour the teas of China; and the first leaves of whortleberry, properly gathered, and dried in the shade, cannot be distinguished from real teas.

* "Cur moriatur homo, cui salvia crescit in horto." Regimen Sanitatis Salerni.—*Code of Health*, 2d edition, vol. iii. p. 24.

† Miller's Gardener's Dict. Salvia.

‡ Hart's Diet of the Diseased, p. 56.

§ Easton on Longevity.

sumption, and it may be of use to old and decayed people*; but it is too rich for common aliment, as it becomes oppressive, and at last cloying to many stomachs, on account of its oily quality. To the young and sedentary, any immoderate use of it is at all times improper. Indeed, unless the nut is properly prepared, and the liquor is made fresh and good, it has a greasy or rancid taste, and disagrees with almost any stomach†. To the corpulent, and to those employed in mental pursuits, it is highly pernicious. It yields so much nourishment, that it may supply at once the place of victuals and drink. When it was first introduced among the Europeans, whole volumes were written on its manifold virtues; which reputation, however, it has gradually lost, since it became more common‡.

Cocoa is used as a substitute for chocolate, but improperly; for it is only the husky part of the chocolate nut, mixed with a little of the nut, and some dross and dust. Very weak chocolate is equally digestible, and a more cleanly food§.

8. *Beef Tea.*—This is a very simple article, being made by boiling some meat in water, and drinking the decoction; or by pouring boiling water over a certain proportion of raw and lean meat, cut in small pieces, or well beat, as for steaks, and seasoning it to the palate. This species of liquid food is often beneficial to delicate constitutions.

9. *Broths and Soups.*—Among the articles of *liquid food*, broths and soups ought not to be omitted. If properly made, they serve both for meat and drink, and it is evident that less drink is necessary, when the solid food is diluted with water. There is a prejudice against the use of broths in England. It is said that they are only calculated for cases where the powers of digestion are weakened; and that the flesh and vegetables used in broths, will not afford so much nourishment, as if they were taken in their solid form, and mixed with saliva, in the act of mastication‖. It is also said, that food of this nature gives the stomach too little to do; and that the meat itself, (the substance being extracted out of it), is left in that undigestible state, as to

* It is observed, that chocolate-makers are troubled with dry asthmas, and disorders in the lungs; but it is not owing to the effluvias of the chocolate, but to the fumes of charcoal used in the making of it.

† Mackenzie's History of Health, p. 377.

‡ Falk's Guardian of Health, p. 155.

§ Adair's Medical Cautions, p. 222.

‖ Darwin's Zoonomia, vol. ii. p. 668.

ginning, cures a common cold. A glass of sugar and water is often taken at Paris before going to bed*.

3. *Of Fermented Liquors.*

Men in all ages, and in all countries, have usually employed much thought, in order to discover some liquor, more agreeable than water to the taste; and also more likely to strengthen the body, to cheer the spirits, and to relieve the mind. Even the wildest savages, have endeavoured to find out some strong intoxicating liquor calculated for those purposes. Virgil describes a nation in the north, who regaled themselves with a liquor made from the spirit of the service-tree, which rendered them gay and frolicksome†.

In hot countries, it is true, that such liquors are neither so necessary nor so wholesome. The perspiration there is so excessive, that the blood stands in constant need of a supply of its aqueous part. This can only be done by watery liquors, as fermented ones could not be taken in sufficient quantity, without increasing the inflammatory disposition by the stimulus, which it seems the intent of nature to counteract. But in cold countries, the body has little spontaneous tendency either to inflammation or putrefaction; on this account, animal food, and fermented liquors, are more proper to be taken; and, indeed, where animal food is used in a large proportion, fermented liquors become in a great measure necessary, to obviate, in some degree, the septic tendency of such a way of living‡.

The various sorts of fermented liquors may be considered under the following general heads, namely, 1. Wine produced from the grape. 2. Wines made from other articles. 3. Cyder. 4. Perry. 5. Malt liquors. 6. Spruce beer: and, 7. Honey liquors.

1. *Wine.*—So extensive a subject as that of wine, on which so many volumes have been written, cannot here be discussed at any length; but we shall briefly consider, 1. The general nature of that species of liquor. 2. The different sorts of it commonly made use of. 3. The quantity that may be safely used. 4. The advantages that are ascribed to its use. 5. The objections which have been urged against it. 6. The means of preventing or detecting adulteration; and, 7. Such miscellaneous observations

* Pinkerton's Recollections of Paris, vol. ii. p. 300.
† Goquet's Origin of Laws, vol. i. p. 109.
‡ Falconer's Observations on Cadogan's Dissertation on the Gout, p. 48.

water should be taken up at a great distance from the land, and kept in a cask for some time, until it was more depurated*. Pliny tells us that the advantages of this mixture in wine were accidentally discovered, by a servant stealing some wine, and filling up the vessel with sea-water, which turned out of superior quality†.

The ancients had a mode of making their wines thicker, or more *inspissated*, than the moderns‡. The Maronian wine was so much distinguished for its superior strength and substance, that, according to Homer, it required twenty parts of water to dilute it properly.

> Such were the wines, to quench whose fervent steam,
> Scarce twenty measures from the living stream,
> To cool one cup sufficed.—*Pope's Odyssey*, book ix.

The ancients had a custom also, of cooling their wine with snow. Xenophon says, it was necessary to procure snow to cool their wines in summer, which otherwise could not be drank with any pleasure. The mixture of hot water of the purest kind, with wine, and in a just proportion to its strength, and afterwards cooling both in snow, was a most elegant and salutary preparation; for it is well known, that boiling water, immersed in snow, will sooner acquire *an exquisite degree of coldness*, than when immersed in its common cold state§.

In regard to mixing water with wine, it is recommended by the celebrated Sydenham, who thought water alone crude and pernicious, but considered wine, well diluted with water, as a safe drink, particularly to those afflicted with gouty complaints‖. It is more necessary for wine

* Barry on the Wines of the Ancients, p. 55, and 59.

† Nat. Hist. lib. xiv. c. 8.

‡ The thickest wines in modern times, are those of Hungary. They are made of the juice which exudes, without pressure, from very ripe grapes.

§ Barry on the Wines of the Ancients, p. 169.—It is a curious fact, that the ancients were at first accustomed to put snow and ice *into* their wines; but they were thus vitiated by all the impurities therein contained. Nero invented, however, a mode of immersing the vessel, which contained the wine mixed with boiled water, into snow, by which means it quickly received a peculiar, pure, equal, and intense degree of coldness. Pliny says, that Nero valued himself more on this improvement in luxury, than Augustus for all the encouragement he had given to the fine arts.—*Barry on Wines*, p. 137, lib. li.

‖ Swan's Sydenham, p. 472. This plan of mixing wine and water, as has been already observed, was a favourite practice among the ancients. Hence Bacchus was called *Rectus*, because he first introduced it, having taught a certain king of Athens to dilute his wine and water; men who, through

with a larger proportion of the natural juice of the fruit, than is commonly allowed.

Cyder.—The juice of apples, made vinous by fermentation, is known under the name of cyder, or *apple-wine*. It is a wholesome liquor, provided it is properly made, and used with moderation. There is a celebrated proof of the wholesomeness of cyder, mentioned by Lord Bacon, who states, that eight old people, some of whom were near, and some above a hundred, who drank nothing but cyder all their lifetime, were so strong at those ages, that they danced and hopped like young men. Cyder is sometimes fermented and kept in leaden vessels, which produces painful and dangerous colicks; but that is the fault of the manufacturer, and not of the liquor itself. If drank to excess, it does not intoxicate so soon as wine; but the drunkenness it occasions lasts longer, and is more injurious to health*.

Cyders, at the same time, are too often but ill fermented, compared to wines, and are impregnated with much undecomposed acid; for the apple yields but a small quantity of saccharine matter, at least not sufficient, by its fermentative quality, to overcome the whole of the malic acid, which abounds in the fruit, and to convert it into vinous spirit†.

This objection might be obviated, by the addition of raisins, honey, or sugar, in moderate quantities. In America, cyder is reckoned perfectly wholesome. It sometimes disagrees with persons subject to the rheumatism; but it may be made inoffensive to such people, by extinguishing a red-hot iron in it, or by mixing it with water.

Dr. Rush has given a receipt for making what he calls *Pomona wine*, from apples‡. It is made by boiling down two barrels of cyder, fresh from the press, into one, fermenting it afterwards; and, if kept for two or three years, in a dry cellar, it affords a liquor, which, according to the

* Lemery on Foods, translated by Hay, p. 347.—Valangin on Diet, p. 131.

† See Rush's Inquiry into the Effects of Ardent Spirits, p. 21. The late frosts in spring often deprive the Americans of their apples. To obviate this calamity, they give their orchards a north-west exposure, so as to check vegetation. When they expect a night of frost also, they kindle two or three large fires of brush or straw, to the windward of the orchard. This easy expedient has often preserved the fruit, which otherwise would have been lost.—*Ditto.*

‡ In the Lancashire Agricultural Report, by Dickson and Stevenson, p. 434, there is a receipt for making cyder with honey, so as to produce a liquor of excellent quality.

stone. A large draught of small beer also, prevents bloody urine, if likely to be brought on by exercise*.

The strongest species of beer, is not so much in use now as formerly, owing to the introduction of that more fashionable liquor called porter. It is still, however, brewed where the art of making porter is not known. Strong beer, it is said, ought to have six properties. 1. A pleasant taste. 2. Being clear and thin. 3. Properly fermented. 4. Old, and purged from dregs. 5. Of an adequate strength; and, 6. Made of good materials†.

Strong beer is accounted more nutritious than wine, and more laxative; and, in moderate quantities, is of service, as a wholesome, refreshing and strengthening drink‡.

That species of liquor, known in England under the name of porter, is prepared in a peculiar manner; and, besides the ingredients commonly used in malt liquors, other articles are sometimes mixed in it§. It certainly is, when properly made, not only a palatable, but, in moderation, a wholesome drink, and would often agree with a weak stomach, when ale would not. But since such heavy duties have been imposed upon malt liquor, the brewer has been obliged to use higher heat for searching his malt more severely, and to attenuate it too much in the fermentation. Hence, it has been greatly deteriorated, and cannot be so strongly recommended as it deserved to be some years ago. London porter, as formerly made, was certainly possessed of such stomachic and diuretic powers, as to give it, in many cases, a preference over common beer and ale. When, however, it is strongly impregnated with bitters of a

* See Swan's Sydenham, p. 590.

† Venner's Via Recta ad Longam Vitam, p. 39.

‡ The celebrated Dr. Franklin, at the same time, observes that the bodily strength furnished by beer, can only be in proportion to the solid part of the barley dissolved in the water of which the beer was composed; and that, as there is a larger proportion of flour in a penny loaf, than in a pint of beer, consequently, that more strength is derived from a penny loaf and a pint of water, than from a pint of beer. As a proof of the justness of this doctrine, Doctor Franklin states, that when he was a printer in London, though he drank nothing but water, yet he was the strongest of fifty workmen, all of whom drank beer, and one of them to the extent of six pints in the day.—*Franklin's Life, written by himself*, p. 119 and 120.

§ In a work, entitled, Every Man his own Brewer, by Samuel Child, there is an account of the ingredients used in making porter, and the proportion and expence of each; but it is hardly possible that all these ingredients, more especially the more pernicious articles, can be essential in making porter. Some of them, as the coculus indicus, &c. are prohibited to be used by law.—Accordingly, in a practical treatise on brewing, printed anno 1804, it is asserted, that, in addition to water, malt, and hops, no-

According to Sydenham, small beer brewed with hops, ought to be preferred to that which has none, though unhopped small beer is smoother and softer.

It is not to be wondered at, therefore, that even ale, should at last be brewed with hops; but having a less quantity of that ingredient, it lies heavier on the stomach; hence, more attention ought to be paid to its age and fineness before it is made use of.

Formerly, in order to have their ale properly prepared, it was directed, that the liquor in which the malt is infused, should not be boiled, but the water made boiling hot; nor should the hops be put into boiling water. In that way, only the finest and most valuable parts, both of the malt and of the hops were extracted. It is by using too hot water in brewing, that the wort, or extract, is more abundant, but coarser; and though boiling it afterwards makes the liquor keep longer, it is not so wholesome*.

The best ale is now made from fine pale malt†, and with hops of the finest quality; it is more nutritious than porter, as the malt used in the manufacture is unburnt, and as it is a stronger extract of malt.

The best ales, owing to their imperfect fermentation, are heavier than porter, and are improper for weak stomachs ‡. They ought therefore to be taken, only in small quantities, by valetudinary, sedentary, studious, or contemplative people. At the same time, good ale, well fermented, and not too hoppy, may prove as beneficial towards a good chylifaction, as an equal share of wine; but it equally requires moderation.

Ale should sparkle in a glass, but the smaller the bubbles the better.

It is observed, that new ale is the most nutritive; hence tipplers of that liquor may be said, with Boniface, to eat, as well as to drink their ale.

* Tryon's Way to Health, p. 116.

† When the malt is slenderly dried, the ale is *pale;* or *brown*, when the malt is more roasted; or *amber*, when the two sorts of malt are mixed together.

‡ Falk's Guardian of Health, p. 148.

Dr. Cheyne remarks, that a weak stomach can as readily, and with less pain, digest pork and pease soup, as Yorkshire or Nottingham ale. They make, he says, excellent bird-lime; and, when simmered some time over a gentle fire, make the most sticking and the best plaster for old strains that can be contrived.—*Cheyne's Essay on Health*, p. 60.

His antagonist, Strother, observes in reply, that all farinaceous substances will do the same.—*Strother on Health*, p. 72.

Purl is a kind of medicated malt liquor, in which wormwood and other aromatic bitters are infused. It is not much in use at present, and is reckoned very unwholesome. Drinkers of purl are peculiarly liable to apoplexy and palsy*.

Mum is properly a German liquor. It is made of several sorts of grain, in the following proportions: To seven bushels of wheaten malt, add one bushel of oatmeal, one bushel of ground beans, and a variety of other articles, as the tops of fir, wild thyme, &c. &c. also ten new-laid eggs. The whole ought to be infused in sixty-three gallons of water boiled down to forty-one. The English mode of making this sort of liquor differs considerably. But, on the whole, it is not to be accounted a wholesome beverage.

The arguments in favour of this species of liquid food, in general, are next to be considered.

Malt liquors form the real wine of this country; and if properly fermented, and well hopped, they are both nourishing and wholesome †. Indeed they often make up for the scarcity and coarseness of the meal.

Different sorts of malt liquors are used for different purposes. Small beer, if made from the first of the malt, with a moderate proportion of hops, and not kept too long, is an useful drink at meals, as a diluent; and the stronger sorts, as beer, ale, and porter, provided they be not too strong, are wholesome, refreshing, and strengthening drinks; but are of so nutritious a nature, that they are better calculated for persons who lead a busy, active, and laborious life, than for the indolent and nervous.

It is a common observation, that those who drink malt liquors, are stronger than those who drink wine ‡; and to those who are trained to boxing, and other athletic exercises, old home-brewed beer is particularly recommended, drawn from the cask, and not bottled.

Malt liquors have also been found of service, as a medicine, in the typhus fever, and other disorders. Two or three English pints of strong beer have been given in a day for the typhus; and the feelings of the sick were the best proofs of its effects. They all agreed, that it did them more good than any thing. It has also been found, that bottled porter is one of the best ingredients in the diet of

* Trotter on Drunkenness, p, 38, 39. † Turnbull's Medical Works, p. 105.
‡ Hence the superior *bottom* of the British soldiery.

convalescent sailors or soldiers, and never failed to strengthen them quickly for duty*.

Among other advantages that malt liquors have over wine, are the following: That they can be made at various seasons of the year, and not merely at one annual vintage; that they are of a more laxative nature; that they may be used with advantage at sea, against that great enemy of the mariner, the scurvy; and they have over plain water this superiority, that the water thus taken is boiled, and hence freed from many noxious ingredients which may be found in plain water, but which, being mixed with the dregs of the malt liquor, and thrown away, are thus excluded from the body.

So much are those accustomed to this liquor, impressed with these ideas, that Jackson, the celebrated trainer, affirms, if any person accustomed to drink wine, would but try malt liquor for a month, he would find himself so much the better for it, that he would soon take to the one, and abandon the other.

4. This species of drink, however, has many objections urged against it.

Galen and Dioscorides, two celebrated ancient physicians, condemn malt liquors as unwholesome†. But it is probable, that in ancient times, and in the countries in which they lived, they were not much acquainted with the art of preparing such liquors in the best manner.

It is objected to the use of those liquors, that they have a tendency to produce corpulency; and it cannot be denied, that strong ale or beer, when taken in great quantities, without a sufficient proportion of exercise, must render a man fat and unwieldy‡. Without labour or exercise also, that excess of nourishment, which malt liquors contain, produces heaviness and torpor of mind; and the drinkers thereof are duller, and more phlegmatic, than those who confine themselves to the use of wine, and their understandings become enfeebled.

Thick beer is highly improper for those who are afflicted with the gravel; and malt liquors are said to breed the

* Trotter's Medicina Nautica, vol. i. p. 293.

† Galen, lib. vi. Sump. Medic. Dios. lib. ii. cap. 80, and 82. Malt liquors are called by this author, Zythum et Curmi.

‡ The drinking of beer absolutely requires exercise; and it is known, that a person, who used to drink three English quarts of porter a-day, without exercise, constantly applying his mind at the same time; from excess of study, and the porter he took, he brought on an obstinate diabetes.—*Falangin on Diet*, p. 131.

fermentation, by the addition of yeast, whence it obtains a vinous quality. When kept to a proper age, it becomes clear, fine, and has a pleasant taste. It is considered as particularly useful in nervous cases, being a powerful cordial, and approaching, in its nature, to the wines of Spain and Portugal; though it differs from them in possessing, along with its stimulant, a nourishing quality. It forms, therefore, the most proper drink for the aged and infirm; and is also peculiarly well suited to the winter season.—With many constitutions, however, honey itself disagrees, occasioning uneasiness of the stomach, and bowel complaints; wherever that is the case, mead forms an improper beverage. Even when it does agree, it should never be drank till it is fine, as it contains more viscid particles than other vinous liquors, all which should be fully deposited before it is tasted.

The difference between mead and metheglin, principally arises from the proportion of honey in each. Mead consists of one part honey, and four times as much pure water; whereas metheglin contains only two parts of water to one of honey. Besides the aromatics used in mead, certain herbs, as rosemary, hyssop, thyme, and sage, are also mixed with it; metheglin is said to be a liquor exceeding wholesome in the winter season, more especially for old people; having a singular property of heating the body, and removing phlegm; but it must not be taken new, and requires to be thoroughly fined*.

Liquors made of honey, are prepared in the greatest possible perfection in Poland; in particular, that sort known there under the name of *Lipets*. It is clear, and sparkles like champaign, and by many is thought superior to that far-famed liquor, both in strength and flavour. The honey in Poland is, in some districts, particularly Lithuania, of an uncommon good quality, which may account for the excellence of the article manufactured from it.

4. *Distilled or Ardent Spirits.*

The last, and undoubtedly the most fatal discovery, in

* Venner's Via Recta ad Vitam Longam, p. 44. Dr. Falk, in his Guardian of Health, p. 147, says, that well-made metheglin is the most generous drink in nature, suited to our climate. It may be proper to add, on the authority of an intelligent friend, that by filling a jar with honey, and hanging it in a vessel, kept full of boiling water, for two or three hours, and skimming off the wax, and whatever else is thrown up, a pure kind of honey, or sugar of honey, may be obtained, which any person may eat, to whom honey either drained, or in the comb, is disagreeable. This has often been useful to such persons in obstinate coughs.

calculated for internal use in cold and damp weather. Rum and arrack are the most styptic and heating; and the most likely to occasion complaints in the head, more especially if taken to excess*.

The qualities of all these different sorts of spirits are much improved by long keeping; and, indeed, I have tasted whisky above forty years of age, which had thereby obtained the softest and most balsamic qualities; and brandy, that had been kept in a cask for above fifty years, had its quality thereby materially improved.

In a medical point of view, spirits have some advantages. When taken judiciously, they are of considerable service in preventing the bad effects of a moist and cold atmosphere, of pestilential vapours, of very unclean occupations, of a damp military camp, and, occasionally, too, of a temporary abstinence of food. They are also of use in making a number of medicinal preparations, as elixirs, tinctures, essences, &c.; and when applied *outwardly*, great benefit is derived from them, in preventing the bad effects of cold and damp, and restoring warmth and circulation. But the bad effects of habitual dram-drinking, as summed up by Haller, greatly overbalance these advantages ‡.

Spirits are principally of use in three cases; 1. As a cordial, when the body has been suddenly exhausted of its strength, and a disposition to fainting has been induced. 2. When the body has been exposed for a long time to wet weather, more especially if it be combined with cold. Here a moderate quantity of spirits is not only safe, but may be of use to obviate debility: And, 3. In those calamitous cases, when any exercise that can be obtained is insufficient for resisting cold, wet, &c. Thus we find, in the instance of the men who were in the boat with captain Bligh, after the mutiny, exposed, for nearly a month, to cold, wet, and hunger, what a powerful effect even one tea-spoonful

* Practical Synopsis of the Materia Alimentaria, vol. i. p. 106. The intoxication produced by brandy is more lively and furious, and that from rum more stupid and beastly.

† It is a custom, he observes, which, if persevered in, contracts the stomach itself, and the passage from the stomach into the intestines. It also renders the fibres of the stomach callous and fragile, and insensible to every stimulus, even that of hunger. It contracts the diameter of the vascular system in general. It narrows the air vessels of the lungs, even to a third of their former size. It tends to coagulate all the humours of the body, the aqueous excepted. It produces ossifications of the tendons and arteries, and, in some instances, of the pleura itself, and often brings on schirrus of the whole viscera and glandular system. It induces also tumours, convulsions, and palsy of the nervous system.—Vide Haller's Physiol. lib. xix. sect. 3.

These liqueurs are fortunately less used in Great Britain than on the Continent. They are more insidiously dangerous, as they are very palatable. Many persons, of worthy and respectable characters, have been insensibly and unconsciously led into the fatal habit of tippling, by a frequent use of closet-cordials and liqueurs*.

A respectable American physician (Dr. Rush), has written a short, but valuable treatise on this subject, which ought to be reprinted, and circulated in this country. He there considers the effects of ardent spirits, as they appear in a fit of drunkenness; the chronic effects of their habitual use upon the body; their influence upon the mind; and their effects upon the property of those who are addicted to the use of them; forming altogether a mass or combination of calamity, which would stagger the most habitual drunkard. It may be proper to observe, that in training men for athletic exercises, spirits are never allowed, on any consideration whatever, not even with water.

So pernicious is the use of spirits, that it has been often recommended to Parliament, totally to prohibit the manufacture of them. But laws cannot arrest the progress of luxury, and even if the manufacture were to be prohibited in Britain, they would be imported from other countries†.

Spirits and Water.—However dangerous the occasional taking of spirits unmixed has been accounted, yet *the constant use of them with water*, is perhaps a more fatal practice; for the person who has got into this habit, continues always to increase the proportion of spirits, until at last it will equal, if not exceed that of the water, and it becomes hardly possible to renounce a habit, to which the stomach has been long accustomed.

A respectable physician, (Dr. Falconer), has written an interesling tract, in which this subject is particularly discussed. He observes, that some medical men have unfortunately been led, to give a most exceptionable direction with respect to diet, that of substituting brandy,

* Adair's Medical Cautions, p. 250.

† An intelligent correspondent has proposed it as a most desirable regulation, that spirituous liquors should be permitted to be sold *undiluted*, by none but the apothecaries, and then only to patients, in small quantities. It would answer every purpose of utility, and save many lives, if the merchants were only allowed to sell them at half the strength, or rather one-third the strength of proof-spirit, that is, about the strength of strong grog.

very opposite in their nature, being strong and weak, sweet and sour. Some contend, that half a pint of old strong beer, in a moderate bowl of punch, will mellow the fire of the spirit considerably, or that half a pint of green tea is an useful additional ingredient. Where the acid does not disagree with the stomach, punch is certainly wholesomer than *grog*, (or spirits and water), or *toddy*, (which is grog with the addition of sugar) *. When punch is made in perfection, the water should be thoroughly boiled, the sugar, the water, and fruit, should be well mixed before the spirits are put in, and the fruit used should be ripe and generous.

Sect. III. *Of the Rules to be observed, as to the Consumption of Liquors, in regard to Time and Quantity.*

The necessity and uses of liquid food having been already explained, and some account having thus been given of the different kinds of liquids commonly made use of, the only other point that remains to be considered is, the rules that ought to be observed in regard to the consumption thereof.

The points to be considered under this general head, are,—1. The total quantity of liquid food that ought to be taken in a day. 2. At what times that quantity should be taken. 3. Whether in a hot or a cold state. 4. What diluent is the best calculated for digestion: And, 5. What miscellaneous rules ought to be observed in regard to drinking.

1. Some advise those persons whose stomachs are weak, and digestion imperfect, to take their food as dry as possible, or to drink as little as they can of any liquid with their meat. But where this restriction is attempted, it is apt to produce, or to increase, a costive habit, the source of so many disorders †.

It must be admitted, that, in general, we drink too much, and thereby weaken the activity of our digestive powers ‡; but there are some persons, on the other hand,

* It is remarked, that the drinkers of toddy get sooner intoxicated than those who drink punch.

† Falconer's Observations on some of the Articles of Diet and Regimen, p. 14.

‡ The trainers to athletic exercises remark, that drinking much swells the belly, is bad for the wind, and encourages soft unhealthy flesh.

ing the quantity, until the patient is cured*. In general, however, it has been found, that it must be easier *to abstain totally*, than to attempt *partially to refrain*†.

It may be proper to add, that, for the torturing sickness and lassitude succeeding to the debauch, or intoxication of the preceding day, nothing is more dangerous than to fly to a repetition for a relief ‡. What is less hurtful, and has been found most successful, is a moderate dose of laudanum, or, in case the stomach cannot receive, or retain it, of opium, ordered, for the sake of accuracy, from the apothecary, and succeeded, as soon as possible, by some restorative soup.

On the whole, it can hardly be doubted, that, as on the one hand, a moderate use of liquid food, is essential for the preservation of health and strength, and the attainment of longevity; so, on the other hand, intemperance, in that respect, lays a foundation for many of the most fatal disorders with which the human frame can possibly be afflicted §.

* Garnett's Lectures on Zoonomia, p. 248.

† It appears from Boswell's Life of Johnson, that even that great philosopher found it necessary to adopt the same rule. "He could refrain, but he could not use moderately." See Life of Johnson, 6th edition, vol. i. p. 450.

‡ Those patients who give up fermented beverage, may receive benefit from vitriolic, nitrous, or marine acids, mixed with water and sugar, so as to suit the palate, and not strong enough to set the teeth on edge. Even the mineral lemonade may be made use of by the sufferer from indigestion. —*Beddoes's Hygeia*, vol. ii. p. 53.

§ Trotter's Essay, Medical, Philosophical; and Chemical, on Drunkenness, and its Effects on the Human Body, (one volume octavo, printed at London, *anno* 1804), is the best distinct work that has been written on this subject. There is a good section on drunkenness in Darwin's Zoonomia, vol. i. p. 240; and some valuable hints regarding it in Pinkerton's Recollections of Paris, vol. ii. p. 338. Dr. Willan, also, in his Reports on the Diseases of London, gives a very satisfactory explanation of the dreadful effects of dram-drinking, with directions to those who are desirous of returning to sobriety and health, an extract of which was printed and circulated, at the expence of the Society for Bettering the Condition of the Poor.

4. The fruits to be classed under the head of small berries, are the cranberry, the bilberry, and the red whortleberry. Of these the cranberry is the one principally in use; and, when baked with a proper quantity of sugar, it makes a tart that is generally relished.

5. The farinaceous fruits are not considered to be of a wholesome quality. The melon, which is the principal, is said to be an article of great consumption in some parts of Asia, particularly in Persia, but it is not so generally made use of in Europe; and the plan of eating it, adopted in France, namely, with roasted meat, is much preferable to the mode usual in England, that of mixing it with other fruits after dinner, when it disagrees with many stomachs. The water-melon is, in hot climates, very useful in quenching thirst, and cooling the body, and ought to be more generally propagated than it is. The cucumber is not a general favourite, and is principally consumed in salads, and in a raw state can only be safely taken by those who have strong stomachs. It makes, however, a useful addition to various sorts of soups and broths. The gourd, and the pompion, are not much known, or approved of in England.

Of Fruits in general—Fruits have two bad qualities; the first, excess of acid; the second, a tendency to fermentation.

Unripe fruits possess much of the acid principle: fruits when ripe, abound more in saccharine matter, and may be more safely used.

There are three modes of consuming fruits: In a crude state,—dried,—or prepared by the arts of cookery.

When crude, they ought only to be eaten thoroughly ripe; and, if then taken in moderation, they are of the highest utility. They seem to be produced by nature at that season of the year, when such substances, with the watery, refreshing, and diluting qualities they possess, are particularly acceptable, tending to allay that excessive heat, and increase of circulation, which our body, during the heats of summer and autumn, is apt to be troubled with.

In some countries it is usual to breakfast upon fruit; and such a plan may be wholesome, in cases where the labour the individual has to undergo, does not require more nourishing diet. Others take their fruit before dinner, and this practice is supposed to be proper for those who are of a costive habit*. The use of fruit, however, *after meals*, is

* Persons in health may eat fruit at any time. Young persons, full of blood, may be benefited by a moderate use of fruit an hour or two before

3. *Pulses.*—Next to fruits, and the nut species, men would naturally apply to the pulse tribe for subsistence, as it required little labour to procure it. Of these articles, pease are the most general. In a tender state they form a wholesome and light food; and even when brought to maturity, they are excellent for various culinary purposes. They are sometimes made into bread; but without a large admixture of wheaten flour, the bread is hard, heavy, and unpalatable*. Lentils are an inferior sort of pea. The bean is another species of pulse, much used in this country, but more frequently given to horses, than to the human species. Kidney beans, being eaten with their cod, are not so flatulent as other pulse. When well boiled, they are palatable; but not very nourishing.

The consumption of pulse, as human aliment, is greatly circumscribed. In their earlier state, when succulent, they are generally acceptable; but when all their parts have reached maturity, they are only calculated for those who have strong digestive powers of stomach. It is fortunate, however, that they furnish excellent food for various descriptions of domestic animals; and thus the soil, which would be exhausted by perpetual crops of grain, is enabled to preserve, or to recover its fertility, under the less severe production of the various sorts of pulse, which derive no inconsiderable proportion of their nourishment from the atmosphere.

4. *Grains.*—When neither fruits, nor any of the pulse tribe could be obtained, men would endeavour to procure, from the various sorts of grain, the means of their subsistence: of these, the principal are, 1. Wheat. 2. Barley. 3. Oats. 4. Rye. 5. Rice; and, 6. Maize; to which some miscellaneous articles may be added.

1. Wheat is the most perfect, and the most nutritive of grains, and the best calculated for making bread. It consists of three distinct parts, two of a vegetable nature, and one a sort of gluten, which possesses the properties of animal matter. 2. In many parts of Europe barley is the principal article of subsistence, and till within these sixty years, it was much used in the midland and western counties of England; but the bread formed from it, though not unwholesome, is darker and heavier than wheaten bread. It should be made into pot or pearl barley, before it is con-

* In Edlin's Treatise on Bread-making, there are receipts for making pease bread, &c. which, as substitutes for wheaten bread, are well calculated for the active and laborious classes of the community.

ceed to consider the different classes of animal food used by men, under the following general heads: 1. Quadrupeds. 2. Birds. 3. Fish, and, 4. Amphibious animals.

1. *Quadrupeds.*—This extensive source of animal food, which affords more nourishment to man than all of the other conjoined, may be considered under seven heads. 1. Cattle. 2. Sheep. 3. Pork. 4. Goat. 5. Venison. 6. Hare, and, 7. Rabbit.

1. The flesh of oxen, well fed, and of a proper age, is justly accounted the most nutritious of all kinds of animal food, and is easily digested by persons in health *. Cow beef is tenderer when the heifer is young, but is frequently tougher, because the cow is commonly older than the ox when slaughtered. Veal is tender and nourishing, but not so easily digested, from its glutinous quality. To weak and indolent stomachs, its digestion requires to be assisted by the addition of vegetable acids, as lemon or vinegar. In regard to the various sorts of wild cattle, their flesh is in general much inferior to the domestic ox. Beef is constantly in season, since by the improvements in agriculture, cattle can always be abundantly supplied with food, even during the depth of winter.

2. Mutton is well known to be a highly nutritious and wholesome meat, and is perhaps more universally used, and, indeed is more generally relished, than any other sort of animal food. Wedder mutton is most esteemed, and is generally accounted the sweetest and most digestible; but a ewe, that has not had a lamb the season before she is killed, yields as good mutton as a wedder of the same age. The quality of the flesh depends in a great measure upon the nature of the pasture, and the age of the animal. When fed upon a dry pasture, especially if mixed with wild herbs, and kept to four, five, or six years of age, no meat can be more savoury†. Lamb, when properly roasted, and of a proper age, that is, from four to six months old, is an ex-

* The following fact proves the nutritious qualities of beef. Humphries the pugilist, was trained by Ripsham, the keeper of the jail at Ipswich. He was sweated in bed, and afterwards was twice physicked. He was weighed once a-day, and at first fed on beef; but as on that food he got too much flesh, they were obliged to change it to mutton.

† Wedder mutton, when fed on dry pasture, near the sea shore, and at five years of age, is in its highest state of perfection. Roasting is the best form of eating it. Some have observed, that the fat of mutton, from its tendency to coagulate, is less easily assimilated in the stomach than the fat of most other animals. The lean of mutton, therefore, is the preferable part for food.—*Turnbull's Medical Works*, p. 54.

ment of an egg, depend upon the food given to the hen. The best eggs are those from hens fed on wheat; next to that, on rice, barley, or potatoes.

4. Honey is a most valuable animal substance, though it does not agree with every stomach, yet where it does, it is most excellent food; and, in Sir John Pringle's opinion, was entitled to be called, the juice of long life or immortality. An ancient philosopher, (Democritus), being asked, when he had reached one hundred years, how he had contrived to live so long? answered, By the application of oil without, and honey within. Pythagoras, noted for his great age, and the enjoyment of health with it, lived much upon honey; and both Pliny and Dioscorides call it *utile senibus**, or good for the aged. It is sometimes used in medicine, as well as in diet.

5. There is a singular substance, a nest, consisting entirely of hardened gluten, which a species of swallow constructs in hollow rocks, of sea-worms, and other gelatinous marine articles, which bears some affinity to isinglass, and is esteemed a great delicacy by the Chinese, the Cochin Chinese, and the inhabitants of various islands in the Indian ocean. They dissolve it in their broths and soups.

Observations regarding Animal Food in general.

To live on the substance of other animals, is by many considered to be unnatural. But there are numbers of creatures both on land, and in the waters, who must subsist solely on animal food, not being able to procure vegetables, or to eat them, if they could be procured. It was therefore intended by nature that such food should be eaten†. It is likewise evident, from the structure of the human body, that it was calculated to be partly maintained on meat. Providence also seems to have intended other ani-

* By putting a quantity of honey in a jar, which is hung suspended in a pot filled with boiling water, for a few hours, and skimming off the wax, till it be completely pure, a very fine sugar of honey is obtained, which any person may eat safely, though he could not taste common honey.

† Dr. Franklin had for some time adhered closely to a diet purely vegetable; but in the course of a voyage he had taken from Boston to Philadelphia, some cod were caught, which were dressed on board, and the flavour of which seemed so delicious, that he broke through his vegetable system, and ever after continued to eat like the rest of mankind, recurring only occasionally to his vegetable plan. Some small fish had been found in the belly of the cod, which led him to reason thus: "If you eat one another, I "see no reason why we may not eat you."—*Franklin's Life, written by himself*, p. 91.

mals for the use of man, from the astonishing increase of several sorts*; and as Pliny remarks, nature has shewn great kindness to us, in causing many creatures so well calculated for our food, to be so prolific. The custom likewise of eating animal food, has become so general, and is so deeply rooted in our habits of late, that it could not now be given up; nor without it, indeed, could so many millions of human beings, be maintained in bleak and northern countries, where the finer and more useful sorts of vegetables are reared with difficulty.

It is also to be considered, that if animals were not killed for food, we should lose a great number of the comforts of life. Besides meat, we obtain by the slaughter of animals, several most important articles, as leather for our shoes, and various other purposes, fat for candles, soap, &c. without which we should often feel the greatest inconvenience.

An ingenious poet, who grounds his doctrine on the highest of all authority, has well observed,

> " Nor the green herb alone,
> Unequal to sustain man's lab'ring race:
> Hence every moving thing that lived on earth,
> Was granted him for food†."

At first the flesh of wild animals would be thought of for subsistence, and they are still accounted wholesomer than the tame or domesticated, as they take more exercise, and feed without constraint, upon the articles they prefer. Their fibres, however, are more rigid and dry, whilst those of the domesticated kinds are more juicy and tender.

Wild animals being commonly killed in their blood, are thence apt to become soon putrid.

Those domesticated animals which feed themselves, and are fattened on their natural food, are justly supposed to afford more wholesome nourishment, than those that are stall-fed; because, being deprived of their natural exercise, their juices cannot be so well assimilated‡. Animals, in these days, are not so wholesome as formerly, from the practice of feeding them with oil-cake, and other improper

* The increase of the hog is very rapid. From a pair of rabbits, it is calculated that 1,274,840 may be produced in four years. The increase of the cod is still greater, for in a single roe of that species of fish, there are many millions.

† Somerville's Chase, book 1.

‡ Adair's Medical Cautions, p. 188. Cattle fed two years, though they have less tallow within, yet the flesh is finely marbled, and incomparably superior to what is hastily fed in a shorter period of time.

foods, arts not formerly in use. To fatten animals, however, on proper food, cannot be objected to, as the flesh is thereby rendered more abundant, and nutritive.

In the choice of animal food, we should always consider, whether it is in season or not, for the same sort of meat, which at one period of the year is good, may at another be hurtful. For example, pork is a wholesome food for many people in the winter season, but in summer, it is not fit to be eaten in a fresh state, unless particular attention has been paid to the feeding. By the arts of man, the other sorts of domesticated animals are equally fat at the different seasons of the year, though every person of delicacy of taste would prefer autumnal beef or mutton, fed on natural pastures, to those fattened in winter on turnip, and by other artificial means. The proper time for using the meat of each class of animals is, when their natural nourishment is in greatest plenty. As to that predilection for insipid premature meats, as house-lamb, so much the fashion with luxurious people, it does not seem to be well founded; for nature certainly destined that they should attain their proper growth by natural means, before they are used as food, either when young, or older, and their juices in that state, are more nutritive and invigorating*.

Every animal destined for slaughter, ought to be killed unawares, and in its prime of health. When its blood is inflamed by over-driving, it must make unwholesome food, resembling carrion rather than sound meat†.

It has been thought necessary to deprive domesticated animals, as much as possible, of their blood, when killed; as the meat is thereby longer preserved from putrefaction, though blood is not accounted an unwholesome article of food; but, by over-driving those animals toslaughter, the blood is so diffused in the cellular membrane, that it cannot be emptied by bleeding; and the meat is heavier, to the benefit of the butcher, but to the loss of the consumer‡.

The custom of keeping meat for a considerable time, before we dress it, is with a view of rendering it more tender, palatable, and juicy, and easier of digestion. It is said, indeed, that a person may eat double the quantity of meat hung up for some time, without any prejudice to his stomach, that he can of meat fresh killed. When putrefac-

* Adair's Medical Cautions, p. 201.
† Falk's Guardian of Health, p. 122.
‡ Adair's Medical Cautions, p. 274.

tion has begun to take place in the meat, out of the body, it will doubtless sooner be digested in it. Such meat, therefore, may be well calculated for weak stomachs; but what it acquires in tenderness, it loses in its nutritive quality. Hence, meat long kept, is not so nourishing as that which is fresh killed.

The French, it is well known, do not relish animal food, unless it partake strongly of the *fumette;* but they eat a considerable proportion of bread with it, and that, with their small wines, corrects the putrescency*.

Meat apt to putrefy, like the pigeon, is sooner digested than the duck, which is of a firmer texture, but in large quantities such meat cannot be recommended.

Some parts of animals are more tender than others, and more easily digested, as the head, the tongue, the udder, &c.; others are more difficult of solution, as the external muscles, the stomach, and liver. These last articles, however, are the most proper foods for persons of strong stomachs and quick digestion.

The essential oils of vegetables, are often agreeable to the stomach, and stimulate it, so as to forward digestion; but animal oils, though agreeable to the taste, are not equally digestible. Hence pork, geese, ducks, salmon, &c. containing much of this oil, may be acceptable to strong stomachs; but if eaten in too great quantities, or if the stomach be weak, they will disagree with it. Animal fat, however, ought not to be totally rejected. For, though oily matters, in large quantities, may oppress the stomach by their tenacity or viscidity, yet, as oil constitutes a very considerable part of our foods, both animal and vegetable, and as a large quantity of oil is deposited in various parts of the body, chiefly in the form of fat, it can hardly be conceived, that an article which is so predominant in our bodies, should be inimical to health†.

The digestibility of meat, depends much upon the nature of its fibres, and their being mingled with fat or otherwise. Hence beef is more difficult of digestion than mutton, the fibres of the one being grosser than the other. Animal food also, whose fibres have little fluid between them, that is dry meat, is more indigestible than moist. Thus, lean animals are harder of digestion than fat ones, and the lean part of fat meat, is easier of digestion than the lean part of

* Adair's Medical Cautions, p. 202.
† Ibid. p. 283.

Those also live on animal food have more *bottom*, or can longer endure personal exertion, than those who live upon vegetables. This is particularly the case in war; and it gives to northern, with equal degrees of spirit or courage, a great advantage over southern nations.

Many objections, however, have been urged to the use of this species of food.

Animal food is, in one respect, more wasting than vegetable, for it excites by its stimulating qualities, a temporary fever after every meal, by which the springs of life are urged into constant, preternatural, and weakening exertions.

The late Sir Edward Barry prevailed on a man to live for eight days on partridges, without vegetables; but was obliged to desist, from the appearance of strong symptoms of putrefaction *. The result of this experiment shews, how necessary it is that animal food should be qualified by a due proportion of vegetables†, as by a mixture of both, the blood best calculated to nourish, and strengthen the body, is formed.

Persons who live chiefly on animal food, whether fish or flesh, are subject to various fatal disorders; as the scurvy, malignant ulcers, and fevers; and are likewise liable to corpulency, more especially when united to inordinate quantities of liquid food.

As animal food fills the vessels fuller with blood than vegetable, it naturally increases our muscular strength; but then it loads the brain at the same time, which occasions heaviness and stupor; whereas vegetable food, from not loading the system with blood, rather diminishes muscular strength, but enables the blood to act with greater force. Vegetable food, therefore, is fitter for the studious, giving clearness of ideas, and animal food is best adapted for the laborious classes‡.

of a patient received into the general hospital at Vienna, with a perforated stomach, that flesh meat was constantly digested with expedition and ease, but that vegetables, in general, were much longer in undergoing this process.—*Beddoes's Hygëia*, vol. ii. Essay VIII. p. 19, & 20.

* Adair's Medical Cautions, p. 202.

† Ibid. p. 205.

‡ The following are some, among the many admirable observations which Cullen has handed down to us, on the subject of animal and vegetable food. It is plain, he remarks, that delicacy of feeling, liveliness of imagination, quickness of apprehension, and acuteness of judgment, more frequently accompany a weak state of body. True it is, indeed, that the same state is liable to timidity, fluctuation, and doubt; while the strong have that steadiness of judgment, and firmness of purpose, which are proper for the higher and more active scenes of life. The most valuable state of the mind, how-

Sect. III. *The Means of preserving Food till it is consumed.*

Some articles of food cannot be consumed too rapidly, after they are obtained. This is particularly the case with the more delicate substances, as eggs, milk, and butter, the class of fish, and the generality of the vegetable tribe. Some kinds of fruit may be excepted, as the pine-apple, the orange, and the pear, when pulled not perfectly ripe. Various articles of animal food, however, as has been already observed, are the better of being preserved for some time, at least in countries with a cold temperature. In the warm climates, indeed, where excess of heat renders the process of putrefaction immediate, the meat is used in its best state while it is yet warm, and almost before life is extinguished. In this country, on the contrary, on the extinction of life, a density, or firmness of fibre, takes place. Hence new-killed meat is hard, tough, and not easily broken down. This state, however, alters as soon as the process of putrefaction begins, which soon loosens the connexion of every part. No animal food, therefore, should be used in this country, until it has been preserved for some time, according to the coldness or the warmth of the season. In regard to wild animals, this rule is often carried so far, as to render them unwholesome, and almost unfit for use.

Men, however, soon become desirous, not only to preserve food for a few days, and to render it more palatable, but also to see the necessity of laying up, while they have it in their power, a store of provision for their future use, in order to prevent any risk of scarcity or famine. The various arts which have been discovered for that purpose, may be classed under the following general heads: 1. Drying in the sun. 2. Artificial heat. 3. Salting. 4. Pickling. 5. Preserving by butter. 6. Sugar. 7. Ice; and, 8. By various other substances.

1. The simple process of drying by exposure to the sun and air, was probably the first means thought of to pre-

healthy serum, and discharge the superfluous quantities, while the other is oppressed, and variously affected by it. *Barry on Digestion*, p. 91.—Hence he contends, that animal diet, being more easily assimilated than vegetable, is better calculated for weak constitutions; and that persons with a strong constitution, who use much exercise, can best digest, and more safely live on a diet of the vegetable kind, and water for drink, than those of weaker stomachs. Ditto, p. 110.

cular, becoming highly alkaline in the stomach, yet lean salted beef proved easy of digestion. Salted meat, therefore, can only be very injurious, when, by long keeping, the putrescency of the meat prevails over the preserving power of the salt, and part of the salt becomes ammoniacal*.

4. Pickling is properly performed by the use of vinegar and aromatics†. It is applied both to animal and vegetable substances. In the first case, it is intended for food; in the second, as condiment or seasoning. Pickled salmon is an article of the first sort: when eaten cold, it is reckoned heavy, but it is a great improvement on that sort of food, to warm it again, by steam, or in hot water, when it resembles fresh salmon, with the addition of vinegar.

5. Many articles also, particularly fruits, are preserved by sugar, either in a dry or in a wet state. This includes a material branch of the art of the confectioner. M. Gosse found, that fruits boiled with sugar were very easy of digestion, and that any tendency to fermentation in fruits, was greatly corrected by the addition of sugar and spices.

6. The art of preserving meat, fish, &c. in ice or snow, has long been known, in various countries, as in Russia, Spain, and China, but has only been recently attempted in Great Britain. It has hitherto been solely applied to the conveyance of salmon from the remote parts of Scotland to London, a plan originally recommended by that respectable patriot, George Dempster, Esq. It is remarked, that unless the ice is very gradually dissolved, the fish is very apt to lose the firmness of its texture.

7. The principal difficulty in preserving meat, being the total exclusion of the air; one mode of effecting this, is by *potting*, as it is termed, the meat of fish being put up in

* Adair's Medical Cautions, p. 204. It is impossible, however, to go so far as Bacon and Boerhaave. The first recommends flesh and fish rather powdered and salted, than fresh and hot. See Code of Health, 2d edit. vol. iii. p. 171; and Boerhaave, for prolonging life, prefers dry and salted meat, also salted and old fish, and in general every thing that is dry, hard, and tenaceous; grounding his opinion on this principle, that they resist more dissipation and putrefaction.—*De Dieta ad Longævitatem*, Num. 1057.

† Slight salting is also called pickling, but improperly. In Scotland, they use a very appropriate term for slight salting, they call it *powdering*, and sometimes *corning*. There is no better mode of eating boiled beef than in that state. That preparation called *brawn*, made from the flesh of an old boar, is obtained, by means of pickling with salt. It produces an article, insipid and horny, and which none but the strongest stomachs can digest.

Sect. IV. *The Cookery, or the Mode of preparing Food for Consumption*.*

It is probable that man originally ate both vegetable and animal foods in a crude state; and to this day some of the African nations, the Esquimaux Indians, the Patagonians and Samoeides, devour raw flesh and fish, and drink the blood of the animals. Such a mode of living produces, it is said, great bodily vigour, ferocity of mind, and love of liberty†.

In general, however, animal food undergoes some preparation before it is consumed. It is hardly to be credited what expedients some tribes have resorted to, in order to obtain that object, as putting heated stones in the bellies of pigs to roast them, or burning the straw in order to parch the grain. From these humble attempts, the great refinements of cookery, and the art of making bread, originated.

It is certain, that cookery is an useful art. By it many articles are rendered wholesome, which could not otherwise have been eaten; but by it likewise, many articles are rendered unwholesome, which would otherwise have produced nourishing food.

Cookery may be considered under two general heads, the simple, and the refined or compound.

The first, though apparently easy, requires a considerable degree of attention and experience; and the second is an art of so diversified and extensive a nature, that it is rarely carried to any considerable degree of perfection; and it would have been no loss to human nature if it had never been invented‡.

Simple cookery includes the following modes of dressing

* It has been remarked, that the subject of cookery, and the circumstances on which mixtures of different articles of food are in some cases admitted, and in others are condemned, have never been treated of in a scientific form, nor explained on chemical principles. It is an inquiry of a very extensive nature, and might be considered under three divisions: 1. As applied to the preservation of health. 2. To the counteracting of disease; and, 3. To the relish of the palate: though the last belongs more properly to the cook, than to the man of science. See Nisbet's Practical Treatise on Diet, printed at London, an. 1801, a most useful compilation on that subject. If such a work were undertaken, it ought to be extended, not only to kitchen, but to *table cookery*, including the nature and uses of the different condiments, and explaining the medical arrangement of dishes; at what seasons the different sorts ought to be taken, and the effects of the mixture of different kinds.

† Adair's Medical Cautions, p. 272. The famous philosopher Zeno, the first of the Stoic sect, and others, have lived on raw meat. Diogenes, however, it is said, fell a sacrifice to that practice.

‡ Adair, in his Medical Cautions, p. 172, (note), says, that Dr. Saunders proposed to publish an essay on the present modes of cookery, pointing out

6. Baking consists in the application of heat in a dry form, the meat being put in a vessel covered with paste, instead of its being exposed to the open air. Any considerable exhalation is thus prevented, and the meat, by the retention of all its juices, is rendered more sapid and tender. But baked meat sits heavy on some stomachs, from the greater retention of its oils, which are in a burnt state. It requires, therefore, the additional stimulus of spices and aromatics, to assist the powers of the stomach to digest it.

7. Digestion is the last discovered process of simple cookery. It is performed in a close vessel, and resembles boiling, being conducted in a very high temperature, while, from the closeness of the vessel, the advantages of stewing are procured. It is not, however, much in use.

Besides these various simple modes of preparing animal food, there is another, which it may be proper here to take notice of, namely, when animal food is dissolved in water, and formed into a gelatinous solution or jelly*. This substance is of a viscid nature, and though it contains much nourishment, yet it is difficult of digestion, and, of course, less calculated for diseased or weak stomachs than is commonly imagined. Nor are those jellies, which are the mucilaginous extract of certain parts of animals, as hartshorn, very digestible; indeed, a too liberal use of them has often proved injurious†. They can only be recommended for the sick, accompanied with a quantity of stale bread. To those who require any article of that sort, more especially if their stomachs are weak, simple beef-tea, properly prepared, is the most nutritive balsam that can be administered‡.

One would imagine, that all the various modes of preparing food above enumerated, might satisfy the most luxurious appetite; but, instead thereof, the ingenuity of man has been exerted, to discover a number of other preparations. Hence, a system of refined, or compound cookery,

flesh which is dressed in this manner, undergoes a much more violent heat than that which is boiled; for oil requires six hundred degrees of heat by the thermometer, to make it boil, whereas water will boil with two hundred and twelve degrees; so that the salt and oily parts of the meat, are made so much more acrimonious by the intenser heat.

* Some French physicians have recently recommended what they call *gelatine*, or compact animal jelly, as a remedy more efficacious than the bark, in most diseases where that substance is administered; but its powers have not fully answered the expectations entertained. A calf's foot for supper, without any sauce, is found as beneficial as the gelatine.—*Pinkerton's Recollections of Paris*, vol. i. p. 301.

† Adair's Medical Cautions, p. 197.

‡ Falk's Guardian of Health, vol. i. p. 177

tion of some old paste, or leaven to the new paste, which makes it undergo the fermentative process; or, by the addition of barm or yeast. The first plan is generally adopted in foreign countries, and the second in Great Britain.

Unleavened bread consists of a mixture of meal and water, formed into a firm and tough cake, made as thin as possible, to favour its drying; and sometimes with the addition of butter, to render it more soluble, friable, and porous; but it renders the bread sourer, and is apt to produce heart-burn.

Of the unleavened sorts of bread, biscuit is by far the best; and, in all cases where leavened bread does not agree, it cannot be too strongly recommended. In equal quantities, it is more nutritive than fermented bread; it is also lighter, and less liable to create acidity and flatulence.

In some of the interior counties in England, where their bread is often manufactured from oat-meal, they have a mode of preparing that meal for the manufacture of bread, by making it sour; the bread, instead of being hard, is thus rendered of a soft texture, and, from its moderate acidity, it is wholesome*. By the same mode, barley-bread has been made; and, with a small proportion of yeast, has formed a species of food that might please the most delicate stomachs. There is not the least occasion, therefore, when any scarcity takes place in this country, to introduce such quantities of foreign wheat, when we have oats, barley, and white pease of our own produce†, that might answer the purposes of aliment, much better than the miserable and unwholesome trash which we are too apt to receive from foreign countries, and by the mixture of which, our own wheat is so often contaminated.

3. The different sorts of wheaten bread may be considered under three classes; fine bread, coarse bread, and rolls. The finer sorts of bread are certainly the most indigestible, and consequently are best calculated for strong stomachs; they ought only to be consumed, therefore, by the laborious, and not by the luxurious or the sedentary

* It resembles what is called sowens, or oat-meal flummery. This article is prepared by letting oat-meal and water stand together till the liquor becomes acidulous, when it is poured off, and boiled to a jelly. Pringle and Blane relate, that, in several instances, the scurvy has been prevented and cured by this preparation alone.

† The mixture of white pease meal is an improvement on bad flour; and when barley or big is made into pot or pearl barley, it yields a very fine species of flour, which, *when baked with milk*, can hardly be distinguished from wheaten flour.

Acids assist digestion merely, and afford no nourishment, unless the juice of sour fruits furnish any. Acids are sometimes employed to create an appetite; and, for that purpose, lemonade is sometimes taken before dinner in hot countries, where, owing to an increased circulation in the skin, the internal circulation is diminished, and of course, the stomach weakened.

But the principal use of acids is, to be eaten with animal food. Thus, lemon or vinegar is an excellent addition to fish; and shell-fish in particular, ought never to be eaten without some acid, being in their nature so extremely viscid, and, without that addition, indigestible and unwholesome. It is for the same reason that we use acids with veal, lamb, and other young animals, namely, to correct their viscidity, or glutinous nature.

The French use vinegar more liberally than we do; and it is a very proper sauce for their meats, which they generally eat in a putrescent state. Their vinegar is much more genuine than ours, which is frequently adulterated with oil of vitriol*. Of all acids, vinegar, provided we attend to its quality, is the safest.

4. The hot or spicy condiments form a numerous tribe. They are powerful stimulants, that is to say, they increase the action of the stomach: And, as digestion partly depends upon the contracting power of the stomach, when that organ is weak, it is necessary to have some article that will stimulate it to action. Of these, the different kinds of pepper may be considered as the chief; and they are of the greatest service in the warm climates, to enable the body to resist and support the exhausting influence of the sun. In mild climates, however, they are less required; and though used with greens and other vegetables, to correct their flatulent tendency, yet, on the whole, they are better fitted for languid and debilitated stomachs than for

and water as their common drink; and every soldier was obliged to carry with him a bottle of vinegar, to correct the qualities of any unwholesome water he met with in his marches. This beverage was found of singular service, in preventing fevers, plagues, and putrefactions, and in giving a stimulus to the water they drank, by which it was prevented from lodging in the body.—See Cheyne on Health, p. 58. Also Jackson on Fevers, p. 407. ——Too free an use of vinegar, however, is certainly destructive to the stomach; and, by the abuse of that article, when slenderness of waist was particularly in request, many women totally ruined their digestive faculty. The nitrous acid is a much safer prescription.—*Beddoes's Hygëia*, vol. ii. Essay viii. p. 50.

* Adair's Medical Cautions, p. 229.

ment being taken, and to promote digestion; but where they are taken immoderately, they tend to weaken the stomach, to occasion acrimony in the fluids, and to produce a general irritation in the whole system.

Sect. VI. *The times of Eating, and the sort of Food best adapted for each Meal.*

Nothing proves more clearly, that man is the child of custom, than the various systems which have been adopted regarding the times of eating, and the number of meals per day. Some recommend no regular plan whatever, but to eat when hungry, and to drink when thirsty; but this rule can only be adopted in very particular circumstances, where individuals live alone, have nothing to think of but themselves, and have a diet prepared for the purpose. They may then indulge their appetites when they think proper*. In all numerous families, however, regularity is indispensible. Indeed in this, as well as in other respects, nature delights in having stated periods for carrying on its operations †.

Besides, man is a social animal; and when there is abundance of food, he relishes it much more, when he partakes of it in company with others, than when he devours it in a cold and melancholy manner by himself.

Those who are young, and in a state of perfect health, may take liberties as to diet, both in regard to time and quantity. But when persons are advanced in years, and the body becomes infirm, a certain, habitual, approved, and wholesome, mode of living ought to be adopted, and followed from day to day, periods of disease alone excepted ‡.

* Dr. Franklin knew a gentleman who had been a slave in Barbary, and was allowed only a certain quantity of barley, which he took with him every morning to the quarries where he was employed. He there found water to drink. His practice was, to eat a little now and then, whilst at work; and, having remained many years in slavery, he had acquired so far the habit of eating frequently, and little at a time, that when he returned home, his only food was gingerbread nuts, which he carried in his pocket, and of which he eat from time to time.—*The Works of William Stark, M. D.* p. 92.

† The stomach thus gets into the habit of a regular time for evacuation, a point of infinite consequence.

‡ See Kant's Treatise on the power of Resolution over Disease, Code of Health, 2d edit. vol. iii. p. 254. Those who have weak stomachs, as Darwin justly remarks, vol. i. p. 454, will be able to digest more food, if they take their meals at regular hours; because they have both the stimulus of the aliment they take, and the periodical habit, to assist their digestion.

But, though regular meals are desirable*, it has been much disputed, how many should take place in a day, some preferring one, some two, some three, some four, and some even five meals daily. The diversity of age, sex, constitution†, climate, and customs, will make a surprising difference in this respect. In general, it is advisable, not to make the distance between the meals too great. The body will thus be regularly supplied with nourishment‡, and no unusual craving or debility will ensue.

As it appears from experiments, that food rarely remains longer than six or seven hours in the stomach, our meals ought to be regulated by this circumstance; an early breakfast and dinner, will enable us to make an early supper; and, by this means, the extremes of repletion, and long fasting, may be avoided§.

Some nations have been satisfied with one meal a day. But the stomach would thus be oppressed with too great a quantity of food, and, in the interval, would suffer from the want of some nourishment in it. Indeed, such a plan is neither calculated for persons of a strong constitution, and engaged in much labour and exercise, who require large supplies, nor for those of a weak constitution, who are not able, either to *take* or to *digest*, such a quantity of nourishment in a single meal, as will be sufficient to supply the *waste* of the body, and more *equally* to support the strength and spirits for twenty-four hours‖.

Celsus recommends it to the healthy, to take food rather twice in the day than once¶; and there are few who take solid, or at least animal food oftener.

* The periods of hunger and thirst become catenated with certain portions of time, or degrees of exhaustion, or other diurnal habits of life. And if the pain of hunger be not relieved by taking food at the usual time, it is liable to cease till the next period of time, or other habits recur.—*Darwin's Zoonomia*, vol. i. p. 454.

† Bilious people, with a boldness of temper, and inclined to anger, cannot endure fasting; for the bile, with which they abound, is a strong, sharp, and stimulating dissolvent, which should always have something to act upon. It is, therefore, advisable for them to eat often, and little at a time, or to take four meals a-day.—*Valangin on Diet*, p. 146.

‡ Many suffer from the irregularity of meals, more especially those who are concerned in great public affairs; as the Judges, the Members of both Houses of Parliament, &c. They are so taken up with these weighty concerns, that they cannot find a moment's time to take any nourishment, for many hours, almost for a whole day.—*Valangin on Diet*, p. 151.

§ Adair's Medical Cautions, p. 260.

‖ Barry's Observations on the Wines of the Ancients, p. 224.

¶ See Grieve's Celsus, cap. i. p. 23.

Sect. VII. *The Quantity of Food that ought to be taken at the different Meals; with some Observations on Abstinence, Temperance, and Excess.*

An intelligent author has justly remarked, that good health depends on a proper quantity of food, and a just proportion of the meat to the drink *; and it cannot be doubted, that among the higher orders of society, almost all the chronical diseases, many of the infirmities of old age, and shortness of life in general, are owing to repletion. In polished nations, indeed, men commonly eat at least double the quantity of food necessary, and often four or five times more than they ought to do.

The amount of food to be consumed, must certainly depend upon various circumstances, more especially on the exercise or the labour undergone; in other words, different quantities are necessary for those who lead, 1. A sedentary life. 2. A life with exercise; and, 3. A life of labour.

1. Cornaro found, that twelve ounces of solid food, and fourteen ounces of wine, or twenty-six ounces in all, was as much as he could consume with safety; and when he increased the one to fourteen ounces, and the other to sixteen, even that moderate addition occasioned severe illness †. Another respectable individual, who tried experiments with diet in the 64th year of his age, adopted the following plan ‡. He took for

* See Robinson's Dissertation on the Food and Discharges of the Human Body, p. 61.

† See Code of Longevity, vol. iii. p. 63. On the whole, too much stress seems to be laid on the doctrines of Cornaro. Feyjoo remarks, that God did not create Lewis Cornaro to be a rule for all mankind in what they were to eat and drink. The learned Jesuit Lessius, who translated the Treatise of Cornaro from Italian into Latin, was so strongly persuaded by it, that he had bound himself under the same restrictions. He, however, lived only to the age of seventy-nine, and that with many disorders which he laboured under. To one man, like Cornaro, who lived an hundred years with such strict diet, we may oppose a great number of others, who have lived much longer, without all these scruples. His constitution required such abstinence, which few others might be able to bear. *Father Feyjoo's Rules of Preserving Health*, p. 82.—Cornaro tells us, that in order to preserve his health, he not only resolved to restrict himself, as to the quantity of his liquid and solid food, but carefully to avoid cold, fatigue, grief, watchings, and every other excess, that could hurt his health. How could the business of the world be carried on, if every man, like Cornaro, were to begin following that system at the fortieth year of his age?

‡ See Robinson's Dissert. p. 62, 63, and Table 2.

inhabitants of different countries, by the articles which are either indigenously produced, or are raised with the greatest facility; hence in warm countries, vegetable food ought to be preferred, and in cold countries animal. It is a good general rule, therefore, to live upon the productions of the country where one resides, and to consume them in the manner usually adopted by its inhabitants*.

2. *The Seasons.*—It cannot be questioned, that different proportions of food ought to be consumed at the different seasons of the year, which the feelings of every individual will naturally indicate †. In winter, the greatest quantity of solid food is necessary, and can be safely taken; but the quantity should be gradually diminished during the other seasons. The following is the proportion adopted by Dr. Robinson, during one year of his experiments.

Season.	Meat.	Drink.	Total.
Winter, ...	19.51	42.35	61.86
Spring, ...	19.77	41.03	60.80
Summer, ...	21.33	34.98	56.31
Autumn, ...	20.73	34.59	55.32
Medium, ...	20.33	38.24	58.57

It is a proper system, in winter, to use more meat and less drink; in summer, less meat and more liquids; in summer, boiled meats should be oftener used; in winter, roasted; in summer, cold meats; in winter, hot.

3. *Infancy*‡.—Any detailed observations on the diet of infants, seem to be here unnecessary; and the subject in general, is sufficiently understood, for nature points out, and custom sanctions, that milk of some sort or other, is the most suitable aliment for that stage of life. Any species of bread given to infants, ought to be unfermented; per-

* See Tryon's Way to Health, p. 116.

† Robinson's Dissert. Table 2.

‡ It may be proper to state, that women's milk at first contains a large quantity of sugar, and a less proportion of coagulable or cheesy matter, a mixture peculiarly well adapted for a very young child; but some months after, the coagulable matter increases, and the sugar proportionably diminishes. Hence it is, why a young child of a month old, will not, in general, thrive on breast milk, eight or nine months old.—See an Easy Way to prolong Life, p. 13.

to the sympathy between the brain and the stomach, a disturbed mind will impede the functions of the stomach. It is for this reason, that we ought not to eat alone, in a churlish melancholy manner, but cheerfully with our friends. Mirth and good company help a dull stomach, create an appetite, and forward digestion. Lively music, also, is a pleasing, and useful addition to a feast.

2. It is a proper rule, never to eat a second time, till the stomach has completely emptied itself of its former contents, and it should be at such a distance from bed-time, that digestion should be nearly finished before we sleep; for the preparation of our food by the stomach, and the application of it to nourish the body, are actions of a different nature, and the latter is generally done during sleep. The most seasonable times for eating are, in general, about an hour or two after rising, and two or three hours before going to bed*. The proper interval between one meal and another, in the day time, must depend on the strength of the stomach, and the quantity and quality of the food taken, varying from four to six hours.

3. Exercise should not follow immediately after a meal. Nothing should interfere with the action of the stomach whilst engaged in the process of digestion. This rule is particularly applicable to the delicate and the nervous. The brute creation pay particular attention to this rule, by lying down, and enjoying a state of rest, the moment their stomachs are filled.

4. We should take care also to masticate our meat well; nature having provided teeth expressly for that purpose. The saliva with which we thus mix it, furnishes some help to digestion. Besides, in breaking it down with the teeth, less labour is imposed on the stomach, and the gastric juice can more speedily and more effectually subdue it. To eat greedily, therefore, and swallow our meat hastily, is not only indecent, but highly injurious to the health. Food thrown too hastily into the stomach, distends its coats too suddenly, and consequently weakens them. By a hasty and imperfect mastication, the food does not receive that prepa-

* Burton on the Non-naturals, p. 230. Wainwright's Mechanical Account of the Non-naturals, p. 208, recommends three hours after rising, and four or five before going to bed, founding this doctrine on several aphorisms of Sanctorius, particularly Sect. I. No. 57, Sect. IV. No. 20, 28, and 85. But this would be certainly going too far.

It is very unfortunate to be disappointed, when nature requires this evacuation. The inclination, when once lost, does not recur for some time, and the bowels are provoked, in vain, to resume their action, till another day*.

The feces, in a natural state, should be of a due consistence, between the two extremes of hardness and looseness; '*oportet sanorum sedes esse figuratas.*'

2. *Costiveness.*—When the stools are either scanty, or irregular, the body is said to be costive; and hence many disorders arise, as headachs, toothachs, difficult breathing, flatulency, eructations, spasms, palpitations of the heart, &c. Hence, also, peevishness of temper, general lethargy, and at length hypochondriasis.

Costiveness, in common cases, proceeds from various causes, as from the nature of the food†; from the heat of the air; too much exercise, especially on horseback; from a long use of cold insipid food, which does not sufficiently stimulate the intestines; and from drinking rough red wines, and other astringent liquors. It is also occasioned by keeping the body too warm; by wearing flannel; by lying too long in bed; by excessive labour; by intense thought; by sadness, grief, and sedentary life‡. It is likewise frequent in old age, from the diminished powers of the body.

Costiveness, however, is also occasioned by other causes, as by a deficiency of bile, or of other juices required in the stomach and intestines; sometimes, also, by lead in various forms, and the fumes of quicksilver; sometimes by a blow, or a sprain in lifting a great weight; and, in one case, it is said to have happened, from the patient having taken much rust of iron§.

Costiveness, even to a considerable extent, will prevail

* There is every reason to believe, that several of the disorders incident to females, take their rise from neglect in regard to this necessary evacuation; and that disease, sooner or later, is frequently the consequence of false modesty.—*Taylor's Remarks on Sea-water*, p. 62.

† London bread has a great tendency to promote costiveness. It is commonly watered with a solution of alum, to render it light, and to give it whiteness. Pieces of undissolved alum have often been found in London bread; and the dealers of alum, will in general acknowledge, that they sell more of that article to the baker, than to all the other manufacturers put together.

‡ Buchan's Domestic Medicine, p. 390. The late Doctor Donald Smith of Edinburgh, the best Celtic scholar of the age, though a medical man, fell a sacrifice to costiveness.

§ Darwin's Zoonomia, vol. ii. 38.—Does not this fact furnish a hint, that the rust of iron may be of use in fluxes?

While this eternal, this most copious waste
Maintains its wonted measure, all the powers
Of health befriend you, all the wheels of life
With ease and pleasure move: but this restrain'd,
Or more or less, so more or less you feel
The functions labour:—from this fatal source
What woes descend, is never to be sung*.

3. The quantity of this discharge is very great, as it is constantly going on, day and night, through innumerable pores, every where spread over the surface of the skin†.

It has not yet been determined, what quantity of perspiration is necessary for the maintenance of health. Sanctorius says, that if the meat and drink of one day, amounts to eight pounds, the insensible perspiration usually arises to about five pounds, the urine to about thirty-two ounces, and stools to about four ounces. But that calculation was made for the climate of Italy‡. In Britain, the quantity of perspiration is less; in tropical climates, more. But, in general, it may be stated, that a person of middle stature, and in perfect health, will perspire from three to four, and even five pounds weight, according to circumstances, within the space of twenty-four hours§.

4. Perspiration is promoted by various ways, as, 1. By the food we eat, some substances being lighter, and more perspirable than others, and, consequently, easier converted into that subtile vapour, which is discharged by the skin. 2. Fermented liquors, by agitating the blood, and promoting circulation, and by strengthening even the solid parts, are supposed to aid and augment perspiration‖. 3. Moderate bodily exercise, walking in particular, is favourable to this function. 4. Stretching and expanding the limbs, so as to quicken the circulation of the blood, must be of service. 5. Perspiration is promoted by proper clothing, adapted to the season of the year, and by a regular change of the linen worn next to the person, which, in hot climates, must be done frequently, and even in cold ones once a day. 6 Perspiration is much promoted by attention to the skin, keeping it clean and moist. 7. Bathing in warm water evidently tends to promote perspiration. 8. When necessary,

* Armstrong's Art of Preserving Health, book iii. line 256.

† Adair's Medical Cautions, p. 174 and 180. The calculations are by Lewenhoeck.

‡ Robinson's Dissertation on the Food and Discharges of Human Bodies, Pref. p. 4.

§ Ibid. p. 87.

‖ Le Medecin des Hommes, p. 121.

consumes, there is no subject that can be of more importance, with a view to health, than to consider the means of remedying any deficiency or error in regard to this important function.

Indigestion may either be temporary, or settled; and the remedies must vary accordingly.

Temporary indigestion may be owing to various causes, as, the eating of too great a quantity of food; in that case, the bad effects of it may be prevented by abstinence, and not filling the stomach again, until it has got rid of its former contents. It may also be owing to the bad quality of the food; in which event, the noxious matter must be got rid of, sometimes by abstinence also, but generally by compelling a discharge, either by a vomit or a purge.

A settled indigestion may arise from, 1. Some weakness or disease in the stomach itself; or, 2. A deficiency or error in some of the secretions above described, as the bile, the gastric juice, &c.

1. Various modes have been thought of for strengthening the stomach. By pure air and moderate exercise alone, that may often be accomplished. Many have recommended various medicines for that purpose, some account of which it may be proper to give, without however becoming responsible for their success.

In Sweden, the elixir of Doctor Jernitz has been much celebrated; and, as a proof of its efficacy, it is said that the Doctor himself attained to the age of 104, his son to 100, and the whole of his family, by the constant use of it, lived to a great age. Numbers also in that country are said to have received great benefit from it*.

* The following is the receipt for making this elixir, which was given me by a friend. It has been tried in England, and found serviceable to the stomach; and, by strengthening that important organ, it is said also, to render persons less liable to catch cold.

Receipt for making the Elixir of Longevity.

One ounce and one drachm of aloes, one drachm of zedoaria, one ditto of gentiana, one ditto of saffron from the Levant, one ditto of fine rhubarb, one ditto of theriaque of Venice.

Reduce the five first mentioned drugs to powder, and let them pass through a sieve; afterwards put them into a bottle, with the theriaque, and throw into it a pint of good brandy; stop the mouth of the bottle well with wet parchment, and when it dries, prick several little pin-holes in it, and put it up carefully for nine days, taking care to stir it well. On the tenth day, let the infusion be poured out gently into another bottle, as long as the liquor continues clear. The bottle containing this infusion, must be well stopped with linen. Afterwards, pour a second pint of brandy upon your drugs, for a second infusion, which you will leave other nine days in

organ, that it can digest, with ease, ten times more of one food than of another. In general, indeed, it is not so much the quantity, as the quality of the food, and the manner in which it is dressed, which occasions indigestion. It is, therefore, asserted, by the most experienced *gourmand* of modern times (M. Grimod de la Reynier), that if you masticate well, and for a long time; if you will divide thoroughly, with the assistance of stale bread, every sort of food, particularly the more compact; if you will never swallow but small morsels of meat at a time, and only mouthfuls of liquor; and if you will add, *le coup d'après, le coup du milieu, le café, et les liqueurs*, you will seldom find yourself incommoded, even by the longest and heaviest dinner*.

This doctrine must, doubtless, be more acceptable than the ipecacuanha powders of M. D'Aubenton; and it is certain that the French, by following these rules, and rarely dressing their meat until it is rather tainted, are much seldomer troubled with indigestions than the English, though, in general, they eat much greater quantities, both of animal and of vegetable food. They retain also their health, their vivacity, and their good humour, till a very advanced period of life.

During the night, bile, phlegm, and other noxious matters, must increase more in the stomach, than in the daytime, not being purified by fresh air, nor expelled by exercise. In order to wash out the noxious matter thus accumulated, it has been proposed to take a large tumbler of hot or of cold water, every morning, when the stomach is empty†. A person who had been accustomed to drink Tunbridge water for that purpose, from the use of which he had derived much benefit, being prevented from going one season, drank the same quantity of water, taken from the pump of a spring in his own yard, which did him as much service, on which he wrote these lines upon his pump:

Steel is a cheat;
'Tis water does the feat ‡.

At the same time, the mineral particles, and the fixed

* Almanac des Gourmands, seconde année, p. 286. The *coup d'après*, is a glass of generous wine, after broth or soup. The *coup du milieu*, is a glass of rum, or other spirits, in the middle of your dinner.

† This, however, is only a palliative; and the drinking repeated doses of hot water, for indigestion, and pains in the stomach, (a practice which some have adopted), has injured many stomachs.

‡ Smith's Curiosities of Common Water, p. 82.

air with which mineral waters generally abound, enables the stomach to bear greater quantities of them, (which in some cases is useful), than otherwise it could do.

Elixir of vitriol is accounted an excellent medicine in most cases of indigestion, weakness of the stomach, or want of appetite. From twenty to thirty drops of it may be taken twice or thrice a day, in a glass of wine, or of water. It may likewise be mixed with the tincture of the bark, one drachm of the former to an ounce of the latter, and two tea-spoonfuls of it taken in wine and water, as above directed. It must not, however, be too frequently repeated.

Chalybeate waters, if drank in moderation, are generally of considerable service in removing indigestion; and persons who are afflicted, either with indigestion or want of appetite, cannot do better than to repair to Cheltenham, Harrowgate, Scarborough, Moffat, Peterhead, Pitcaithly in Perthshire, and other places of public rendezvous. The very change of air, and the cheerful company to be found there, will be of service; not to mention the advantages to be derived from exercise, amusements, &c.*

Preparations of iron have also been found of great service in stomachic complaints. And Dr. Beddoes states, that the red sulphate of iron deserves the preference, above all other preparations of that sort, and indeed above tonics in general, as a remedy for simple indigestion. This medicine, he adds, almost infallibly cures, in the dose of a few drops†.

For stomachic and nervous complaints, a tea-cupful of chamomile tea every morning, or every other morning, has been recommended to strengthen the stomach ‡. It should be a cold infusion, and the flowers carefully dried in the sun, and not on copper-plates. When occasionally taken this may be of use. But bitters of all kinds seem to possess a narcotic power; and, when taken for a considerable space of time, they destroy the sensibility of the stomach. This is a class of medicines, therefore, that requires much

* Buchan's Domestic Medicine, p. 392. I am informed by an intelligent member of the medical profession, that he has found the Pitcaithly waters particularly useful in promoting digestion; favouring the flow of bile, without an adequate quantity of which, digestion cannot go on, whilst headachs and obstructions may be the result.

† Beddoes's Hygëia, vol. ii. p. 75.

‡ It is said that chamomile tea, if allowed to stand any time, becomes deleterious.

but it acquires that strength, which is so essential for enabling it to perform the toils which it must undergo. Hence it is, that those persons who cultivate the ground, are not only the healthiest, but, in general, the strongest individuals in the community. Besides the beneficial effects of labour or exercise on the whole frame, it is also a singular and important circumstance, which well merits to be attended to, that those particular parts of the body, which are most used, however weakly they were before, yet become, in process of time, thick, strong, and fit to perform the labour required of them*.

3. The effects of exercise upon the faculties of the mind, are also of the highest importance. It keeps the understanding clear, the imagination untroubled, and the spirits in a state fit for the proper exertion of our intellectual powers. It is to indolence, on the other hand, that we must ascribe the spleen, which is so frequent in men of studious and sedentary habits; as well as the vapours, to which those of the other sex are so often subject†.

4. When a number of men are collected within a narrow compass, the labour of a large proportion of every community must be employed in raising food for themselves, and those connected with them; and where the assistance of domesticated animals is made use of, food for them must likewise be provided, partly by human labour. Indeed the examples are rare, where men can provide themselves, at all seasons of the year, with a sufficient quantity of food, unless by means of some laborious employment, as hunting, fishing, gardening, or agriculture. Without exertion, therefore, of one description or another, no great community could be supplied with the means of subsistence.

5. It is by labour, likewise, that all the various conveniences of life must be obtained. Providence furnishes materials, but expects that we should work them up ourselves, by the toil of our hands, and the sweat of our brows. The earth must be cultivated, before it gives its increase; but even when that is accomplished, through how many hands must its products pass, before they are rendered fit for use‡! Hence arise the occupations connected with manufactures

* Cheyne's Essays on Health, p. 96.

† See the Spectator, No. 115, written by Addison. Plin. Sec. Epist. 1. § 6, justly remarks, Mirum est, ut animus, agitatione motuque corporis, excitatur.

‡ The Spectator, No. 115.

water-bottle, or some such expedient, as a palliative, until the constitution will supply heat enough for itself*. 7. Riding is of use to those who are troubled with the gravel, at least in a slight degree; but it will not answer where there is a confirmed stone. 8. When the spirits are broken down by grief and mental disorders, riding will give a greater alacrity to the spirits than even wine itself†.

3. *Gestation.*—Conveyance in carriages is of various sorts; as in a coach or close carriage, in an open carriage, or in a sedan chair. These elegant pieces of luxury have become so common, that the inhabitants of great towns seem to be in some danger of losing the use of their limbs altogether, from never stirring abroad but in one or other of these vehicles‡. It is a fashion, to consider it beneath any one's dignity to walk, who can afford to be carried; and many sacrifice their health, to show that they have a carriage, and to gratify their vanity, in compliance with a ridiculous custom§.

Conveyance in a carriage, is an useful exercise to invalids, or persons who are on the decline, who cannot bear more violent motion; but the springs of the carriage ought not to be too nicely suspended; and at least one of the windows ought to be kept open, that the perspiration and breath of several persons, enclosed in so narrow a space, may not too much vitiate the air‖.

Using an open carriage is the most healthy fashion that has been introduced in modern times, and is, in some respects, comparable to riding; but in sultry weather it should not be too rapidly driven; for though it is pleasant, on account of the agreeable current of the air, yet it is dangerous to persons subject to violent perspiration. There

* Manual of Health, p. 230.

† See the Best Method of Preserving Health, p. 143.

‡ Lolling in a carriage, unless a person is too weak to bear any other motion, only serves to destroy the benefit of a more effectual, and even more pleasant exercise of the limbs.—*Institutes of Health*, p. 22.

§ Buchan's Domestic Medicine, p. 77.

‖ "But we abound in absurdity and inconsistency. Thus, though it is generally agreed, that *taking the air* is a good thing, yet what caution against air! what stopping of crevices! what wrapping up in warm clothes! what shutting of doors and windows, even in the midst of summer! Many London families go out once a-day to take the air, three or four persons in a coach, one perhaps sick; these go three or four miles, or as many turns in Hyde Park, with the glasses both up, all breathing over and over again the same air they brought out of town with them in the coach, with the least change possible, and rendered worse and worse every moment; and this they call *taking the air!*"—*Dr. Franklin's Letter to Dr. Percival.*

of his legs strong and lusty, and the other much emaciated, frequent friction with flannels, held in the fumes of myrrh and benjamin, rendered his emaciated leg as strong and lusty as the other*.

Friction is peculiarly calculated for those who have weak nerves, who lead a sedentary life, who are subjected to a weakness in their joints, or who are threatened with paralytic disorders. They are thus enabled to supply the want of exercise of other kinds, provided their whole bodies, more particularly their limbs, are rubbed for half an hour, morning and evening, with a flesh-brush, flannel, or napkin, till the parts begin to grow red and warm. The friction should begin with the arms, hands, feet, legs, and thighs; and thence ought to proceed to the shoulders, back, and breast: the head should be rubbed last of all. The effects of this practice, when used with care and constancy, are more important than can be imagined; and though it cannot be attended with all the advantages derived from exercise in the open air, yet it is the best substitute for more active exertions that can possibly be suggested.

4. Bacon strongly recommended, that the skin should be lightly anointed with oil, after friction, lest the outward parts should become dry and juiceless by perspiration; and, in vehement exercises, he recommends unction to be used, both in the beginning and at the end, as was anciently practised by champions.

In regard to the external application of oil to the human body, the best treatise that has hitherto appeared upon that subject, is written by Mr. William Hunter, a surgeon in the service of the East India Company: it is drawn up with uncommon distinctness and ability, and with every appearance of deep research. The following are the general results which he deduces from his inquiries; 1. That the application of oils, and other unctuous substances, to the skin, serves to guard the body against the inclemency of the weather, particularly cold and moisture; 2. That it may prevent too profuse perspiration in hot weather, which is one cause of debility; and, 3. That in dropsical complaints, the application of oil is useful, more especially when joined to brisk, and long-continued friction, as it does not pre-

* Burton on the Non-naturals, p. 280. Another child, about five years of age, who could not stand, and whose back was so weak that it was quite bent, by using friction all over his body, more especially on the back-bone, and with the assistance of cold bathing, was quite recovered.

ability drawn up, than by the two distinguished characters above alluded to?—and yet they were cut off at an earlier period than nature intended.

2. *Exercise cures Disease, without the Aid of Medicine.*

There can be no doubt that exercise is highly efficacious in many disorders; and Hoffman, in a special treatise, justly celebrates it as the best of medicine*.

There are many instances recorded in ancient authors, of the great efficacy of exercise in the cure of diseases. Plato tells us, that Herodicus was cured of the hypochondriacal disease by exercise. Pausanias relates, that Hysmoneus was relieved from great weakness of nerves, by addicting himself to the five olympic exercises, and thereby acquired such a degree of vigour, as to obtain many prizes at the Olympic games: And Plutarch says, that Laomedon was so perfectly cured of an obstinate disease by exercise, as to excel in running†.

In many branches of medicine, the ancients were certainly inferior to the moderns; but they treated diseases with great success; for they applied themselves, with extraordinary diligence, to acquire a thorough knowledge of the symptoms of every disorder; *and called in the aid of corporeal exercises*, by means of which, they supplied what was wanting in other remedies‡. Herodicus in particular, is said to have carried *gymnastic medicine* to such a pitch, as to have actually applied a particular kind of exercise to each disease§.

The particular diseases, in the cure of which, exercise has been found the most effectual, are, 1. The gout; 2. The Rheumatism; 3. The consumption; 4. Nervous disorders; 5. The bilious colick; 6. The dropsy; 7. The palsy; 8. Diseases of the mind; and, 9. Other disorders.

1. *The Gout.*—Sydenham affirms, that nothing so effec-

* De Motu Corp. Op. Med. A celebrated poet, (Dryden), asserts, that,

> " The wise, for cure, on exercise depend:
> God never made his work for man to mend."

† Adair's Medical Cautions, p. 410.

‡ Salzmann's Gymnastics for Youth, p. 154.

§ See Haller on the ancient authors who have written on health; Code of Health, 2d edit. vol. ii. p. 170. Plato de Republica, lib. ii. p. 622, celebrates also Ikkus of Tarentum, for his skill in gymnastic medicine.

cise to mental labour, their thoughts would be brighter, their works would do them more credit; and by living longer, they would be able to accomplish more*.

6. *Miscellaneous Remarks.*—As an apology for indolence, some contend, that when exercise becomes habitual, or is undertaken with reluctance, it ceases to be beneficial; but this is contrary to observation and experience; for those who take daily exercise, never find their strength or appetite impaired by it; whereas those who, from a change of circumstances, have made a transition from labour to indolence, have embittered and shortened the remainder of life†.

Lord Bacon confidently affirms, that frequent purges, made even familiar to the body, are more available to long life, than exercises and sweats, by which, not only the humours and excrementitious vapours are exhaled and consumed, but, together with them, the juices and good spirits, which are not so easily repaired; and he recommends, for that purpose, purges to be taken immediately before meat, because they dry the body less, and least trouble the belly‡. But the dangerous consequences of too frequent purgation, have been already sufficiently explained in the preceding Chapter on Digestion.

There are four expedients to procure warmth in cold weather; fuel, bathing, warm clothing, and exercise. Can there be any question which is to be preferred? Fuel is certainly the worst, from the relaxing quality of fire acting upon the human body, and breaking, in some measure, its texture, as it does that of certain fruits placed to roast before it. A large fire, likewise, is very injurious to the eyes. Bathing is of use as a temporary expedient, for producing warmth. By clothing the body we may acquire heat; but still it is disagreeable, carrying a load of clothes about the person, and it does not prevent the body from being often in-

* Willich's Lectures on Diet and Regimen. It is unfortunate, that men of letters are so inattentive to their health. Even that temperance by which many of them are distinguished, is no effectual remedy against the mischiefs of a sedentary life. They should endeavour not to perform all their avocations in a sitting posture, but occasionally to relieve at once their body and mind, by standing or walking about the room. In sitting, also, they ought to vary their posture as much as possible, and to sit sometimes on high stools or chairs, and sometimes on lower ones. A plan might be formed, for the use of men of letters, by which their studies might be conducted in a manner less injurious to themselves than they are at present; but it would be extremely difficult to prevail upon them to alter any system they may have laid down for their own government.

† Adair's Medical Cautions, p. 406.

‡ Code of Health, 2d edit. vol. iv. p. 217.

of concocted perspirable matter are commonly expelled out of the body*.

5. *Promotes the Cure of Diseases.*—In many diseases, securing sound repose ought to be a principal object with every physician. It is often a decisive symptom of recovery; and indeed many diseases cannot be cured, if the necessary rest be wanting. Since the days of Hippocrates, sleep has been accounted a most desirable and welcome guest in fevers, diminishing the rapid motion of the blood, and rendering the body cooler. Sleep is also of great advantage in checking extraordinary evacuation: hence its utility in diarrhœas and bloody fluxes. The comfort which sleep affords to persons afflicted with gouty complaints, pleurisies, and consumptions, need not be dwelt upon; and in deliriums and frenzies, it is certainly the most effectual means of restoration. On the other hand, in asthmas, dropsies, and paralytic disorders, it is not beneficial, beyond what is necessary for the restoration of nature†.

For the recovery of health after sickness, it is indispensibly necessary to attend to regularity of hours, as well as the quantity of sleep. That balmy repose, which suspends the distressful sensations subsequent to ill health, can only be obtained, by habitually appropriating those hours to sleep, which nature has pointed out as the best calculated for that purpose‡.

6. *Restores the Vigour of the Mental Faculties.*—Intense thought very speedily consumes the nervous power; and it requires longer sleep to recruit the strength, and replenish the spirits, when wasted by study, than even by severe labour§. By sleep also, those violent passions, by which the frame is so much agitated and exhausted, are appeased; and after a refreshing sleep, we can reflect on our disquietudes with a calm mind, and again reconcile ourselves to the troubles of life‖.

7. *Contributes to the Prolongation of Life.*—Among the marks and symptoms of longevity, given us by the famous Cardan, that of being naturally a long and sound sleeper, is considered to be one of the surest indications¶. This

* See Medicina Statica, sect. 4, Aph. 1, 2.
† Strother's Essay on Health, p. 370, &c.
‡ Adair's Medical Cautions, p, 417.
§ Harper's Economy of Health, p. 20.
‖ Willich's Lectures, p. 487.
¶ There are, however, exceptions to this rule, and one in particular, the authenticity of which may be depended upon, being transmitted to me, by an intelligent friend, (John Gordon, Esq. of Swiney, in the county of Caith-

he procured an alarum, which awakened him next morning at seven, near an hour earlier than he had risen before; yet he lay awake again at night. The next morning he rose at six; but, notwithstanding this, he lay awake the second night. The third morning, he rose at five; but, nevertheless, lay awake the third night. The fourth morning, he rose at four; and, lying awake no more, he, for a period of above sixty years, continued the same practice; and, taking the year round, he never lay awake for a quarter of an hour together, in a month. He adds, that, by the same experiment, (rising earlier and earlier every morning), any one man may find out how much sleep he really wants*.

An old Latin proverb inculcates the necessity of seven hours' sleep in the four-and-twenty—

Septem horas dormisse, sat est juvenique senique.

But it is certainly wrong to apply the same rule to the young and to the old.

Cadogan's maxim is, not to lie in bed above seven hours in summer, and eight in winter†.

Willich proposes, as the best means of spending the winter, in good health, and in useful labour, to go to bed at eight o'clock, and to rise at three or four o'clock in the morning‡; and such a plan, I understand, is not unusual at some foreign universities. Custom may reconcile us to many things; but I have no doubt of the superior healthiness, in the winter-time, of rising by daylight, and using candlelight at the close of the day, than rising by candlelight, and using it for several hours before daylight approaches, by which the eyes must be greatly affected, and ultimately worn out.

On the whole, it is evident, that different ages and constitutions require different measures of sleep. From six to eight hours may be sufficient for youth or manhood, when the individual is strong and healthy; and from eight to nine may be allotted to infancy and old age. The infirm ought not to be limited even to these hours, but ought to be indulged in such a measure of sleep, as they find by experience necessary for refreshment §.

It is proper to add, that nothing is more pernicious,

* See the Duty and Advantage of Early Rising; a Sermon on Ephesians, ch. i. ver. 16, by John Wesley.

† Dissertation on the Gout, p. 94.

‡ Willich's Lectures on Diet and Regimen, p. 489.

§ Mackenzie's History of Health, p. 383.

any of the essential parts of the body, causes not only a disease of the body, but frequently of the mind also, in proportion as the part affected is more or less intimately connected with the faculty of thinking. They assert, that intense cold, for instance, may occasion a fever, as well as a sudden and violent fright; and that a stroke with a mallet, upon the head of a man, is sufficient to disorder the most rational, acute, and vigorous mind. Hence, it is evident, they affirm, that the diseases both of the body and of the mind, are visibly occasioned by the disorders of the body*.

Whoever considers this subject dispassionately, will probably be of opinion, that, to a certain extent, both these systems are right; and that the only error is, in restricting the sources of human maladies, either to the mind, or to the body, when either may occasion various disorders; and sometimes both are so complicated and blended together, that it is impossible to say, which was the actual parent of the disease.

As it will hardly be disputed, that the mind causes many of those disorders with which the body is afflicted, it is proper to consider, what circumstances, whether connected with the powers or faculties of the mind, or with the motives or passions by which it is influenced, are calculated for the preservation of the health, or may occasion disease.

1. *Of the Mind in general, as connected with Health.*

The body of man, it is well known, requires constant reparation; and its strength is exhausted, not only by its own exertions, but also when the mental powers are too much exercised. In proof of the latter position, let any person try the effect of intense thinking for twelve hours; and he will soon find, how much his body is thereby fatigued, though he should never stir from the chair he sat on. It is necessary, therefore, with a view to the preservation of health: to be as careful and moderate in exercising the mind as the body; for, as the poet of Health has well remarked,

> 'Tis the great art of life, to manage well
> The restless mind†.'

It may also be proper to observe, that the gradual improvement of the mind, is as essential for health, as the

* See Bielfield's Elements of Universal Erudition, vol. i. p. 123. Also, Philosophy of Medicine, vol. i. p. 48.

† Armstrong's Art of Preserving Health, book iv. line 84.

gradual growth of the person; and, indeed, there is hardly an instance, where the faculties of the mind have soon reached maturity, that they have been accompanied with long life.

Nor do those who possess the highest powers of the mind, in their utmost perfection, generally attain great age*. Among the long list of persons that has been published, who have lived above a century, there is but one individual (Fontenelle), at all distinguished for his intellectual powers, (and he hardly reached 100 years); whilst there are known to be above 1700 others, remarkable for little else but for the number of years they witnessed†. In fact, the envy which men of talents encounter, and the disappointments they experience in their expectations of receiving that profound attention and respect to which they think themselves entitled, (which the world is seldom disposed to pay them, at least while they remain in life), keep them in a perpetual state of irritation and disquiet, which hurries them prematurely to the grave.

The talents naturally calculated for very long life, are, indeed, more of a solid than of a brilliant cast. Those who possess the latter, may live to reach above 100 years of age, if they have, what men of genius seldom possess, *equanimity;* but if the mind is of too restless and ardent a nature, it must necessarily be worn out. The experience of any individual may satisfy him, how much the mind may be affected by too intense application, during the short space of

* That superiority of intellect, to which the appellation of *genius* may be given, is rarely to be met with, though there are some instances of it, even in our own times. In some cases a man of genius sees things as if it were intuitively, and acquires, without difficulty, what costs others much labour. In other cases, it is by deep study and reflexion that a man of genius is distinguished. In the first case, acuteness is joined to perspicuity; in the second case, great vigour of intellect is united with a comprehensive mind. It has been observed, that those who are distinguished by the elegance of their shape, or the beauty of their persons, are very rarely celebrated for talent; and that men of genius are in general extremely irritable. Indeed as Hoffman observes, inflamed imagination, and the like, are far more frequent in modern times, *than genuine natural sense, and rectitude of judgment.* These splendid qualities *of the present day*, he thinks, ought to be considered, *not as bursts of energy*, but as serious symptoms *of a diseased and unfortunate irritability of the mind*; and he ventures to hope, that a healthier tone of mind may be expected, from the continuance of a better aud more natural treatment of the physical man.—*Salzmann's Gymnastics*, p. 181.

† See Easton on Human Longevity; in which is contained, the name, age, place of residence, and year of the decease, of 1712 persons in all, who have attained a century and upwards, from the year 66 of the Christian era, to the year 1799. Printed at Salisbury, ann. 1799.

of cloth from the macerated fibres of the inner bark, of a tree or shrub commonly found in these islands, spread out and beaten together, and thus a kind of cloth is prepared, resembling coarse China paper.

2. The use of cotton, as a material for making cloth, is of great antiquity. According to the accounts of ancient authors, there was a nut which grew in Egypt, in which they found a substance, which they spun and wove for garments. This doubtless was the cotton shrub. But the period at which it was first used for that purpose is unknown.

3. The use of flax, hemp, and other filamentous plants, is of great antiquity, though it required much ingenuity and attention to separate the fibrous parts from the bark or wood, which was necessary before they could be spun or wove; and consequently a variety of processes practised which required time, skill and experience. Yet the use of linen may be traced to a very remote period of history. Flax was certainly cultivated in Egypt before the birth of Moses, and the first discovery of this kind of cloth is ascribed to Isis, at the commencement of the Egyptian era.

4. The skins and feathers of birds, are in general made use of, more as an ornament than as dress, but in some countries, more especially in Mexico, they have been converted into a species of garment. The Laplanders, likewise, though in winter they clothe themselves with the skins of the rein deer, yet in summer use the skins of birds*.

5. The inhabitants of the sea also produce materials, which the ingenuity of man has converted to the purposes of clothing. Besides the skins of seals, and other amphibious animals of that species, which are converted into leather, there is a kind of silk, of a bright yellow, which sometimes adheres like a tuft, to very large shell-fishes, called *Pinnæ Marinæ*. It is known that the ancients were acquainted with this article, and used it as a material for making cloth†.

6. That such multitudes of the human species, should be clothed by the labours of so small an insect as the silk-worm, is hardly to be credited. This discovery is by some attributed to the Chinese. The price of silk was formerly so high, that it was worn by none but persons of the greatest

* Buffon's Natural History, translated by Smellie, vol. iii. p. 62.

† Goguet, vol. i. p. 128. The Greenland women clothe themselves with the skin of the dog-fish. See Buffon's Natural History, translated by Smellie, vol. iii. p. 62.

wholesomeness of leather gloves, from the closeness of their texture, and recommend woollen, or even cotton or linen, as much better calculated for health.

Another mode of using leather in clothing, has been for some time introduced into this country. In Spain, where they feel more sensibly the cold seasons of the year, from the warmth of their summers, they are accustomed to wear a waistcoat made of chamois leather, sometimes next the skin, at other times above the shirt.

7. *Oil-skin and Wax-Cloth.*—The art of impregnating silk or linen, with oil or wax, so as to become impervious to water, has also been rendered subservient to the purposes of clothing. Hats have been covered with these substances,—a practice which may be serviceable to those who are much out of doors in the wet seasons of the year. Oil-skin dresses may likewise be of use in certain diseases, as the gout, or the rheumatism, where a violent perspiration is necessary. Oil-skin socks, however, by excluding the air, and retaining the perspiration, may create great weakness in the feet and ancles.

Sect. V. *On the Form of the different Articles of Dress, as far as regards Health.*

The articles used for clothing may be treated of under the following general heads, namely, the dress, 1. For the head; 2. For the neck; 3. For the hands; 4. For the trunk and the arms; 5. For the upper extremities; 6. For the lower extremities; 7. For the feet; and, lastly, for miscellaneous purposes.

1. *The Head.*

The propriety of covering the head, has been much disputed. In its favour, it is contended, that, in hot countries, it is advisable to adopt that practice, in order to prevent the violent effects of the sun, which have often proved so fatal, and to obviate which, turbans are worn by so many Asiatic nations. In hot countries, it is likewise of great importance, to protect the eyes from the burning influence of that luminary, by which so tender an organ might otherwise be often injured. In moist countries, it is certainly desirable to guard, by some species of covering, the hair from being wet; and in northern climates, it is proper that

remarkably thin, compared to those whose heads are more slightly or less constantly covered*.

2. *The Woollen Bonnet.*—This species of covering for the head, is of great antiquity, though now seldom to be met with, excepting in the northern parts of Scotland. Unless when ornamented with feathers, or made up in a military style, it has but a homely and poor appearance; from the looseness of its texture, also, it is very apt to imbibe, and to retain moisture; and it hardly furnishes any protection for the eyes, unless when it is broad-brimmed. Its use, on these various accounts, is rapidly declining.

3. *The Hat.*—This perhaps, on the whole, is the best species of covering for the head. It may be made either light or strong, as may be most agreeable†. It may be made not only of one, but of different colours, as white above, which does not attract the heat, and green below, the reflection of which is pleasing to the eyes; and it may be made high in the crown, by which the head may be kept cooler in hot climates‡. Hats are made of various materials, as of straw, for lightness; of whale-bone, (a recent discovery), for durability and strength; also of chips, of feathers, of silk, of Vigonia wool, &c.; but for general use, the best hats are made of fine wool, particularly the wool of lambs, mingled with the fur of the hare, the rabbit, the mole, or the beaver, and the hair or down of goats and camels.

It has been much disputed, whether round or cock'd hats ought to be preferred. When cock'd, hats certainly have a more martial appearance; but the round hats are more useful, sheltering the eyes from the sun, and protecting the face from the influence of the atmosphere. It is of great importance that hats should not be made too tight, which is too apt to be the case when they are first put on.

4. *Leather Caps.*—Soon after the great improvements made in the art of preparing leather, it was found, that it

* See Hygeine, by Halle. Code of Health, 2d edit. vol. iii. p. 313, 318.

† 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 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.—*Willich's Lectures*, p. 272.

‡ In Russia, they use high crowned hats, for a very singular purpose. Having no pockets, they keep their handkerchiefs in their hats, which ought here to be called, not *pocket* but *hat handkerchiefs*.

the novelty of their dress, has a striking, and even terrific effect, on those who have not been accustomed to it*. The *philibeg*, or belted plaid, is inferior however, to the *trews*, or Highland trowsers, which is convenient in hot, in cold, and in wet weather, while the plaid, if loaded with moisture, chaffs and cuts the limbs, and exposes them to the attacks of insects.

As it is of the utmost importance, not only to have the best plan for clothing the army in regard to form, but also to arrange the means of having that plan properly carried into effect, the following measures are suggested for that purpose.

1. That the permanent clothing board shall be directed to revise the system for clothing the British army, and shall make such alterations therein, as shall appear necessary for the health of the soldier, and the benefit of the service.

2. That the board shall ascertain the rates at which the different articles can be furnished, and the rates at which the same may be contracted for.

3. That there shall be fifteen, or any other number of licensed clothiers, under the authority of the commander-in-chief, and of the permanent clothing board, to any one of whom the colonel may apply, twelve of these to be licensed in England and Scotland, and three in Ireland.

4. That the colonel shall contract for the clothing as at present, and be responsible for its goodness, that no unnecessary quantity is ordered, and that no clothing is wasted

* The Scotch Highlanders have no claim to be considered, either a braver or stronger race of men, than other descriptions of His Majesty's subjects, but they have been inured to a worse climate, and consequently must be hardier, and being reared up on plainer food, must be less liable to disease. It is a most unfortunate circumstance, therefore, that such a race of men should be on the brink of being lost to the country, and driven to emigration, because the proprietors of Highland estates have no inducement to retain a burdensome population on their property, when they are not permitted to have the credit of bringing them forward into the public service, according to the ancient ideas of feudal connexion. Whereas, if the Highland chiefs had the satisfaction of raising Highland corps, officered by Highland gentlemen, or those who could speak the national language, there would soon be an end to emigration. The Highlands of Scotland would then be able to furnish twenty thousand gallant soldiers, on any emergency. Indeed it would be desirable, not only to preserve the men, but even their music and their language. A story is told, which strongly illustrates the advantage to be derived from preserving the Gaelic. A gentleman in the western islands met a Highland soldier, who had returned on furlough, to visit his friends; and congratulated him on the fame which his corps had obtained in Egypt. "How could it be otherwise," he exclaimed, "when our officers told us, *in Gaelic*, to remember the honour of our country!"

strength, was laid in the country; and a good basis being once established, their constitutions were better enabled to resist the dangers of an unhealthy residence.

Villages, if properly situated, and kept under due regulation, are certainly favourable to health; but, for that purpose, they ought to be placed in a dry soil, on a shelving bank, near a running stream, the houses not too contiguous to each other, and in single rows, rather than in regular streets. Where villages are well situated, such is their superiority in regard to health, that, in all cases of accounts, the courts of law in England have determined, that in a given number of persons at two places, namely, a country village or the metropolis, the duration of human life in the village ought to be computed at fifteen, compared to ten and a half in London*.

By some it is affirmed, that man is by nature *a field animal*, and seems destined to rise with the sun, and to spend a large portion of his time in the open air; to inure his body to robust exercises, and the inclemency of the seasons, and to make a plain and homely repast only when hunger dictates†. But here the moralist goes too far. A country residence is certainly well calculated for mere existence; but what would become of all the pleasures of social life, and all the improvements of science and of art, if people were perpetually to live in a scattered or insulated state, and solely in the country? Though health ought to be preserved, it is not the only proper object of our attention.

The absurdity of such an idea has been well described by the celebrated Addison, who gives an account of a young gentleman, of a considerable estate, who had been educated by a tender mother with so much care for his health, that she made him good for nothing. Reading, she quickly found, was bad for his eyes, and writing made his head ache. He had got by these means a great stock of health, and nothing else; and, if it were a man's business *only to live*, there could not be a more accomplished young man in the whole country. Such men may really be called *field animals*, and indeed are of no manner of use, but to keep up their families, and transmit their lands and houses in a line to posterity‡.

* Hints Illustrative of the Utility of an Insurance Company for the counties of Kent and Sussex. Printed anno 1804, p. 7.

† See Dr. Fothergill's Observations on Longevity, Annual Register anno 1786, article Natural History, p. 69.

‡ The Spectator, No. 123.

ill effect that might otherwise be expected from the want of cleanliness, both in their houses and persons. This exemplifies Dr. Lyne's definition of a *wholesome house*, " where a dog could get in under the door, and a bird could fly in at the window."

3. Moisture is still more fatal than either heat or cold, which any person who sleeps for a single night in a damp room, (unless he has often been accustomed to such a circumstance), will soon experience. Hence, the necessity of making the roof secure, and properly filling up and cementing the walls with mortar; also avoiding the use of sea stones, which never lose the property of attracting moisture from the atmosphere*.

4. The air also within the house ought, if possible, to be as pure as that without. 1. In the rooms where we usually stay; 2. In the rooms where we eat; and, 3. Above all, in the rooms where we sleep.

1. *Sitting Rooms.*—The most healthful, as well as comfortable apartments to the individual, are those which enjoy a pure and free circulation of air in summer, and the cheerful rays of the sun in winter; a proper size and height are also requisite to constitute a wholesome apartment, for low rooms are detrimental to health, particularly when inhabited by large families, or when the air is carefully excluded by close doors, shutters, curtains, &c.

The sitting rooms ought to be above the ground floor, or in the second story, and they should be so constructed, as to admit a free current of air†, or at least they ought to be well aired, by opening the windows in dry weather, and leaving the doors open for a certain space of time every day. 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‡. In mere sitting rooms, the air is in general sufficiently pure, the furniture being commonly kept clean, much fresh air being admitted every

* Dr. Valangin observes, that the bad effects of the moist and damp air of London, are not a little increased, by the constant washing and wetting of the insides of houses, which is carried to a most unpardonable excess in most northern countries, and shamefully neglected in warmer climates, where the practice of it would be most useful. *Treatise on Diet*, p. 43.—The moisture of a wet room or staircase, must evaporate into the surrounding atmosphere.

† Private houses ought to be perflated once a-day, by opening the doors and windows to blow off the animal steams.—*Arbuthnot*, p. 209.

‡ Willich on Diet and Regimen, p. 205 and 206.

time the doors are opened, and there being no source of taint or corruption, excepting from the breath of those who live in them.

2. *Eating Rooms.*—Every person must be sensible, that the air of a room is rendered impure by the steams of food, and that in proportion to the quality and quantity that is put upon the table*. The persons in the room are not sensible of the tainted atmosphere they breathe, yet any stranger feels it at once at his entrance, and it continues for a long time, until fresh air is admitted in considerable quantities. This circumstance merits particular notice in this country, where it is the practice to sit so long after dinner. Some individuals have adopted the practice of retiring into another apartment immediately after the dishes are removed, and there taking their dessert and wine; but, on the whole, that plan has been found so troublesome and inconvenient, that it has commonly been relinquished; and, indeed, it is only competent for persons of large fortunes, and whose houses are of large dimensions. The only other remedy is, that of opening the sashes of the window when the weather will admit of it, and the plan of letting down the upper sash is certainly to be preferred. I have sometimes thought, that ventilators might be contrived for the upper panes, with painted glass or some other ornaments, which, without disgusting the eye, might secure good air, and might be closed and opened at pleasure.

3. *Bed Rooms.*—But the most important apartment of all is the room for repose †. If we allow only eight hours in the twenty-four for sleep, though many persons, especially invalids, spend many more hours in their bed-chambers, we shall find, that during more than one-third of our time, we breathe the same stagnant impure air, highly impregnated with noxious effluvia. Nothing, therefore, can be more material, not only for invalids, but for persons in health, than

* Where crowds of people, and great quantities of provisions dressed with the richest spices of the East and West, contribute to saturate the air with the most heterogeneous particles, which must render the atmosphere very unfit for persons in a delicate state. 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 sensibly felt by any one coming in from the fresh air.—*Willich's Lectures on Diet and Regimen*, p. 212.

† Adair's Medical Cautions, p. 54, 61, 62, 60, 93.

7. *Proper attention to be paid to the Ship Coppers.* 8. *The Fat boiled out of the Salt Beef and Pork, never to be given to the People.* 9. *The Men to be allowed plenty of Fresh Water at the Ship's return to Port; the Water remaining on board to be started, and Fresh Water from the shore to be taken in its room.*

Little appears necessary to be observed regarding these particulars, for in every ship proper attention is now paid to keep the coppers clean and free from verdigrise; and the people are not now permitted to use the fat boiled out of the beef and pork. With respect to having fresh water from shore, in room of what has been at sea, where time will permit, effectual steps are generally taken to secure that essential advantage.

I thought it right, in this work, to preserve a short account of the great system which does so much credit to the memory of Cook. In consequence of his having rigidly adhered to it, this celebrated navigator performed a voyage of upwards of *three years,* in every climate of the globe with the loss, by disease, of only one man, who had evidently symptoms of consumption before he left England. In testimony of the high idea they entertained of this happy discovery, the Royal Society, on the 30th November, 1776, decreed their prize medal to Captain Cook: and its President, (Sir John Pringle), on that occasion, justly remarked, "That, if Rome decreed the *civic crown* to him who saved the life of a single citizen, what wreaths are not due to that man, who, having himself saved many, has also pointed out, and recorded the means, by which Great Britain may, in future, preserve numbers of her intrepid sons, who, braving every danger, have so liberally contributed to the fame, to the opulence, and to the maritime empire of their country?"

Dr. Wright's Directions to Officers going to the West Indies, during their Passage.

The following valuable hints, though originally intended by Dr. Wright merely for the use of officers going to the West Indies, are, in general, equally applicable to other descriptions of persons; and indeed, to all those going by sea from a cold to a hot climate.

1. Take your passage in a packet, a frigate of war, or

In order to obtain information regarding the means of preserving the health of Europeans in our East Indian settlements, the author applied to some friends, long resident in the East, (in particular to Col. John Macdonald), by whom the following rules have been recommended to the attention of their countrymen.

Rules for the East Indies.

1. Attend to the usages of the best informed natives, adapting them to your own habits, as much as European and Oriental customs can assimilate.

2. On landing in India, take some medicine best adapted to the general habit.

3. Rise early, and retire early; taking morning exercise in a carriage, or on horseback, but carefully avoid getting the feet wetted with the morning dew.

4. Every second morning, bathe the whole body with cold water, and follow the native plan, of throwing the water on the head, by means of a small bucket; some, however, prefer the tepid bath of from 92° to 97° of Fahrenheit, particularly if little exercise has been taken.

5. Never bathe after having been out, and after having brought on perspiration, either by walking, or any other exercise. In such a case, be content with rubbing the body well with clean towels, and having the feet and sinuosities only of the body washed with cold water; using the wetted corner of a towel for the latter purpose.

6. Breakfast on tea, or coffee, eating rice, or fish, or meat prepared with spices. Curries, or hot grills, will be far from injurious at this meal. It has been justly observed, that the Torrid Zone produces a greater quantity of stimulating herbs than other quarters; as if Nature intended them for vivifying the digesting powers, subject to weakened or reduced action, arising from excess of atmospheric warmth.

7. While in motion, have no dread of perspiration, even to excess. Those who unfortunately do not perspire freely, generally soon fall victims to a climate, whose heat almost always produces copious perspiration, even under a state of rest.

8. When under a profuse perspiration, avoid sitting down in cool or cold situations, and, more especially, if exposed to a draught or current of air. Shifting in India four or five times a-day is usual. When strong perspiration

has been excited, shift; taking care to rub the body well with clean, and rather coarse towels.

9. Avoid eating and drinking in the course of the forenoon, or between breakfast and dinner. If water, cooled by means of salt petre, be requisite to allay thirst, let such not be drank when perspiring freely. A settlement remarkable for mortality, became healthy, when the inhabitants abstained totally, from drinking sangaree and punch in the forenoon; as these pernicious beverages excited an excess of bile, productive of intermittent fevers and agues, too frequently followed by fatal malignant disorders.

10. At dinner eat and drink freely, and *never* finish this principal meal without curry,—a dish *never* absent from the table of the natives. Avoid dishes made up with rich sauces of a greasy description, and not relieved by the intermixture of spices. Use the fine vegetables of the country freely. Fruit at first must be taken in very moderate quantities, as an early excess in this respect, always lays the foundation of slight disorders of the stomach and intestines, and leads, *soon*, to a serious affection of the general system*.

1. The intense heat of the Occidental and Oriental climates, exhausts the strength and animal spirits, hence wine in moderation may be taken, to stimulate the relaxed, and stagnant powers of the system, thus reduced by labour, or perspiration. The kind of wine is important. Madeira, or old sherry, ought to be preferred. A mixture of wines is improper. Malt liquor is prejudicial, unless where much exercise is taken.

12. An hour's sleep, after dinner, is a vivifying and refreshing indulgence, required by the nature of the climate. If high perspiration has taken place during this rest, it may be necessary to shift, previously to taking an airing in a carriage, or by walking out in the cool of the evening.

13. It is best to abstain from eating at supper, any thing beyond a little fruit, and a very small portion of digestible food, as chickens, or cold tongue, &c. &c.

14. Care must be taken not to sleep with open windows,

* It is for want of proper attention to this point, that ships arriving in India, in a short time, lose a large proportion of their crews: when a pine-apple can be purchased for a few pence, and other fine tropical fruits can be had for almost nothing, the poor sailor, long deprived of esculents, and induced by such tempting productions, thinks he cannot consume too much at so cheap a rate; little aware, that this indulgence certainly leads to his destruction.

are more generally corpulent than great eaters. Even water is nourishing, either from its own qualities, or as promoting digestion, as appears from an interesting experiment*.

2. Wearing a wig is an excellent practice for the old, the tender, and the studious. It tends to prevent headachs, and a nervous weakness in the eyes, more especially when the head is shaved daily. Washing the head with warm water and soap, and scraping the skin with a razor, clears off all scurf, and promotes perspiration. The head should afterwards be washed well in cold water, mingled with a few drops of spirit of lavender or Hungary water. This prevents the head from catching cold, and greatly assists in preventing deafness†.

3. Two things ought to be particularly avoided, 1. Giving up the body entirely to idleness; and, 2. Eating again before the last meal is digested‡.

4. It is of the highest importance to pay particular attention to one's temperament, and constitutional weaknesses. If a person be sanguine or choleric, it gives a tendency to inflammation; or, if phlegmatic, he is likely to be affected with chronic or nervous disorders. In regard to constitutional weaknesses, every man, in a physical sense, has his weak side; and diseases generally fix themselves in those parts which are by nature weakened. In some persons, diseases attack the lungs; in others, the stomach, and so on§. Wherever such weaknesses exist, every exertion should be made to strengthen the parts subject to them.

5. The preservation of the eyes depends much upon a moderate use of light, and it is a fact confirmed by experience, that too much light is extremely hurtful. Many persons have lost their sight by living in rooms with white walls, or by having their windows so situated as to reflect strongly the light of the sun. The light admitted into rooms, may be so proportioned by shutters, venetian

* Two pigs of the same litter were fed with an equal quantity of milk, but to one of them, the milk was mixed with an equal quantity of water. After a month's feeding, they were both killed, and that which had the water, was found to be much larger and fatter than the other. See Cheyne's Essay on Health and Longevity, p. 204. This is an important experiment to the feeder of stock, as well as to the physician. By an obstinate forbearance from drink, some dropsies have been cured; and in the case of the miller of Billericay, in Essex, corpulency was got rid of.

† Cheyne's Essay on Health, p. 198.

‡ Best and Easiest Method of Preserving Health, p. 201.

§ Hufeland, vol. ii. p. 284.

ing imaginable; and tired of life, and the dismal prospects before them, they often terminate their own existence*.

Dr. Rush is of opinion, that opium may be given with great advantage, to abate the pains of the chronic rheumatism, and the uneasiness of the old man's cough, (as it is called); also to remove wakefulness, and to prevent the necessity of rising in the night time. But its uses as a medicine, which are both numerous and important, ought to be regulated by the directions of a medical friend. Opium is certainly the most sovereign remedy in the Materia Medica, for easing pain and procuring sleep, but, like other powerful medicines, becomes highly noxious to the human constitution, and even mortal, when improperly administered†.

3. *Dram-drinking.*

The subject of spirituous liquors has already been discussed in a former part of this work, (see Part I. Chap. II.) Here it is proposed, merely to allude to an unwholesome custom, taking what is called "a dram," or a glass of spirits undiluted, particularly in the morning. It is impossible to conceive any habit more truly pernicious‡. When poured unmixed into an empty stomach, a dram may be well called *liquid fire*§. It should never be taken in the intervals between meals, but accompanied by a considerable quantity of bread, or other solid food; and never but occasionally, in moist and cold weather. At sea, in high latitudes, or in an elevated and damp climate, ardent spirits may be of some use under proper regulations.

On the whole, the preservation of health depends much on *our daily habits;* for it is not what we do occasionally, but what we do every day, that can injure us essentially. The customs and habits, therefore, which we adopt, are of infinite importance: they must either do us great good or much harm, by establishing health on the one hand, or fixing disease on the other‖.

* Dr. Waterhouse's Lectures on Health, Code of Health, vol. iv. p. 553.

† See Dr. Thornton's Philosophy of Medicine, vol. iv. p. 103. The Doctor adds, by the indiscriminate use of that preparation of opium, called Godfrey's Cordial, many children are yearly cut off.

‡ This subject is very ably explained by Dr. Rush, in a paper entitled, "An Inquiry into the Effects of Spirituous Liquors on the Human Body, "and their Influence upon the Happiness of Society," printed in his Medical Inquiries, vol. ii. p. 57. On the other hand, Burke has made an ingenious defence of gin, in his tract on distillation.

§ It is shocking to think how many dram shops in London are supported by women. The men have certainly their share of blame, but in general they repent sooner, and are obliged to go to work again.

‖ Cadogan's Dissertation on the Gout, p. 97.

full stomach, but either fasting, or about four hours after eating. It is hardly necessary to add, that to rush into cold water, if at all unwell, or on the day you have taken medicine, is dangerous in the extreme.

(4). The robust and healthy may bathe early in the morning, or before breakfast; but persons of a delicate or feeble constitution, or who are in the habit of dining late, and indulging in the luxuries of the table, should prefer bathing about two hours before dinner. It is better for such persons, to bathe on alternate days, than for many days consecutively. Daily bathing is frequently found productive of lassitude, accompanied by a manifest wasting of the body*.

(5). It is now decided, as a rule in bathing, that even infirm persons should not use the cold bath, without having previously taken some moderate exercise; and, when they bathe, being rather warm than cool. This doctrine cannot be too strongly impressed on their minds. Dr. Currie justly observes, that persons ought not to wait on the edge of a bath, or of the sea, until they are perfectly cool; for if they plunge into the water in that state, a sudden and alarming chilliness may be expected, which would not have been felt, had they been moderately warm when they went into the water.

(6). Attention should be paid to the nature of the bathing place. A bottom of clear sand is to be preferred. Sea weeds are to be avoided; for they frequently contain a species of pointed shell, which is apt to inflict dangerous wounds, if trodden upon.

(7). It has long been considered a useful rule, to have the head first wetted, and indeed many think it necessary to plunge head foremost into the water. It is asserted, that the accumulation of blood in the head, with all its direful consequences, would take place, if this precaution were neglected. This practice, however, has of late been objected to. It is certainly not the mode indicated by Nature, as the bather, till the invention of bathing-machines, must in general have walked leisurely into the water, until he reached a depth suited to his purpose. A sudden plunge is a violent and unnatural exertion, which ought not to be insisted upon *with delicate people;* and several of the bad effects which are ascribed to cold bathing, and which have forced many to abandon it, who were anxious to persevere in its use, may have originated from this very practice. Every person who plunges

* Is not this last circumstance an argument for the corpulent to try the plan of daily bathing?

It should be a constant rule, however, even to the most expert swimmer, never to bathe in the sea, in a lake, or in a river, without having a boat near him, or taking another person with him who knows how to swim. It is certainly a weakening exercise, and many who have remained too long in the water, have been so much enfeebled by it, as to be scarcely able to stand when they came ashore; and if this weakness, or a more fatal cramp, comes on at sea, or even in fresh water, the consequences must be dangerous in the extreme*.

6.

The curing of disorders by the use of the cold bath, is a subject of inquiry, which properly belongs to those who are engaged in the medical profession; yet in general we may observe, that sea-bathing is considered to be more applicable to chronic, than to acute disorders; and that it is most likely to be of service, in complaints originating from a diminished energy in the vital functions, and attended by symptoms of languor and debility†. The effects of sea-bathing may be equally beneficial, whether this reduced state of the system is owing to feeble and delicate stamina, rendered still more so, by effeminate modes of living, or is the consequence of a more firm and healthy constitution being impaired, either by habitual indulgence in too stimulating a diet, or by excess in bodily, or in mental exertion. In all cases of doubt or difficulty, however, recourse should be had to an experienced medical practitioner, whose opinion may be much more safely relied on, than the interested advice of owners of baths, and bathing-machines, or their

* Thoughts on the Relaxation of the Human Body, p. 13. The lightest water is at least 830 times heavier than air. The human body, therefore, cannot sustain for any length of time, a great pressure of water; hence the most experienced negro-divers dare not venture beyond a certain depth in the sea, well knowing that it would be impossible for them to rise up against the additional weight of water incumbent upon their bodies.—*Willich on Diet and Regimen*, p. 237.

† Cold bathing is said to be useful in the following complaints. 1. Fever. 2. Intermittent fevers. 3. Nervous diseases. 4. Palpitation of the heart. 5. Hypochondriasis. 6. Hysterical affections. 7. Nervous head-ach. 8. Rheumatism. 9. Bilious complaints. 10. Sore throat. 11. Inflammation in the Eyes. 12. Scrophula. 13. Rickets. 14. Female complaints, and want of children from debility of constitution. *Treatise on Cold and Warm Bathing*, p. 22.—To this list Hydrophobia is to be added, on the authority both of Mead and Celsus. A great proportion of the disorders in modern times originate in relaxation, the result of too luxurious or too low a regimen; in either case, cold bathing is of general application and utility. *Remarks by Dr. Molleson, Code of Health*, 2d edit. vol. ii. p. 46.—Want of sleep is likewise relieved by sea-bathing.—*Buchan on Sea-bathing*, p. 108.

and warm baths; and indeed that such a plan were made a part of the general police in every country*. Above all, some means should be thought of, for establishing public baths in the metropolis, on a scale adequate to its population. The people, as was the case at Rome, should be admitted into these baths, upon paying a moderate sum; and the hours at which admission should be granted, ought to be regulated by the laws. This is the more necessary, as from the size of the town, it is so difficult for the lower orders to have sufficient exercise. The arrangements of police, might sufficiently maintain decorum, and prevent any promiscuous bathing of the two sexes. There would be no difficulty in bringing salt water to London, from the coast of Sussex, for so important a purpose. According to Fabricius, there were eight hundred and fifty-six public baths at Rome, and some of them were large enough to contain at once eighteen hundred persons†. The ruins of some of these splendid establishments, which exist at this day, excite the wonder and astonishment of every traveller.

It was when these baths were in their glory, that Martial made these famous lines:

> Balnea, vina, Venus, corrumpunt corpora nostra;
> Sed vitam faciunt, balnea, vina, Venus‡:

—evidently implying, that bathing formed one of the principal enjoyments of life in those luxurious times.

Sect. X. *Of some Modern Improvements in Bathing.*

The most important recent discovery in bathing, is the use of the acidulous bath, the nature, and the objects of which, will appear from the following queries addressed by the author, to the ingenious Doctor Helenus Scott, late of Bombay, and the very satisfactory answers he has made to them.

Question 1. "Who first suggested the plan of mixing nitric or muriatic acid with water for bathing?"

Answer. After I had become acquainted with the effects of nitric acid taken internally, I often had reason to lament,

* Catechism of Health, p. 48.

† Este's Cursory Remarks on Contagious Diseases and Baths.

‡ Wine, women, baths, against our lives combine;
But life's chief joys, are women, baths, and wine.

which is the best remedy, but expensive. The injured part to be covered with a thin piece of linen, and æther or spirits of wine to be constantly poured over it. This cures by the constant evaporation it occasions. If the burn is severe, the part affected should be kept constantly immersed in cold water, in vinegar, or in spirits.

Dr. Underwood observes, that a strong solution of soap in water, has long been in use with artificers, employed in any business exposing workmen to very bad scalds, and is a very excellent remedy. But as the soap would take some time in dissolving, and the solution some time in cooling, the Doctor recommends a mixture of six ounces of oil, to ten of water, with two drachms of the ley of kali or potash. This quantity may be sufficient for a burn on the hand or foot, which is to be immersed, and kept about half an hour in the liquor, which will remove the injury, if had recourse to immediately: But it must be repeated as the pain may require, if the scald or burn be of some standing. Should a person be scalded all over, and be immediately put into a cold bath of this kind, and the head at the same time be frequently immersed or well washed with the liquor, 'I believe,' the Doctor says, 'very little injury will ensue*.'

—For burns occasioned by red-hot iron, spirits of turpentine, which farriers always have, may be used until medical advice can be had, which is in general necessary.

11. *Poisons.*—These are substances, which, even in small quantities, are capable of producing very prejudicial or destructive effects on the human body. Of these there is a great abundance in nature, and of various kinds; and it is an essential part of that univertal knowledge that ought to be cultivated among mankind, that every one should learn to know, and to guard against these poisons, from the frequent risks to which they are exposed, of being affected by them†.

Poisons may be distinguished as derived from the mineral, the vegetable, or the animal kingdoms.

Among the mineral poisons, *arsenic* is the most common, and by far the most dangerous, as well, from its sudden and violent operation in corroding the coats of the stomach, as from the difficulty in decomposing it, so as to destroy the activity of what has not been thrown up by vomiting‡.

state of blisters, vinegar is a ready, cheap, and good remedy. Its application should be continued until the pain ceases.

* Parkinson's Medical Admonitions, vol. ii. p. 474.

† Hufeland, vol. ii. p. 75.

‡ A solution of liver of sulphur has been recommended for this purpose, and where it can, it should certainly be used.

Numberless are the instances of people having suffered a cruel death from having taken it, though frequently from ignorance and carelessness, rather than from being intentionally given. It is principally used for the destruction of vermin; but as other modes to get rid of them are known*, arsenic should never be sold, under that pretence, to persons whose respectability is not established. Arsenic, as the foundation of a colour, is used by painters, who know how to secure themselves against its effects; but those who paint for amusement, should never employ it, from the hazard attending it. However poisonous when improperly used, or taken in too great quantities, yet it is a valuable article in the Materia Medica. Unfortunately, however, it is likewise the foundation of several quack medicines, and thence is frequently productive of the most fatal consequences. When a quantity sufficient to endanger the life of a person has been swallowed, it is recommended, that a vomit of white vitriol should be taken immediately, and large quantities of warm water, in which the hepar sulphuris has been dissolved, with a view of emptying the stomach. When that is effected, several doses should be taken, with about a scruple of hepar sulphuris in each. But there is reason to believe, that milk and oil alone will operate as a cure, by expelling the poison, or destroying its power. Let persons, therefore, who have been thus poisoned, drink as much milk as they can, (if in part it comes up, so much the better); and let them, every quarter of an hour, take a cupful of oil of any sort, whether lintseed, almond, poppies, or common oil, (castor oil is the best, if it can be got, for it will act either as a purge or a vomit, or both); and a cure will probably be effected. If violent pains in the bowels succeed the vomiting, there is reason to suspect that some of the arsenic has passed that way, in which case, a glyster should be applied, till the noxious matter is evacuated.

When *corrosive sublimate* has been swallowed, the same means should be made use of as in the case of arsenic, with the addition of half a tea-spoonful of pearl-ashes dissolved in half a pint of warm water. This, used early, and if frequently repeated, will render inert any portion of the poison which is not thrown up. If pearl-ashes cannot be had,

* The *nux vomica*, or poison nuts, may be used, which are far less hurtful to man, but at the same time are, in general, a strong poison to animals. It is said, however, that the toucan, a large bird in India, will live upon this substance. The ærated barytes, or ponderous spar, is highly destructive to such vermin, and if accidentally taken, its effects are easily counteracted in the human body, by an emetic, or a purge.

12. *Locked Jaw.*—This horrid disorder, which so frequently happens from accident, and of which so many perish in the West Indies, particularly children, is often cured by the application of electricity, which removes the irritation, whence the complaint originates *. A most extraordinary cure of this complaint, by electricity, was effected by Mr. Cuthbertson, mathematical instrument-maker, in Poland-street, London. Sometimes bleeding to fainting repeatedly, has been successful.

13. *Sprains.*—The following method of treating sprains by fomentation, has been found of the greatest service. A piece of coarse flannel, half or three quarters of a yard, is placed in a coarse towel held over a bason; boiling water is poured on it from a kettle, and then it is to be strongly wrung by two persons. The flannel, thus prepared, is to be applied to the sprained limb, as hot as the patient can bear it. As the first flannel cools, another piece treated in the same way, is to be applied; and this is to be continued alternately, every three or four minutes, for at least half an hour, or till the patient is tired with the application. The sprained limb is then to be carefully dried, and gently rubbed with the following ointment.

Take camphor two drachms.
Spirits of wine a few drops.
Rub them a little in a mortar, and add
Hog's-lard one ounce.
Rub the whole together.

Take a little of the ointment on a soft piece of flannel, and continue the friction for some time.

If the pain continue severe, the fomentation and friction may be repeated in the course of an hour; and it ought to be persevered in, till the patient is relieved or tired. After the lapse of another hour, the same process is to be renewed, if it shall be necessary†.

was added to half an ounce of lime-juice, repeated every half hour, for four successive hours. The parts were fomented, and rubbed with a liniment; also a cathartic glyster was twice repeated.

* See Lowndes's Obervations on Medical Electricity, p. 24.—Also Philos. Transac. vol. lvii. p. 88. A decisive proof of its efficacy.

† Mr. Grosvenor, of Oxford, I am informed, follows a very different practice. He allows no applications but the palm of the hand, and directs the limb to be used, however painful. Under his skilful management, that mode of treatment has succeeded. The following liniment is recommended from respectable authority. It not only gives strength to the parts weakened by a sprain, but in a short time will usually remove any contractions in the joints, and give perfect use to the limb.

Take the yolk, or even the whole contents of a new laid egg, and add

most obvious effect is, a diminution of the frequency of the pulse, which Doctor Buchan has known reduced from 120 to 90, in the course of six hours from the commencement of its use. It possesses the further advantage, of forming a beverage in general very acceptable to the sick*.

12. *Head-achs.*—I am indebted to a respectable lady for the following most interesting account of a mode practised in the East Indies for curing head-achs.

"A native doctor attached to Colonel Allan Macpherson's battalion of Sepoys, on the Bengal Establishment, had cured several gentlemen who belonged to the suite and escort of the late Colonel Upton, Ambassador from the Supreme Government of India to the Court of Poona, of severe head-achs.

"After the return of the escort, this circumstance having been reported to a lady in Calcutta, who was affected with head-achs of so violent and excruciating a nature, that the most serious consequences were apprehended, she was induced to permit the native doctor to apply his remedy. He desired that she should recline herself across a bed, with her head over, so that it was lower than the side of the bed. He then applied a little cotton to the mouth of a small phial, containing a liquor of a tint somewhat resembling the colour of lemon-juice. The cotton having been thus wetted, he squeezed three or four drops of this liquid into each nostril. After remaining in this posture a few seconds, he asked her how she felt; and, upon being informed that she had an inclination to sneeze, he desired her to raise her head, which was no sooner done, than a torrent of clear water rushed from her nostrils, and from her mouth and eyes, into a bason, in greater quantity than she would venture to state, but certainly not less than might suffice for washing the hands. Her head-achs never returned. The only injunction the doctor gave was, that she should avoid animal food, and beware of catching cold for a few days. Her husband was present when this cure was effected, and underwent the same experiment soon afterwards for head-achs less severe, and with the like

* In the Appendix, No. VI. will be found a short, but able account by Doctor Buchan, of the origin and progress of muriatic acid, as a remedy for fevers. It certainly should be tried in the yellow fever, and as a remedy for the plague. Mr. Sutherland's, (of Westminster), mode of application, in which he has been eminently successful, is as follows: Muriatic acid, two drachms; simple syrup, two ounces; water, one quart. Mix four tablespoonfuls, to be taken every three hours, or oftener, according to the symptoms. The above quantity was generally taken in twenty-four hours.

effect, excepting that the discharge from the head was less copious. All the entreaties that could be used to procure the receipt were ineffectual*."

It is to be hoped that every exertion will be made, in every part of India, to ascertain the nature of this application, and in what cases it is useful, (for the knowledge of it was not probably confined to this individual doctor, who is since dead), and of every other means of curing diseases and accidents, which can be discovered in that extensive country. If the plants used were known, our own physicians would soon discover the proper mode of application. It cannot be doubted that a vast fund of information relative to the uses and qualities of plants, and other articles employed in various disorders, may be found in the East†.

One circumstance to be attended to in regard to popular cures in general, is, that there are great varieties of the same disease; and that what may answer in one species, may not succeed in another. The shades of difference, which, though minute, are often important, can only be distinguished by the experienced physician, to whom all the usual disorders of the human frame are familiar. It is extremely desirable, therefore, in every case where a cure is effected, that not only the remedy, but all the circumstances of the case, should be described with as much accuracy as possible.

* Col. Macpherson confirms the success of this application; and adds, that he could never prevail on the doctor to give him the particulars of this mode of cure, though he had often asked him. There is reason, however, to hope, that the nature of this remedy may be ascertained. The late Dr. Valangin used frequently to cure head-achs, by desiring the patient to snuff up a mixture of the yellow oxyd of mercury, (formerly called Turbeth mineral), with a little sugar. It often produced a prodigious discharge of serous fluid from the nose, without sneezing. Doctor Buchan of Percy-street, to whom I am indebted for this information, has often cured obstinate complaints in the head, by the same means. Turbeth mineral is of a very bright yellow colour, and it is possible that a solution of it, may be the Indian remedy.

† A printed book, called Rhudes's Hortus Malaberricus, contains some information regarding the virtues of the plants therein described; and the natives have many books on those subjects, in which will be found a classification of plants, according to their qualities, as cooling, heating, &c.

early, great cleanliness of person; to pay particular attention to their teeth; to wash their eyes and mouth in cold water; to rise early; and other useful practices*.

7. Aristotle well observes, that an elegant person is preferable to many letters of recommendation. It is incumbent, therefore, upon parents, to prevent, if possible, any personal defects with which they are threatened. Every endeavour, for instance, should be made use of, to correct the habit of squinting, or any other defect likely to render their external appearance less agreeable. Care, however, must be taken, not to injure the health, for the purpose of obtaining any imaginary beauty, as a small waist, or the like†. In regard to the behaviour of children, I have found it, on proper occasions, of great service, to introduce them to strangers at home, as it prevents their being shy or awkward in company; their little innocent or sprightly remarks are amusing; the little dances they may exhibit are interesting; and, on the whole, their presence, adds to the pleasure of the entertainment, in the opinion of the most fastidious‡.

8. To be early instructed in the means of preserving health, and of guarding against the various dangers to which individuals are exposed, and to know how to act when any unfortunate accident happens, is a most essential branch of education, which has hitherto been too much neglected. This subject has been lately taken up by an intelligent German author, who, in his Catechism of Health§, has pointed out the various particulars connected with their preservation and health, in which children ought to be instructed; and which contains information, which every individual would find useful in his progress through life. Some work of the same description, better adapted to the manners and mode of living of the inhabitants of this coun-

same sort, into a number of pieces, arranging them in lines like an army, with one as an officer in the centre, and telling them, that the whole army must be devoured, *piece by piece*, and in a regular manner! This interests little children so much, that they soon prefer it to a more speedy mode of consumption.

* See Lord Bacon's Observations on Custom and Education, Essay fortieth, where there are many excellent hints on this subject.

† On Shape-mending. See Manual of Health, p. 402.

‡ On the important subject of politeness of behaviour, I know no work so likely to be useful, as, "The Elements of Polite Education," compiled from Lord Chesterfield's Letters, by the Rev. Dr. Gregory, printed at London, in 1 vol. 8vo. anno 1800.

§ See the Catechism of Health, selected and translated from the German of Dr. Faust, printed at Edinburgh, anno 1797.

try, would be a most useful publication, a knowledge of which ought to be spread throughout all our public seminaries.

9. Philosophers differ as to the ages when the instruction of youth should begin. Quintilian recommends three years, Plato six, Aristotle seven, and Chrysippus, on the other hand, asserts, that parents may instruct their children at all ages. Aristotle justly observes, that nothing can be more reprehensible, than to exact too much from children, at any age, for great fatigue of body, must injure the mind, and too great exertions of the mind, are prejudicial to the body*.

* The following observations, transmitted to me by a respectable friend, upon this interesting subject, merit particular attention: "As far as regards health, I think the modern system of education, which is made to commence almost with infancy, extremely reprehensible. I do not say that the human faculties are incapable of exercise at a very early period; but, I apprehend, they may be exercised, perfectly consistent with health, in a manner even more useful than in book-learning. You, Sir, who know so much of agriculture and rural affairs, need not be informed, that our common clowns sometimes possess more useful knowledge than our philosophers; and that Homer and Pindar, do not contain all that is requisite for man to know. I see a remarkable difference between children educated in the metropolis, and in the country. The former, though they may have read more books, are yet more deplorably ignorant than the latter; they know nothing of the growth and progress of the commonest vegetables, and still less of the animal creation. The contemptuous term of *Cockneys*, which is applied to them, I apprehend, to be expressive of their ignorance in every thing beyond the precincts of the kitchen; and I certainly would rather that my son should be guilty of a false quantity, in reading a Greek or Latin poet, than ignorant of those subjects in which all mankind are interested.

"The education of the body does not, however, preclude that of the mind; and, if people are not in too great a hurry, there is time enough for both. The *præcox ingenium* I have seldom found answered by maturity; and the powers of the mind are generally, in those cases, overpowered by a debilitated and exhausted body. When the bones and cartilages are soft, the sinews unstrung, the whole body a fasciculus of blood-vessels, and in a growing state, then, pure air, and almost constant exercise, is required to give, by action, stability to the frame. Providence, in the unerring dispensation of nature, has pointed this out; for young persons can scarcely endure a state of bodily inactivity. They should range among the woods and fields, be encouraged in active sports, and, as I before observed, there are many ideas to be gained without the aid of books. At least I would deprecate strongly too much restraint. My own youth, till fifteen, was spent in fishing, hunting, and field sports. At that period, I could not correctly spell my own language, knew little of Latin, nothing of French, or Greek, or mathematics; but between that age and twenty, I found time, (and under great disadvantages), to acquire a mass of knowledge equal to that of most of my age; and to the wild tenor of my youth I ascribe, in a great measure, the vigorous constitution I now enjoy; and I now can, I believe, bear a sedentary life much better, because my early years were not sedentary; perhaps, indeed, my mind is more vigorous for it as well as my body; besides that, having a fondness for study, my attachment to it, at a time of life, when young people are too apt to fancy they have attained

desirable to publish works, pointing out the means of using precautions, by which manufactures, in some degree necessarily unwholesome, may be carried on in a manner less prejudicial than otherwise must be the case. A work of this sort, *on the diseases of artificers*, was published by a respectable author above a century ago, and has since been translated into English; but though we have become the greatest manufacturing nation that ever existed, no work has since been written on the same interesting subject, by any native of this country*. Those individuals who lose their health in occupations which are dangerous in themselves, but useful to society, ought to be maintained in their old age, in a comfortable manner, either at the public expence, or to be induced, by means of friendly societies, to secure a proper provision to themselves†.

It has been much disputed, whether it is most expedient to have manufacturers collected in towns or great villages, or scattered over the country. Whatever may be the case in regard to profit, there can be no doubt, in regard to health, that the latter plan is the most advantageous; and the happy effects which have been exemplified, both in the western parts of Yorkshire, and northern parts of Ireland, must render it desirable, that such a system shoud be more generally extended.

3. The mining class certainly forms a most important and valuable body of the community, without whose aid many branches of manufacture could not be carried on, and many of the comforts of life could not be enjoyed; and fortunately the hazard of explosion in mines, is now prevented, by the recent discoveries of a Davy. There are some mines, as those of lead, which are unwholesome; but there are several instances of old age among miners‡; and, when they are put on a proper system, they are as strong

* See Bern. Ramazzini, "*De Morbis Artificum Diatriba.*" Printed at Utrecht, anno 1703; translated by Dr. James into English, and published anno 1746, under the title of, "A Dissertation on Endemial Diseases," by Fred. Hoffman, and a Treatise on the Diseases of Tradesmen, by B. Ramazzini. There are some general observations on the Diseases of Tradesmen, in Valangin on Diet, p. 64, and the Manual of Health, p. 128.

† Where a manufacture is highly prejudicial, as that of white lead, (in which a healthy man is destroyed in three years), it would be a good regulation, to employ none but condemned criminals in it, to whom a respite would be mercy.

‡ As John Taylor, a miner in Leadhills, Scotland, who lived to 132 years of age; and the old miner in Switzerland, whose body was dissected. A particular account of Taylor is given in Smellie's Phil. of Nat. Hist. vol. i. p. 528.

and healthy as otner men. It is well known, that the miners of Cornwall are remarkable for their strength, the *Cornish hug* having long been celebrated; and it appears, from the most undoubted authority, that the colliers of Alloa in Scotland, are as healthy as any description of people can well be*.

4. The military class are, in general, strong and healthy, more especially where they are kept under a proper system of discipline. Indeed, those soldiers who have survived the dangers of war are remarkable for long life. They are generally stout and vigorous men. They are trained to an erect posture; they are accustomed to regular hours, and they are habituated to marching, which familiarizes them to a natural and healthy exercise, circumstances which all combine in their favour†.

5. It has generally been supposed, that the life of seafaring people was unfavourable to health and longevity; but more accurate investigation has proved the contrary. The tables communicated from Greenwich Hospital, are strongly in support of the idea, that the watery element is not unfriendly to the human frame, more especially if attention be paid to their health as they advance in years. Among the out-pensioners of Greenwich Hospital, there were, in 1802, twenty-three above eighty, and no less a number than ninety-six among the in-pensioners, making, in all, one hundred and three, out of four thousand nine hundred and nine individuals. Nor ought it to be omitted, that by the improvements which have been made in the diet of seamen by the celebrated Cook, the mortality on board of his ship was less, than in the healthiest country that can be mentioned‡.

6. The commercial class, where their strength and spirits are not destroyed by hazardous speculation, have strong claims to health and longevity. Their labour is not oppressive; they have some leisure at command, which they can devote to air and exercise; and, as a merchant of the

* See Statistical Account of Scotland, Parish of Alloa, vol. viii. p. 619. Out of 520 colliers, male and female, anno 1792, 56 were above 55 years of age.

† Dr. Jackson's Observations on the Health of the Soldier, are well entitled to particular attention.—There are some useful observations on the same subject in the Military Mentor, printed in 2 vols. 8vo. anno 1804, vol. i. letter ii. p. 6. See also, Xenophon's Instructions for a General of Cavalry, printed in London, anno 1802, 4to.

‡ Dr. Trotter, in his *Medicina Nautica*, explains the means of preserving the health of seamen, with much skill and ability.

to fill up those irksome hours to which they would otherwise be liable. Such amusements are either of a public or of a private nature. In a general point of view, they are of use: 1. As a mode of spending time *with innocence*, where mere amusement is alone attended to. 2. As a means by which the tone of the mind, exhausted by severe mental labour, may be restored. 3. As being incidentally attended with some commercial and agricultural advantages. 4. As a mode, in some cases, of diffusing knowledge, and in others, of inculcating morality; and, 5. As furnishing occupation to numbers of individuals, who, in a populous country, might otherwise find it difficult to procure the means of subsistence. How far they are conducive *to health*, or may be rendered so, is the subject of this section*.

I. *Public Amusements.*

The public amusements which it is proposed here to touch upon, are, 1. Rural Festivals; 2. Public Games; 3. Public Lectures; and, 4. Theatrical Representations.

1. *Rural Festivals.*—These are by far the most useful and the most innocent of all public amusements. Sometimes, under the name of *Fairs*†, they are periodically held for commercial purposes, but with a mixture of rural festivity. Of late, rural festivals, however, have answered more important purposes. They have been rendered the medium of diffusing information of a most valuable description; of encouraging improvements in agriculture‡; and in remote parts of the country, they induce the principal families in the district and its neighbourhood, to assemble together, by means of which relations meet and renew their intimacy, and friendships are formed and confirmed. Where such events take place, the period of these meetings is looked forward to with pleasure, and amidst the innocent

* It may be proper to add, that several amusements of an active nature, more immediately connected with health, have been already discussed under the head of Exercise. See Part I. Chap. V.

† Evidently derived from the Latin *feriæ*. They were originally religious festivals, instituted in honour of the saints: but advantage was taken of the concourses of people thus assembled, to promote the objects both of pleasure and of commerce.

‡ Thus, in regard to ploughing-matches, it has been remarked, that in the same county, (that of Stirling in Scotland), where ploughing-matches are unknown, the operation is generally performed in a slovenly manner; whereas, within the bounds of the Gargunnock Club, by whom ploughing-matches are encouraged, the form of the ridges, and the manner in which the furrow is turned, furnish a model of perfection.—*General Report of Scotland*, vol. iii. p. 421.

tants, who would find it difficult to procure accommodation and subsistence*.

Without, however, pretending to explain, what can only be accounted for by conjecture, or by a reference to omnipotent power, we shall proceed to observe, that, whatever might be the duration of the life of man in the patriarchal ages, yet we have no reason to repine at its extent in these times.

That man should wish to preserve life, whilst he enjoys health and strength, is natural. Indeed, the formidable circumstances which attend death, are, in the present situation of mankind, absolutely requisite to the proper government of the world. The terrors of death are, in fact, the great guardians of life: they excite, in every individual, the desire of self-preservation, which is nature's first law: they reconcile him to bearing the distresses of life with patience: they prompt him to undergo its useful and necessary labours with alacrity; and they restrain him from many of those evil courses by which his safety would be endangered: they are, at the same time, the safeguards of society. If death were not dreaded and abhorred as it is by men; if capital punishments, which are the last resource of government, were of no influence to deter offenders, no public order could be preserved in the world†. But, however anxious we may be to enjoy our existence for some time, that is no reason why we should wish to preserve it always.

The first ground of consolation for the shortness of our life is, that death is inevitable, and that it is an event as much to be expected, as that leaves should fall in autumn, or the fruit should drop from the tree when it is fully ripe. All who have gone before us have submitted to the stroke of death; all who are to come after us must undergo the same fate. The great and the good, the prince and the peasant, the renowned and the obscure, travel alike the road which leads to the grave.

Indeed, when the muscles lose their tone, when the head shakes, the hands tremble, the legs totter, the sensibility of the nerves decreases, and every sense is blunted, what is the use of life? Existence surely, in such a state, can be no longer accounted desirable, or worth a moment's thought ‡.

It is also to be considered, that, in advanced years, we have less enjoyment, of almost every description, than when we were in the vigour of youth: and, after having tried, what are commonly considered to be the pleasures of life, and finding them all vain and unsubstantial, we may be the less reluctant to part with them.

* Derham's Physico-Theology, vol. i. p. 261.

† Blair's Sermons, vol. ii. p. 218.

‡ Shakespear, in "As You Like It," Act 2, Scene 7, has given a beautiful description of the progress of human life, beginning with the celebrated line, so often quoted, "All the world's a stage," &c.; and Solomon (Ecclesiastes, ch. xii. v. 1—7), has drawn up an allegorical description of old age, which has been happily illustrated by Dr. Mead, and commented on, at greater length, by Smith, in his Portraiture of Old Age.

known, that children have a predisposition to suffer from the maladies of their parents*; and, on the same principle, they are well entitled to enjoy the perfections of those to whom they owe their birth. Indeed, in the course of all the numerous inquiries which we have made regarding this branch of the subject, it frequently appears, though the rule is far from being universal, that wherever any individual was distinguished for longevity, his progenitors, either on the paternal or maternal side, enjoyed a similar duration or length of life.

Let it not be supposed, however, that having aged parents is an infallible criterion of long life. We see every day, how much, in this respect, persons even in the same family differ from each other; and how often the brothers and sisters of those, who have lived beyond a century, have died, some in infancy, some at manhood, and some at the other periods of life.

Indeed, the result of the most extensive and particular inquiry that has hitherto been made regarding old people, namely, the reports transmitted to the author from Greenwich and Kilmainham hospitals, and from the workhouses in London and the neighbourhood, proves to what extent the rule may be justly carried†. The number of individuals, beyond 80, contained in these reports, amounts to no less a number than 598, of these 303 affirmed that they were descended from long-lived ancestors, but the remaining 295 either could not give any account of that important circumstance at all, or declared, that there was nothing remarkable in regard to the longevity of their ancestors. Though having aged parents, therefore, may give a predisposition to a lengthened duration of life, yet a variety of other circumstances, more especially

* I am assured, by a very intelligent *accoucheur*, that diseases are often communicated from the parents, which destroy the embryo *in utero*, or prove fatal soon after birth. The most obvious proof of this kind, is the venereal infection being transmitted from the father to the fœtus, although in such a latent state in him, as neither to affect his own health, nor to produce disease in the mother of the child.

There is no doubt, he observes, that parents communicate to their children a predisposition to certain diseases. Many suppose, that this hereditary predisposition may be obliterated by suitable measures, but the proofs of this are not yet quite satisfactory. Whatever promotes the general health of the individual, must tend to remove any weakness or facility of derangement, depending on original corporeal structure, and perhaps nothing else can be done. Before experiments on this subject could afford any satisfactory evidence, they must be varied, and so multiplied, that, perhaps, no single individual could complete them. He adds, "I have some such experiments at present going forward, but "even although the result proves such as I hope, I could not rely implicitly on "them as deciding the question."

Doctor Brown, who rejects the idea of hereditary taints, yet seems to admit that a certain *texture of stamina* is favourable to certain forms of diseases. Brown's Works, vol. iii. p. 255. There can be little doubt that chronical diseases depend much on the original conformation, or rather mal-conformation of certain parts or organs; and that the son should resemble his parent in these respects, is as natural as that he should have similar features.

† See Code of Longevity, vol. ii. Appendix. Nos. 7, 8.

who are in this respect deficient, or whose persons are mutilated, live long.

But it must not be supposed, that without a natural good constitution, the enjoyment of good health and longevity may be expected; many examples, as that of Galen and others, prove the contrary; and, indeed, it is to be observed, that strong constitutions sometimes do not last so well as the more feeble; for in the first place, those who enjoy that advantage, are tempted to take less care of their health, and to use greater freedom with it; and in the second place, they often suffer more from the same disease, than those who have less energy to contend with it, the vehemence of the disorder, being sometimes aggravated by the strength of the patient.

5. *Form of the Individual.*—Among the various circumstances which necessarily tend to promote health and longevity, independent of attention to the observance of particular rules, there is none of more essential importance, than *the form* which the individual receives from nature; for it is evident, that, in so delicate a machine as man, any material fault, in regard to structure, must sooner or later be fatal*.

As it is probable that the form the most likely to please the sta-

* Plausible arguments, however, are not wanting, in favour even of deformity. William Hay, Esq. who was a Member of Parliament for several years, wrote an ingenious essay on deformity, which was published separately, and is also preserved in Dodsley's Fugitive Pieces, printed in 2 vols. 8vo. anno 1765. He himself was deformed, and he defends the shape which nature gave him, by the following observations:—

"It is natural to imagine, that if the human frame is warped and disproportioned, it will be lessened in regard to strength and activity, and will be rendered less fit for its different functions; consequently, that deformed persons should not be healthy or long-lived. But this is a question best determined by facts; and, in this case, the instances are too few, or unobserved, to draw a general conclusion from them. Besides, health is more in a person's own power than is commonly imagined, and is more the reward of temperance, than the effect of constitution. The celebrated Esop certainly was not young when he died, and might have lived longer, had he not been murdered at Delphi. The Duke of Luxemburg died at 67; the Lord Treasurer Burleigh at 78; Mr. Pope's father at 75. On the other hand, there are several instances of deformed persons dying at an early age.

"Experience, and the observations of naturalists will determine, whether deformity, *abstractedly considered*, is prejudicial to health; but in its consequences it is most commonly an advantage. Deformed persons having a less share of strength than others, are more careful to preserve it, and are often more inclined to be temperate, which is a great preservative of health. As deformed persons also, are not formed for violent exercise, they are less liable to such disorders as are the natural consequence of it. They also escape many accidents to which persons of an athletic make, and who glory in their strength, are always exposing themselves, to make trial and give proof of it. Few deformed persons, however, can want strength to perform moderate exercise, which is a great preservative of health."

An intelligent correspondent observes, with respect to the form and growth of the individual, that, if we except the narrow chest, and the habit and appearance of debility which some persons have, particularly when young, he does not think that either of these circumstances denote probable longevity, as he has seen long-lived persons of almost all forms, complexions, and habits of body. In general, however, he thinks, that persons of moderately spare habits

One of the most singular instances of the sight being renewed, is in the case of Machell Vivan, a native of Scotland, but who was settled as a clergyman in Northumberland, and lived beyond 110 years of age. A particular account of him is given by a person entitled to credit, who saw him personally, in the year 1657, and who declares, that his hair had become like a child's, rather flaxen; that he had three new teeth, which he, however, got with difficulty; and though, about forty years preceding that period, he could not read the largest print without spectacles, yet, that his sight was renewed, so that no print or writing was so small that he could not read it without them. He had five children after he was eighty years of age*.

I am assured, from respectable authority, that the following circumstance may also be depended upon. A lady in the county of Fife, North Britain, who died at the age of 89, after having been under the necessity of using spectacles for several years, recovered her sight, so that, for some time before she died, she could read very small print, and sew linen, without glasses.

Dr. Rush also mentions an old man (Adam Riffle, of Pennsylvania), who, about the 68th year of his age, gradually lost his sight, and continued entirely blind for the space of twelve years; at the end of which period, his sight returned, without making use of any means for the purpose, and without any visible change in the appearance of the eyes. It is singular, that after recovering his sight, he saw as well as ever he did. During both the gradual loss, and recovery of his sight, he was nowise affected by sickness, but, on the contrary, enjoyed his usual health†.

Several other instances, of a similar nature, might be quoted‡, but these are sufficient to establish the general principle, that aged people may have this distinction of youth renewed.

It is singular, that no particular instance has occurred, of the sense of hearing being renewed, after being lost by a decay of nature, or the effects of old age. It is to be observed, however, that the human race are not so apt to lose their hearing as their sight. In the return from Greenwich Hospital, of 96 old men beyond 80, the organ of vision was impaired in about one-half, whereas the organ of hearing only to the extent of about a fifth. But this circumstance can easily be accounted for, as the eye is

* See Fuller's Worthies of England, fol. edit. 1662, County of Northumberland, p. 309.

† Medical Inquiries and Observations, by Benjamin Rush, M. D. printed at Philadelphia, anno 1793, p. 312.

‡ See Easton on Longevity, account of Thomas Edgar, p. 195; and Janet Allan, p. 215. An intelligent physician informs me, that he knew an old lady of above 70, who had used spectacles at 50, and about 70 could sew fine work without them. She had cartilaginous substances on the gums, which appeared to her as new teeth. When these changes took place, she had a regular monthly discharge of blood from an issue, somewhere about the knee. She was so entirely *renovated* as to walk miles.

cise[1]. Hence, rising early in the morning, is considered to be indispensible[2].

Among the ancients, to be exercised in a pure salubrious air, was deemed of essential importance. The principal schools of the Roman Athletæ, were accordingly established at Capua and Ravenna, places, the air of which was reckoned the most pure and healthy of any in Italy. They carried on their exercises in the open air, in all sorts of weather, the changes of which soon ceased to affect them[3].

Air is also of infinite consequence to other animals. Horses under training, are exercised as much as possible in the open air; and, in order to give game-cocks a good constitution, pure air is found to be essential[4].

The salutary influence of the atmosphere, likewise, is found to be the best means of promoting recovery from disease. When game-cocks are shut up in close pens, they contract an infectious disease called *the roop;* their heart swells, and there is a fetid discharge from their eyes and nostrils. There is no cure for this disease whilst they are confined in the pens; but if they are turned out to their walks, *where they get air and exercise,* most of them will recover[5].

6. *Liquid Food.*—There is no circumstance that seems to be more essential, in training up persons to the acquisition of athletic strength, than to permit them to take only a small quantity of liquid food. Those who are trained to boxing, must not exceed three English pints during the whole day, taken at breakfast and dinner, and a little after supper[6]. Those who are trained to running, are allowed as far as four pints, taken at different times in the course of the day[7]. The ancient Athletæ also, were allowed but a very small quantity of fluid. This *dry diet*, as it is termed, seems to have constituted an essential and important part of their regimen[8]. The The ancient Athletæ likewise, were allowed to drink nothing but water, or some species of thick sweet wine; but in modern times, water alone is never given during training[9]. Good and old malt liquor, which has not been bottled, is reckoned best. Sometimes it is taken with a toast in it[10]. Some people will have tea, but it is not recommended, nor is it strengthening; and no liquor is given warm. Sometimes white wine and water is given for breakfast, to a person under training, who does not like malt liquor[11]. If the person trained insists on having wine, from being accustomed to it, red wine is preferred to white; and half a pint of wine is allowed after dinner, but none after supper[12]. Spirits are never permitted on any consideration whatever, not even with water. Milk is never given, as it is apt to curdle upon the stomach, and has a fattening quality. Liquor is never given before meals, unless in cases of extreme

[1] P. 101. [2] P. 97. [3] P. 121. [4] P. 153. [5] P. 283.
[6] P. 95. "The less one drinks, the better," says Jackson, p. 101. [7] P. 124.
[8] P. 119. Sheep also thrive best, and live longer, *on a dry diet.* [9] P. 101
[10] P. 104. Jackson, the celebrated trainer, affirms, "If any person accustomed to drink wine, would try malt liquor for a month, he would find himself much the better for it." P. 102. [11] P. 95. [12] P. 95.

course, full of the praises of his nostrum, the preparation of which, in the then state of chemistry, was probably known to few. It is however a fact, that during the great plague in London, he was the most successful practitioner, and is said to have accumulated a large fortune. To use his own words, "The Author, by using this Spirit in drinks, broths, and sauces, (staying all the time of the pestilence in London), kept, by God's grace, not only himself and family, but also many others, during all the contagion of the Plague." He also observes, that "it makes men agile, merry, and jocund, procuring moderate sweating and gentle sleep." Outwardly used, "it answers well to cleanse foul ulcers, and render the skin clear." The dose he recommends is much the same as is used at present, from 60 to 80 drops in 24 hours.

From this period, as a remedy for fever, it appears to have fallen into disuse, till it was revived in a pamphlet published by Sir W. Fordyce in 1790; who strongly recommends it in all diseases having a tendency to putridity, as typhus fever, malignant small-pox, measles, and sore-throat; and is sanguine in his hopes of its proving an effectual remedy for the plague itself.

Since that time, a medicine was introduced into the military hospitals of Prussia, as a secret, for the cure of fever; after a fair trial, and approbation of the army physicians, the secret was purchased by the King, and it turned out to be a diluted mixture of muriatic acid.

In a collection of medical tracts, published at Calcutta about 20 years ago, there is a paper, containing an account of a ship's crew being completely preserved from scurvy during a three years' voyage, by the use of muriatic acid, and as soon as the stock was exhausted, the complaint appeared with great virulence.

I remember some years ago, being called to see a patient in the neighbourhood of Drury-lane, whom I found lying insensible in bed with low fever, and covered with petechiæ, (the spotted fever, as it is termed). The case appeared to me desperate, but I desired the attendants to put a dram of muriatic acid into a pot of porter, and offer it to the patient as a beverage, as often as he was inclined to drink; in a few days I was informed he was better, and, to my surprise, he ultimately recovered *.

Percy-street, 13*th Nov.* 1815.

These hints, communicated to me with much public spirit and philanthropy, by an intelligent physician, it is to be hoped will be of much use.

* Dr. Wolff, an eminent Chiropedist, in Leadenhall-street, strongly objects to frequent bathing of the feet, either in cold or warm water. He maintains, that this soaking system softens them too much, *and occasions corns*. He recommends, in preference, cleaning the feet daily *with a sponge*, dipped in tepid water, which answers the purposes of cleanliness as well, and is not liable to the same objection. Using cold water, with a small quantity of nitric or muriatic acid, in the proportions already stated in the chapter on Bathing, would, probably, answer still better.



SOME ACCOUNT OF THE AGED PEOPLE,

OF WHOM ENGRAVINGS ARE ANNEXED.

1. *Isobel Walker, aged* 112 *Years.*

SHE was born in the parish of Daviot, in the county of Aberdeen, in Scotland. The period of her birth was established, by the records of the parish of Rayne, in the presbytery of Garioch, where she was born. Nothing particular is known regarding her mode of living, or the circumstances which occasioned her long life; excepting that she is said to have possessed a placid temper, and to have been in that medium state, in regard to leanness and corpulency, which is favourable to longevity.

2. *Peter Garden, aged* 131 *Years.*

He was likewise a native of Aberdeenshire, in Scotland. He lived in the parish of Auchterless, in that county, and died on the 12th of January, 1775. But little is known of his history, excepting that he was taller than is usually the case with old men. He was employed in agricultural labours nearly until his death; and preserved his looks so well, that he appeared, it is said, to be a fresher and younger man than his son, when both were advanced in years.

There have been several older people in Scotland, than either Isobel Walker, or Peter Garden; but unfortunately no picture or engraving of them can now be found. Among the rest was John Taylor, a miner at the Lead Hills, who worked at that employment till he was 112 years of age. He did not marry till he was sixty, and had nine children afterwards. He saw to the last without spectacles; had excellent teeth, till within six years of his death, when he left off tobacco, to which he attributed their preservation: at length, in 1770, he yielded to fate, after having completed the one hundred and thirty-second year of his age*.

* Pennant's Tour, vol. ii. p. 142.



Jas. & Jos.h Neale sc 352 Strand.

HENRY JENKINS,

of Ellerton in Yorkshire

who lived to the surprizing Age of 169

which is 16 Years longer than Old Parr.

moved, and if due precautions are taken to avoid it in future, the weakened parts may be expected gradually to regain their former healthy condition: and, in order to do this, they hardly require aid, and, in general, can receive but very little effectual aid from any efforts of art.

It is well ascertained, that the complaint with which you are affected, proceeds not from any derangement of the organization of the parts in appearance principally concerned, but from a certain degree of *compression* of those organs within the head, on which they depend for the power of voluntary motion.

The great object, therefore, in your case, is to remove the *pressure on the brain*, which I have no doubt has occasioned the symptoms under which you labour, and to guard against its future recurrence.

In order to accomplish this end, the only effectual means consist in diminishing the quantity of blood in your body in general, and moderating its flow towards your head in particular.

With this view, I have particularly to recommend very light spare diet, moderate exercise, and occasional evacuations.

1. With regard to drink, it is of the highest importance, that you should be extremely cautious. You ought never to take a drop of any liquor stronger than common small-beer, or spruce-beer. These two, as generally made, are not of sufficient strength to be hurtful in your situation; but distilled spirits, with or without water, wine, ale, porter, cyder, or any such liquor, must be most carefully avoided.

2. You should also renounce, at least for the present, the use of solid animal food, confining yourself to a moderate quantity, (as a single soup plate) of ordinary broth, or light soup, and that at dinner only. Pastry of all sorts, cheese, butter, suet, or plumb-puddings, are improper; and the remainder of your dinner should be made up of *well-boiled* garden-stuff, light pudding, or flour or rice, and ripe fruits. Milk may be taken in moderation, if it agree with your stomach. Tea and coffee should be taken in moderate quantities only, and not strong. Stale bread, rice or sago, will be proper articles of diet. Every meal should be moderate; for the mere loading or distending of the stomach might be very prejudicial. If you dine early, there will be no occasion for your eating between breakfast and dinner; and if you drink tea late, you may dispense with supper. This last meal should, at any rate, be a particularly sparing one.

If, after having followed this plan for some months, you find yourself considerably relieved, and continuing free from any fresh attack, you may venture on an ordinary slice of plainly-dressed butchers'-meat, without fat, or of white fish without butter sauce, at dinner; but you should regard this as an indulgence only, not as a necessary of life.

5. As soon as it is practicable, it would be highly expedient to use the shower-bath, at least occasionally, as the means of propelling the blood *from the head.*

6. The breathing of pure air is of the utmost importance to health; and for that purpose, the improved mode of ventilation, by pulling down the upper sashes, and having an wooden *conductor*, by which the air is made to strike against the ceiling, cannot be too strongly recommended. In the winter season, on the other hand, it would be advisable to adopt the Russian mode, of having double sashes in the windows of the rooms inhabited by the patient, to prevent the admission of cold.

7. In regard to sleeping, a mattress is to be preferred; the head should be raised, and not too warmly covered; the pillow to be stuffed with horse-hair, and not with feathers.

8. For breakfast, take a moderate quantity of milk, if it agrees with the patient, with hard bakers' biscuit, or rusks, or stale, or toasted bread, to give the stomach something to do, which keeps up its digestive powers; *but if costive*, toasted *brown* bread would be preferable. Barley-meal porridge might also be occasionally taken; or tea for a change. Apple-jelly is a most excellent conserve to be taken with bread, and greatly preferable to currant-jelly. No butter on any account.

9. Luncheons ought to be entirely given up.

10. For dinner, take a single plateful of light soup or broth, and then a moderate quantity of pudding, made of pearl-barley, rice*, millet, or potatoe-meal, prepared from potatoes sliced and dried, and then ground. Remember to eat slowly. A little fowl or mutton, or white sea-fish, in particular whitings, is allowable once a week for a change. No fruit to be taken after the stomach is filled. The wholesomest fruits are strawberries, gooseberries, grapes, or currants. Stone fruits are to be avoided.

11. For drink, whey, (more especially clarified, as the French "*petit lait*"), or toast and water, made with peculiar care, are to be preferred. Ginger, or spruce-beer, likewise may be taken; but no malt liquor, nor wine, nor spirits, even with water.

12. A late "*tea*" may be taken, to prevent the necessity of supper, which ought to be given up, or taken very sparingly.

13. To promote the restoration of health, the mind must be occupied and amused, and should be kept as much as possible

* In the East Indies, where the people live upon rice, paralytic and apoplectic disorders are scarcely known, unless when arising from the use of opium. This proves how these disorders may be prevented, by the adoption of that sort of vegetable diet. Pearl or pot-barley may be called "*European rice*," and perhaps is the best of all food, producing the purest blood. When ground into meal, it may be made into *scones* or cakes, (prepared with milk), which are wholesomer than fermented bread.

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London: Printed by B. McMillan, Bow Street, Covent Garden.