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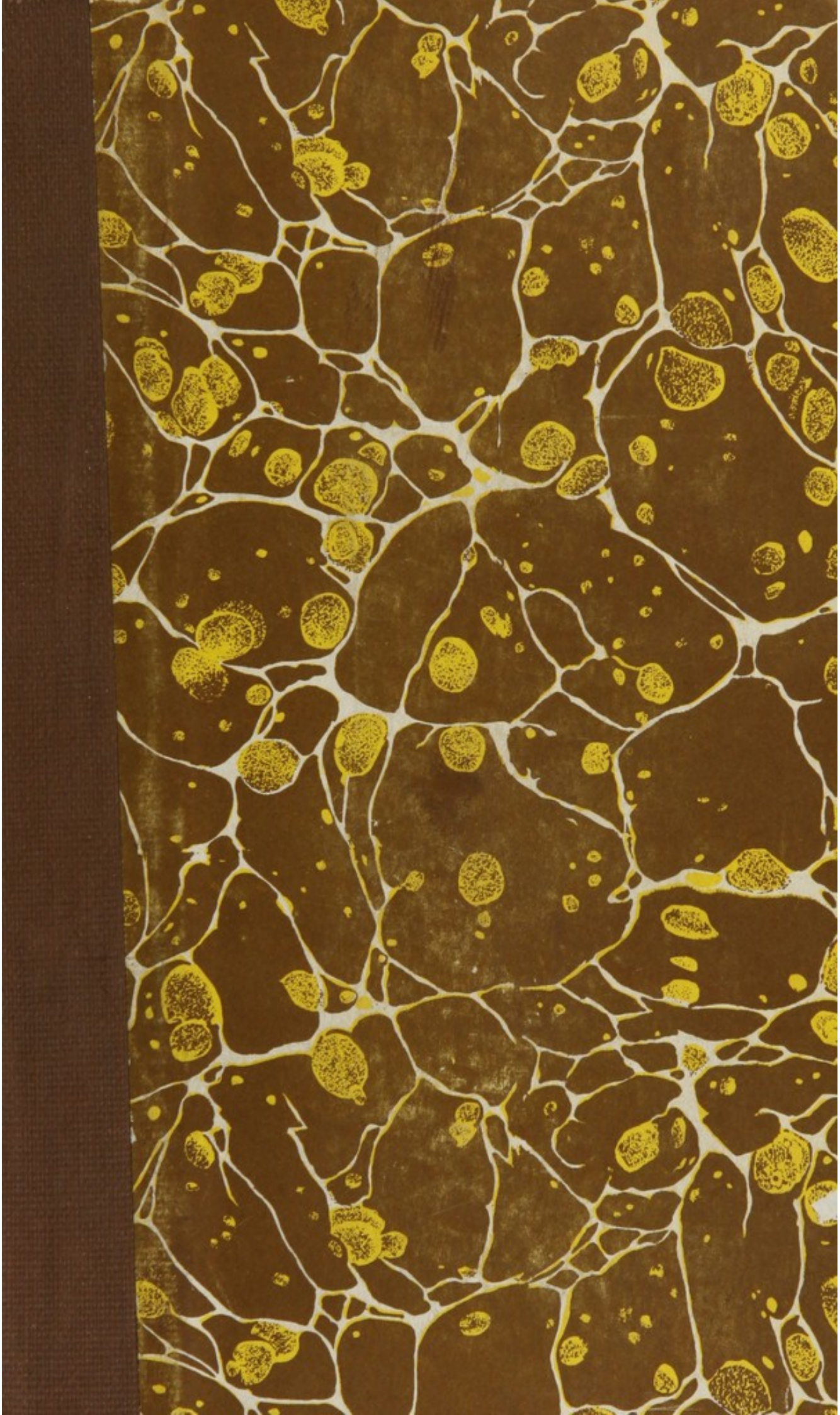
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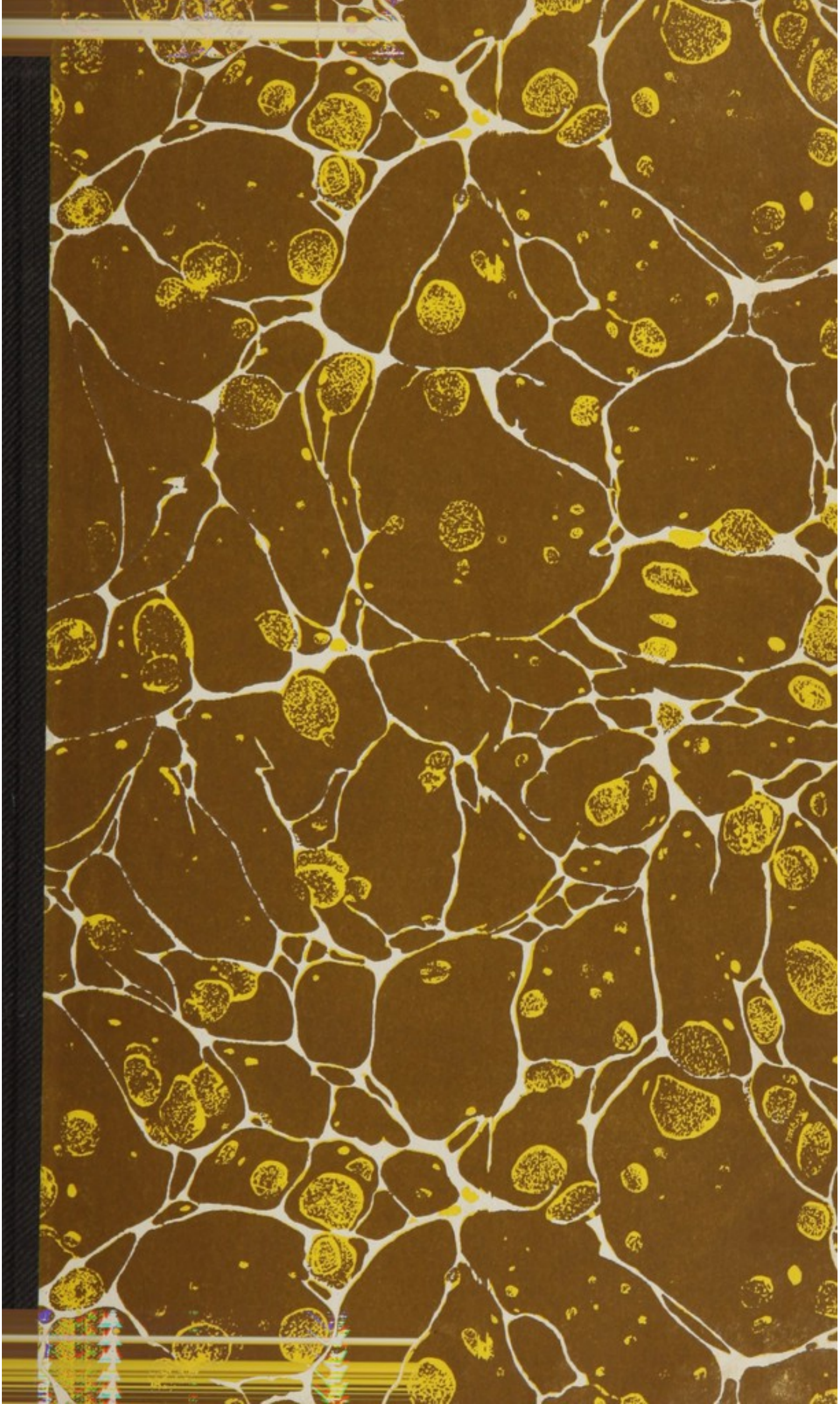


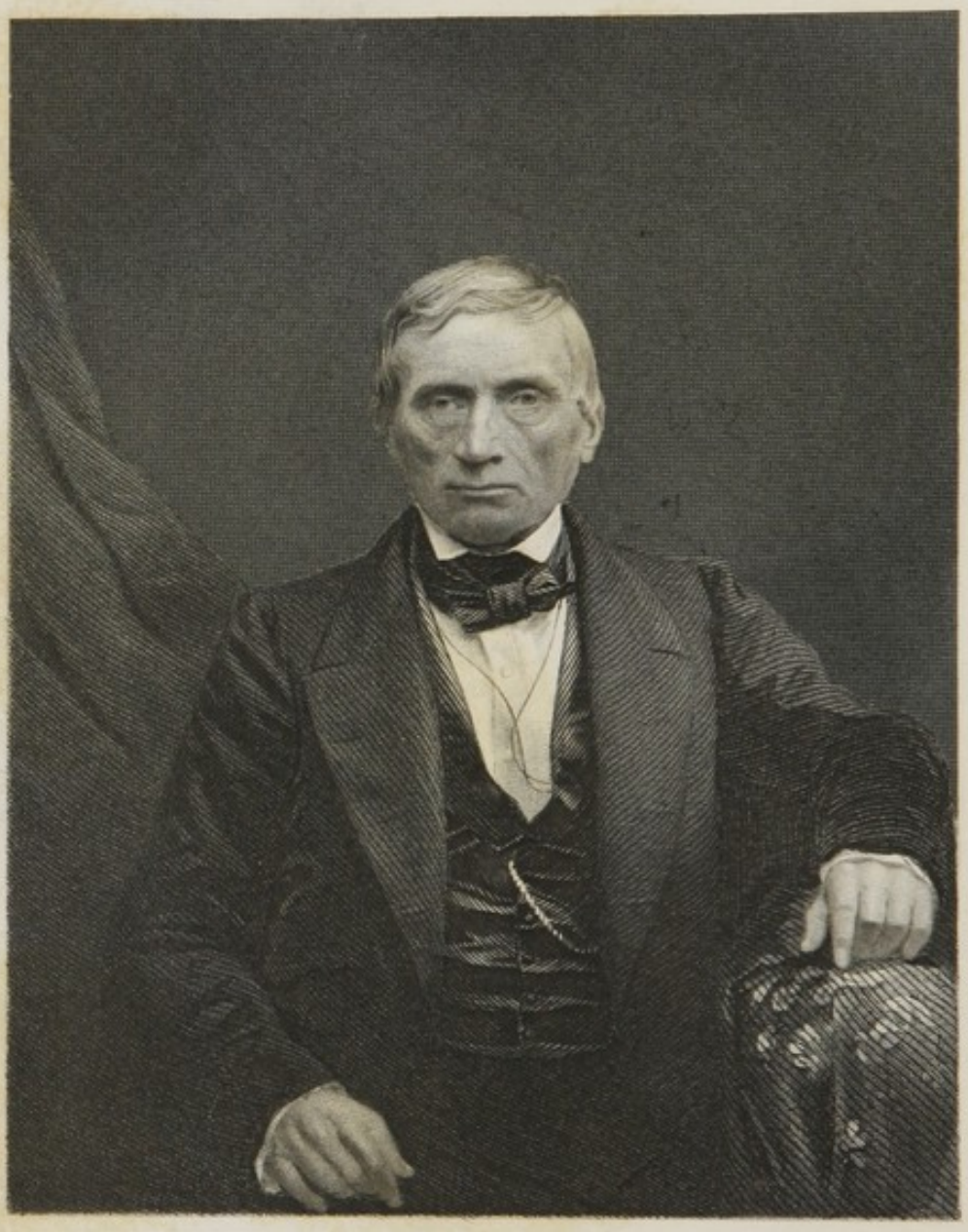
ANNEX

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Yours truly

R D Mussey

HEALTH:

ITS

FRIENDS AND ITS FOES.

BY

R. D. MUSSEY, M. D., LL. D.,

LATE PROFESSOR OF ANATOMY AND SURGERY AT DARTMOUTH COLLEGE, N. H., AND OF SURGERY IN THE MEDICAL COLLEGE OF OHIO; FELLOW OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES, ETC. ETC.

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PREFACE.

It is now more than thirty years since I began to take a special interest in the subject of Hygiene. My professional intercourse with different classes of men, in private and hospital practice at home, as well as my observations in numerous extensive sanitary institutions abroad, brought under my notice so much suffering from what I regarded as errors in Diet, Regimen, and Medication, that I adopted the practice of making notes of facts and cases and preserving them for future examination, with the hope that, at some time, I might be able to put them into such a form as would justify my presenting them to the public, and thus, in some measure, discharge an obligation due to my profession, and do something to promote the well-being of my fellow-men. The facts and cases thus gathered form the basis of the following pages.

From the greatly increased intercourse of tribes and nations, and the prevalent spirit in our time of more careful observation of the phenomena of disease and of the effect of remedial

measures, we may, I am confident, count upon valuable progress in Hygiene for the future.

In the suggestions here recorded, it has been my object to meet the comprehension of the general reader, and, at the same time, to present some suggestions which, it is hoped, the young physician may find not wholly beneath his regard.

It is proper to add, that portions of the following pages have been written at widely different periods of time; and this will account for an occasional recurrence to the same subject, or repetition of the same idea, in different parts of the work.

R. D. M.

Boston, June, 1862.

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HEALTH:

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CHAPTER I.

THE CORSET — CLOTHING — BOOTS AND SHOES.

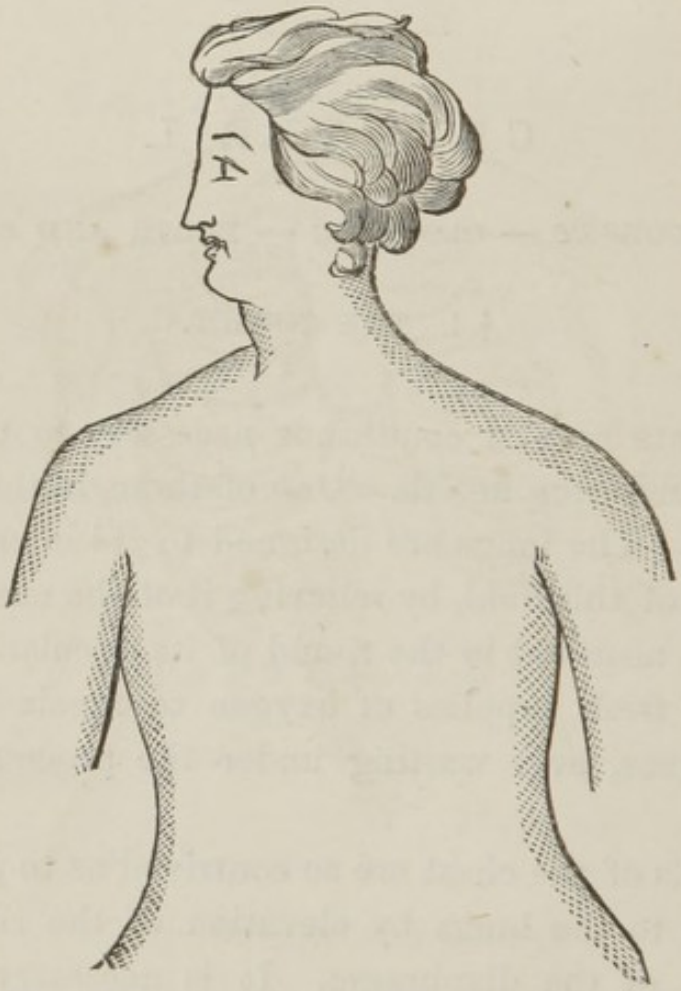
§ I. THE CORSET.

THERE are several conditions necessary to the highest and most enduring health. One of these is the purity of the blood. The lungs are designed to aid in maintaining the purity of this fluid, by relieving it of the noxious materials it has acquired in the round of its circulation, and by furnishing fresh supplies of oxygen to repair the tissues of the organs, ever wasting under the processes of vital action.

The walls of the chest are so contrived as to give admission of air to the lungs by elevation of the ribs and the depression of the diaphragm. It is necessary that this bellows movement of the chest, by which the lungs are supplied with air, should be free and unrestrained; for the ribs are so connected together, that whatever arrests the motion of one or two of the long ribs on both sides of the chest affects the motion of the whole; and it would be as philosophical to tie the handles of a bellows together in order to have it work well upon a fire, as to apply a belt or any other article of dress so firmly about the chest as

to arrest the motion of the ribs in respiration. Were it not for the diaphragm, which has a motion of its own, life would be sustained but a few minutes under an entire arrest of the motion of the ribs. When the lower part of the chest is in a state of compression, the diaphragm,

Fig. 1.



VENUS DE MEDICI.[1]

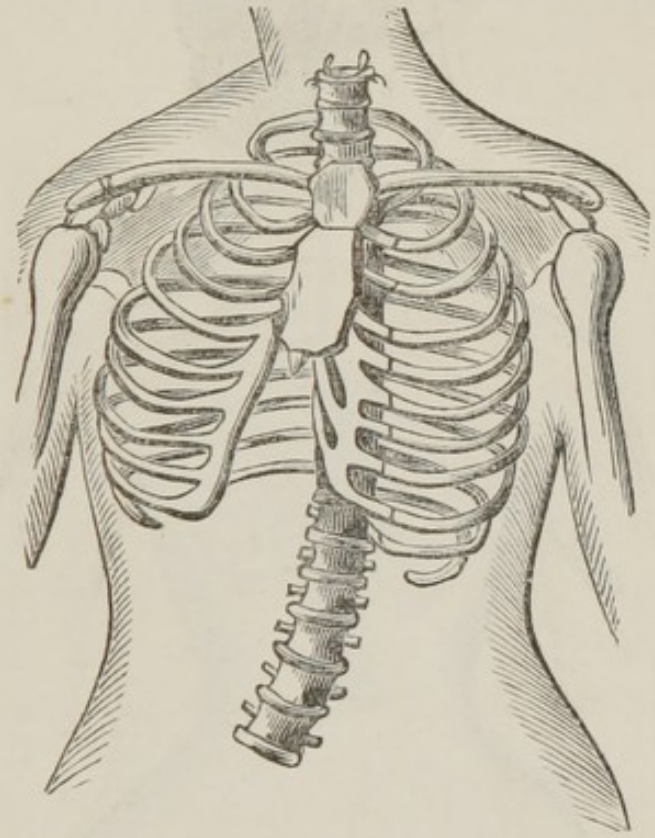
acting from a smaller circumference from its fixed margin, moves less efficiently, and its embarrassment is still further increased when the walls of the abdomen are so compressed upon the viscera, the stomach, spleen, liver,

1 Outline of a well-developed female body, — the Venus de Medici, — unconstrained by dress.

intestines, etc., as to obstruct the rising and falling movement belonging to a natural respiration.

The lungs of a well-developed adult occupy the space of a hundred and fifty to three hundred cubic inches. They consist largely of air cells, so minute that some anatomists have stated their number as high as six hun-

Fig. 2.



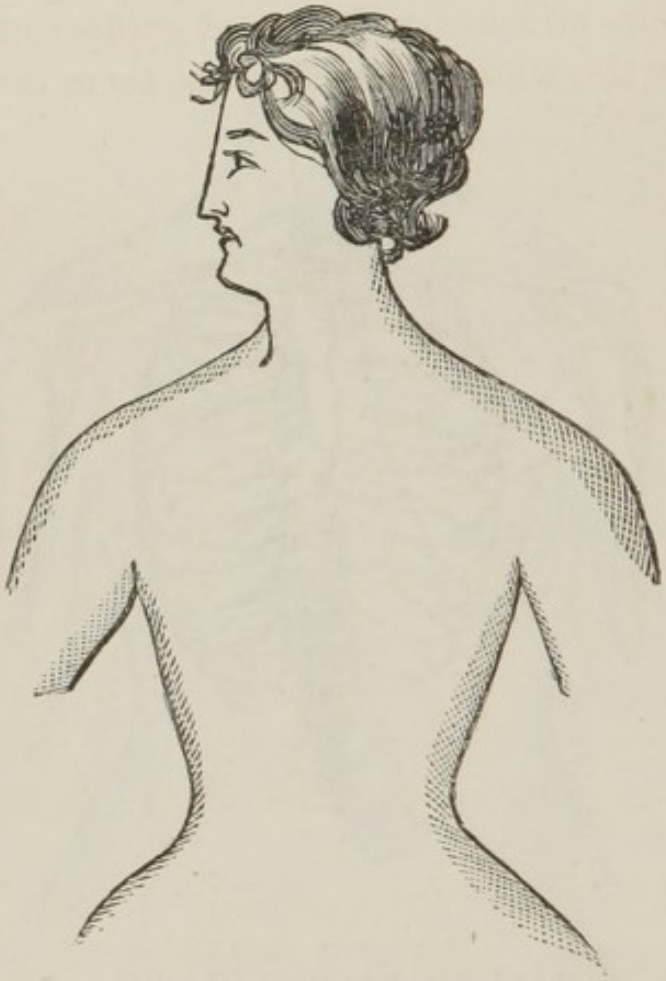
SKELETON OF CHEST OF FIG. 1.

dred millions in both lungs. (Rochoux). Lieberkühn has estimated the amount of surface on which the blood is exposed to the action of the air in them, to be not less than fourteen hundred square feet.

Whatever mechanical contrivance is so applied to the chest as to shut out from the lungs a part of the air they are capable of receiving, causes a degeneration of the blood, increases the liability to disease, and becomes the

ground-work of premature decay and death. Dr. Herbst, by actual experiment made on young men who wore the Russian belt or corset, ascertained that when belted they inhaled, at their deepest inspiration, from one fourth to

Fig. 3.



CORSETED VENUS.[1]

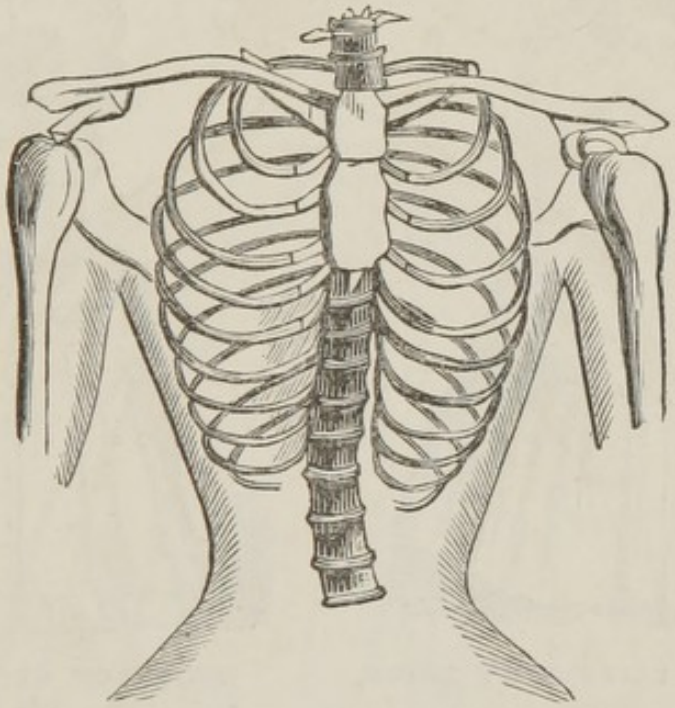
one third less air than when the belt was removed, and the chest left free from constraint.

It is obvious that the lungs of a child, although healthy, are not large enough to aerate or purify the blood of an adult. A certain proportion, between the capacity of the lungs and the size of the other organs, is necessary to

1 Effect of corset upon Fig. 1, changing the form.

their healthy activity and power of endurance. If, in childhood, or during the period of the growth of the body, the chest is kept in a state of compression, so as to prevent the natural and full development of the lungs, the healthy proportion between them and the other organs is violated, and the injury can never be fully repaired. When disease attacks one lung, and permanently shuts up one half or the whole of its air cells, there is not left the

Fig. 4.



CORSETED CHEST.[1]

same vigor of health, or power of resistance to the causes of disease, which nature intended. I have seen this verified in the case of a young lady, Miss M. At the age of about seventeen she had an inflammation of the right side of the chest, which terminated in complete hepatization or consolidation of the right lung. The sound on percussion was dull or flat. The ribs on the right side were shut

1 Skeleton of chest of Fig. 3.

down closely upon each other, and had not the slightest appreciable motion in respiration. In this condition, with only one lung to act upon the blood, she lived, in delicate and fluctuating health, for five years, when, on a cold day in winter, she rode out a few miles and took cold, which was followed by inflammation of the left lung, and a rapid consumption, which carried her off in a few weeks. Had

Fig. 5.



MIDDLE OF ELIZABETH'S REIGN, 1580.

Fig. 6.



REIGN OF GEORGE III., 1790.

both lungs been sound, she might very probably have so far resisted the cold as to have experienced nothing worse from it than a slight indisposition.

Among the lower animals those that are best fitted for activity, strength, and prolonged muscular exertion possess large lungs, as the race-horse and the greyhound. Dealers in horses always look out for an animal with a large chest, or "good wind." Would it be well to apply a corset to these animals for the chase? Do they not need it as much as women and children?

Within the last seventy years female infants at the breast have been put in corsets. I have in my possession

Fig. 7.



IN UNITED STATES,[1]
1835.

1 One needs a fan and an open window in order to look at such figures as 5, 6, 7.

a corset presented to me by a lady who assured me that it was worn by her grandmother's first child from the time of its birth until it was nine months old, when it died.

It has been the common practice in our country, for more than half a century, to apply corsets or tight waists, or some article of dress tight about the chest, to female children at a tender age "to preserve the form," as the phrase is; in other words, to prevent the natural expansion of the chest during its growth.

The motions of the heart are influenced by tight dress: the pulse is less free and open, and under exercise is fluttering, hard, and sometimes irregular. The breathing, too, is oppressed and frequent, as comparatively little air enters the lungs at each inspiration. A lady, tight dressed, on entering a room in a hot day, hurries to a seat, her face flushed, and her fan in quick motion.

In crowded apartments, the air becoming impure from the respiration of the many, fainting sometimes occurs, and the unfortunate individual must be carried into the open air, and the dress loosened to save life.

Sometimes death is the direct consequence of thus excluding air from the lungs. In the interior of New Hampshire, some years since, a girl walking to church on a hot summer's morning, sunk unconscious in the road; attempts were made to revive her, but in vain, — she was dead. Two corsets were found upon her, one over the other, and each laced as tight as could be done with the aid of her sister. More than twenty years ago I was called early one morning to the principal hotel in the place of my residence, to a servant girl who had just been found motionless in her bed. She had probably been dead several hours. A corset was drawn excessively tight on the body, and from the practice which the family informed me

she was in, of lacing up her corset every night at bedtime, I could not doubt it was the principal, if not the only cause of her death.

Among the chronic effects of wearing the dress too tight upon the chest, may be mentioned an imperfect development of the mammary glands, which, in many instances, so far impairs the natural power of these organs as to prevent their furnishing nature's food for early infancy. I have known in two instances a small and very painful chronic tumor, denominated by that eminent surgeon, Sir Astley Cooper, the irritable tubercle of the female breast, caused, as it seemed to me, by constant pressure upon the part of the gland situated over the anterior extremity of a rib pushed forward out of its natural position by the habitual tightness of the dress.

The organs below the diaphragm, as the stomach, liver, and intestines, suffer from pressure. Shoemakers, from being much in the sitting posture, with the body bent forward, compressing the stomach and contiguous viscera, are peculiarly liable to dyspepsia. These organs suffer, not merely from the direct mechanical pressure of a dress too tight, but also from being compelled to do their work with an impure blood circulating through them, from which they must elaborate their materials; instead of a blood renovated and pure, coming from a free and unobstructed action of the lungs. This impurity of the blood pervades all the organs of the body, and fixes the standard of health at a lower point than nature intended; and of course with an increased liability to every form of disease. There cannot be a reasonable doubt that the imperfect fanning of the lungs in respiration, and the necessarily sluggish motion in their minutest vessels of the blood loaded with impurities, must be concerned in

the production of tubercles, and inducing consumption, that fearful scourge of civilized Europe and America.

A medical friend mentioned that he was consulted by a young lady for a pain in the side, which commenced upon her dress being loosened at bedtime and lasted so as to prevent sleep from one to two hours. The doctor prescribed loosening the dress two hours before bedtime. He understood the case. The blood, rushing into the vessels from which it had been excluded during the day, threw upon the stretch the minute sentient nerves interlaced among them, causing the pain, and it required an hour or two to restore the equilibrium of the circulation. Had the doctor prescribed a permanently loose dress, his advice might have been too unwelcome to be followed.

The bending of the spine or backbone, causing deformity of the body, is sometimes the result of tight dressing. This is brought about by confining the muscles which erect the spine, so as to prevent their free and natural action. It is exercise which gives vigor and volume to muscles. The hammer arm of the blacksmith is an example. The spinal muscles, when deprived of the proper amount of exercise, become incapable of sustaining their destined actions, the spine bends, and ultimately becomes confirmed in this position, causing distortion of the chest, and throwing out the point of one shoulder-blade. How often the physician is applied to by the solicitous mother for a plaster to keep the shoulder-blade of her daughter from growing out.

This lateral curvature of the spine is very seldom met with in boys. They suffer no constraint from dress, and find means, even in cities, of taking free exercise in the open air. At a late period of the career of that eminent surgeon, Dr. P. S. Physick, of Philadelphia, I had the

opportunity of asking him whether he had often seen cases of lateral curvature of the spine in boys. After a short pause he replied, "I do not remember to have seen above one case in a boy." You have seen it, sir, in girls? "Yes," said he, promptly and emphatically, "in thousands." The female boarding-schools, as they were conducted some years ago, were a fruitful source of this complaint. The girls were compelled to occupy seats without a back or anything to lean against; were required to sit prim for several hours, in order to keep the body erect. The effect of this was to tire out the muscles in their unremitted exertions, and allow the spine to bend under the weight it had to sustain. Dr. Forbes, an eminent London physician, mentions having found in a boarding-school of upwards of forty young misses, a large proportion of them having their spines affected in this way. Within the last few years some improvements, as to seats and exercise, have found their way into these institutions, in our country.

In the early stage of this affection, when the curvature is but slight, and the patient, by a strong muscular effort to resist downward pressure made upon the top of the head, can, for a few moments, so erect the spine as to bring the spinous processes into a straight vertical line, the case is remediable; and even when the affection is in a form somewhat more grave its progress may often be arrested.

In the treatment of lateral curvature of the spine an entirely loose dress should be prescribed, an early morning sponge bath in tepid or cold water, followed by free dry friction, especially to the back and limbs, daily and persevering exercise in the open air, and a plain, unstimulating but substantial diet. In the early stage of the complaint, carrying a weight on the head, as suggested by

Fig. 8.



CERES.[1]

[1] Ceres, the goddess of grain and harvests.

Mr. Wilson, in order to compel the muscles to a temporary extra effort, may be required as an auxiliary to the

Fig. 9.



NEMESIS.[1]

[1] Nemesis was regarded as the personification of the righteous anger of the gods — inflexibly severe to the proud and insolent.

end in view. A convenient form for the weight is a bag of sand, which can easily be graduated to the strength of the spinal muscles to sustain it, under a strong voluntary exertion for ten minutes or more, until a slight sense of

Fig. 10.



HEBE.[1]

fatigue is felt. This may be repeated several times in a day. It is well known that those individuals who are in

[1] Hebe, cup-bearer to the gods.

What a contrast between these last three figures and the whole tribe of corseted gentry. The cestus or girdle or sash brings the scarf or tunic loosely upon the waist without compressing it.

the habit of carrying heavy weights on the head are remarkably erect in their persons. In lateral curvature, all sorts of machinery, in the form of braces for mechanical supports, are useless, unless as palliatives in confirmed cases with great deformity.[1]

A physician is not unfrequently consulted in the case of a female patient who complains of a pain in the side, headache, sometimes dizziness, a dry cough, capricious appetite, with derangement of function in the alimentary canal. Among other suggestions, the doctor recommends a perfectly loose dress. The lady assures him that she does not dress tight; she could never bear anything tight about her in her life. If she be young, and her mother is present, this statement is confirmed in a matronly decision, given with unappealable emphasis, again and again repeated. The doctor, if not convinced nor disposed to relinquish his position, asks for a piece of tape or narrow ribbon, passes it round the lower third of the chest of the patient, comparing its circumference under a prolonged expiration with that of the fullest inspiration, and showing a difference, if any at all, of from a quarter to half an inch. This experiment, with the proper explanations, puts a period to the discussion, if it fails to enforce observance of the advice. No lady considers herself as dressing tight if she knows any one who dresses tighter. A person accustomed to a tight dress feels a want of support without it. "I feel as though I should fall to pieces without my stays; and then how I should look with nothing snug and genteel about me!" To the question sometimes put, What is tight dressing? the answer is, any article of dress that shuts the blood from a single vessel, or the air

[1] It is said that from a recent invention (1862) benefit has resulted in lateral curvature of not very long standing.

from a single air-cell, is too tight for the most perfect health.[1]

Is there no moral aspect belonging to this custom of tight dressing? By what right may I violate a law of my physical being, when the tendency of the violation is to enfeeble health and shorten life? Who made the human body? it is fitting to ask, if the edicts of fashion are to be listened to, and its hideous transformations sought after and received with more than religious devotion. No! the machinery of the human body was not made by an apprentice; it came from the hand of a Master, — one who understood and established all the sympathies and relations of its internal parts to each other and to external objects. What has He himself said of it? He "saw everything that he had made, and behold it was very good."

Fathers, mothers, take care how you mar God's workmanship. You are the constituted guardians of the health, the life, and the prosperity of your children. Listen to the voice that whispers, "Take this child and bring it up for me," — not strangle it, nor poison it; and can you turn away heedless of the celestial mandate? O then, when you bend over that coffin, to take the last look of your darling child, be prepared to hear conscience speak out and say, "Your love of fashion and disregard of the laws of health destroyed this child;" and be prepared to answer the charge at another time, and on a far different occasion.

As a matter of taste, this custom admits of animadver-

[1] My student, Mr. Manwaring, says he saw a young lady who was attacked with nose-bleeding, which continued so long as to cause great alarm and apprehension lest it would terminate fatally, when a person, who had the sagacity to understand the case, directed to have her corset strings cut, which being done the bleeding stopped almost immediately.

sion. Among the Greeks and Romans the cestus or girdle was employed to gather the flowing robe around the waist, leaving the form and proportions of the body free and natural. When and where the tight waist or corset first appeared, it is not easy, nor is it important, to determine, but it has existed for several centuries, and has been almost, if not quite, exclusively found among nations enlightened, and nominally Christian. In what costume more becoming or attractive has woman ever appeared than in the impersonation of beauty and elegance in Hebe, Ceres, and Nemesis?

Fig. 11.



COURT DRESS IN 1796.

There is but one word that can be offered in favor of the custom of tight dressing, and that word is *Fashion*. Reason and common sense are against it; anatomy, physiology, the love of health and life, are against it; good taste, humanity, and religion are against it. Who could have been the prime instigator of a fashion so hostile to health and life?

In the fluctuations of fashion under every new modification the corset has not relinquished its essential feature, viz. its stifling power on the organs of respiration; but as if commissioned by the Maker of the human body to compress the lower half of the chest, it does its work

with unremitting fidelity. It is known to naturalists that

Fig. 12.



HEAD-DRESS OF 1782.[1]

Fig. 13.



SIR WILLIAM RUSSELL.[2]

the huge serpent, the boa constrictor, kills his prey by

[1] Among the extravagances of fashion the remarkable head-dress of 1782 presents strong claims for insertion. The foundation of this immense structure was a pile of tow with the hair turned up over it; false hair was added in large curls, strings of pearls or glass beads, then flowers, and above all nodded large ostrich feathers. A large quantity of pomatum and powder was wrought into the fabrics, which added about three feet to the height of the wearer. When riding the wearer had to kneel and hold her head out of the carriage window to prevent discomposure of the ornamented noddle, and at night these adjuncts were carefully supported with soft bolsters, a servant watcher standing by to maintain the due adjustment of the several parts! With care this head-dress would "keep," as the word was, for three weeks before it must be taken down and built over again by the hair-dresser. A plenty of medicaments were advertised accompanied with the most positive assurances that they would kill the vermin which nestled in the pomatum and powder, and thus sustain the fabric considerably beyond three weeks.

[2] Sir William Russell, a favorite courtier of Queen Elizabeth, with his stuffed sleeves and vest and breeches, and an immense ruff upon his neck and shoulders, and corseted waist.

throwing a coil of his body around the chest of the animal he attacks, crushing in his ribs, and stopping the breathing and the heart's motion of his victim. The corset, if longer in doing its work, is not less certain. This article of dress, by excluding from the lungs a part of the air they were made to receive, renders the blood less pure than it would be in its natural state, and, other things being equal, shortens the period of life.

Fig. 14.



THE SERPENT'S COIL.[1]

In addition to the corset we have the old-fashioned hooped skirts come again, convenient for concealing stolen articles, and said to be well-suited to our climate, — very cool in summer and warm in winter. These hoops were banished from court by a royal edict of George IV., probably one of the most philanthropic

[1] The serpent's coil and the corset operate on the same principle in shortening life, namely, by excluding air from the lungs. The coil is prompt, and does its work without delay; the corset is slow, but sure of its prey in the end.

The sculptors concerned in bringing out the far-famed and much admired group of Laocoon and his sons, now in the Vatican at Rome, seem to have been ignorant of the mode of attack by all the large and non-venomous serpents, as the python, the boa, and the anaconda, which is, to throw a coil or two of their own around the chest of the animal assailed, to crush in his ribs, and stop the breathing and the motion of the heart at once. If they were not ignorant, it is difficult to perceive their motive for so great a deviation from nature. Their carved snakes have coils upon the arms and legs of the old man and his two boys, as if to prevent their running away or using their hands in self-defence, while their bodies are left free for breathing and crying out *ad libitum*. The serpents would require perhaps an hour or more for killing their victims in this way, whereas, by their own native method, a minute for each victim would suffice. Virgil's account is more correct.

acts of his reign. Applied to little girls from three to ten years of age, extending only as low as the knee, they increase the liability to suffer from cold in winter, the lower limbs being frequently clad with nothing but cotton drawers. All this besides the indecent exposure they almost necessarily occasion while the little sufferers are thus clad.

§ II. CLOTHING.

In a climate so variable as that of the northern section of the United States, the importance of sufficiently warm clothing is far from being generally appreciated. The edicts of fashion, always religiously observed, would seem to have been issued under an intelligent hostility to health. At one period, while the upper part of the body is swathed so closely as to exclude one third of the amount of air required by the lungs, the lower part, and the limbs which support it, are invested with a series of skirts, sometimes amounting to *twenty* in number, let the season be cold or warm. Under another regime, the same parts are surrounded by garments spread out somewhat like a Chinese umbrella, while the feet and ankles are so thinly clad as to suffer from cold and wet. The large, bagging, open sleeves expose the whole of the arms to the slightest changes of temperature, as if inviting consumption to creep by the armpits into the lungs.

In late autumn, in winter, and in spring, an under waistcoat and drawers should be worn by every one who can afford them. Soft woollen flannel is to be preferred for those who inherit a tendency to consumption; and for those whose skin is too irritable to tolerate a woollen covering the Canton or cotton flannel may be adopted.

There are those who wear cotton stockings through the winter, but lambs' wool is safer and better. A warm day in early spring creates a temptation to leave off some article of winter clothing; when yielded to, it is often followed by indisposition, sometimes severe. The winter clothing should not be laid aside till mild weather is fully established. For summer, an under waistcoat and drawers of muslin may be worn with benefit. In the application of clothing to the body and limbs, the rule should never be dispensed with, that it be so loose as not to obstruct the circulation of the blood in the smallest vessels. After free or protracted exercise in hot weather, causing sweat or fatigue, it is justly deemed unsafe to sit down to rest in a cool place without the addition of some extra article of clothing. My friend Dr. H., who passed two years at Cape Palmas, tells me that the inhabitants find an overcoat very convenient during the rainy season, when the thermometer stands at 70°.

The heat-making power is strikingly unlike in different individuals of the same age, even when not affected by chronic diseases; and no one comes to old age without the conviction that some part of this attribute of life has left him. Dr. Rush mentions that Dr. Chosat, of Philadelphia, — who lived to be eighty-five, — for many years before he died slept in a baize nightgown, under eight blankets and a coverlet, in a stove-heated room. "The servant of the Prince De Beaufremont, who came from Mt. Jura to Paris, at the age of one hundred and twenty-one, to pay his respects to the General Assembly of France, shivered with cold in the middle of the dog-days, when he was not near a good fire."

In a northern climate, persons advanced in life ought to guard themselves well with clothing, and avoid much

exposure abroad in a winter colder than the average. The following statistics are from a paper by Dr. Heberden, in the Philosophical Transactions: "In the month of January, 1795, the thermometer in London, upon an average, stood at 23° in the morning, and at 29–4° in the afternoon, — always, you will observe, below the freezing point. In the same month in 1796, it stood at 43–5° in the morning, and at 50° in the afternoon, — always much above the freezing point. The average difference in the two months was more than 20°.

"In the five weeks beginning upon January 1st, 1795, there were 2,823 deaths; in the five weeks beginning upon January 1st, 1796, there were only 1,471. The difference, 1,352, is enormous. The mortality in the former year was nearly double that in the latter.

"It is very instructive to remark in what class of persons the severe weather of winter is most felt. The increased mortality was found to be among the very young and the very old; in other words, among those in whom the recuperative power of generating heat is the feeblest. In January, 1795, there were in London 717 deaths of persons above sixty years old; while in January, 1796, there were only 153 such deaths, or scarcely more than one fifth of the former number."[1]

§ III. BOOTS AND SHOES.

Under the caprice of fashion in civilized communities, the human foot has been subjected to pain, inflammation, deformity, permanent lameness, frost-bite, and death. The Chinese foot presents the extreme of deformity. Females,

[1] Dr. Watson, Lecture 7, p. 94. Note by Dr. Condie.

and those only of a certain rank, are privileged with this badge. In infancy the foot and ankle are snugly bandaged, and the foot thrust into a metallic slipper. This apparatus is kept applied till the period of adult life. The compression, so great and constant, raises a transverse fold across the sole of the foot, just anterior to the heel, which is from three fourths of an inch to an inch deep. The great toe points forward, and all the small toes are tucked into the sole so as not to be distinguishable on the upper side of the foot. The individual with these feet can never walk, except a short distance, without great pain. I have two specimens of this sort of slipper, which I procured from a Chinese female brought to New York several years ago. She had worn them till fairly worn out. The length of the shoe is five and one fourth inches, the widest part is but an inch and three quarters, the middle of the sole in the widest part scarcely an inch. The upper part of the shoe is satin, ornamented at the toe; the sole seems to have been of a coarse, firm cloth fabric, with numerous layers of muslin wrapped round it, and made to adhere to each other by glue, or gum, or paste. Fig. 15, shows the deformed foot and lower part of the leg; Fig. 16, the shoe.

Fig. 15.



CHINESE FOOT.

Fig. 16.

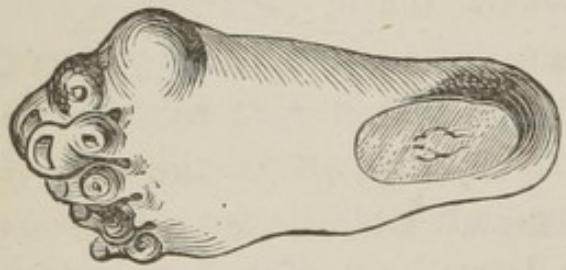


CHINESE SLIPPER.

A deformity less striking than the Chinese, but sufficiently revolting and painful, is not unfrequently met with among us. It is caused by pressure from boots and shoes too small for the foot. The shoe is narrow at the part corresponding with the bases of the toes, and the foot,

instead of being allowed to spread as Nature intended, to form a fit support for the body, with a free motion of the toes for adjusting the equilibrium of the superincumbent weight, is so compressed as to render the toes nearly useless. In this way the natural elasticity of the foot is destroyed, and the individual walks as if the front part of the foot had been amputated, or the toes taken off by mortification. Who has not seen on Change, in some of our cities on a pleasant day, not very hot nor very cold, some of the dons of the town, their feet muffled with moccasins, cautiously moving by aid of one or two canes apiece. The dandy boots of early and middle life, with, in some instances, the reinforcement of an occasional fit of gout, give the explanation. If one of those artificial feet be inspected, the great toe is observed to be turned off towards the central line of the foot; on the joint connecting it with the foot is a large tumor, called a bunion; the small toes jammed together, and one of them, commonly the index or second toe, riding upon its two neighbors, the first and third; the little toe turned under the fourth, and almost out of sight, has been compressed into an irregular three-sided pyramid; and, to complete the physiognomy, all the small toes are embossed with corns.

Fig. 17.



CORNS AND BUNIONS.

But this style of deformity is not confined to males. Females have a share. Our ladies, like the Chinese, have a horror of a large foot, as being vulgar. Hence they take great pains, with small and tight

Fig. 18.



CHILD'S FOOT.

shoes, to prevent its full development. Many a lady wears a shoe with a sole not more than half the width of the foot at its widest part, — viz. at the root of the toes, — hence corns, bunions, and one toe riding upon its neighbor. A corn upon the front part of the sole of the foot is liable to arise from walking on pavements and sidewalks in thin-soled boots and shoes.

A sufficient number, both of males and females, are too familiar with the effects of corns to render necessary a description of the pain and crippling they occasion. The proper preventive and permanent remedy for these morbid growths is a perfectly loose boot or shoe; and one of a thick sole, to equalize the pressure in walking, for a corn upon the sole. So dominant is fashion, that, in some of the large cities, the business of corn-cutting is a lucrative profession. A few years since a corn-cutter in Paris was in the habit of giving annually a splendid dinner to a fashionable boot-maker, as an acknowledgment of his services in supplying him with patients.

Fig. 19.



DANDY'S BOOT OF 1859.

Fig. 17 shows the bunion, corns, and riding toe. Fig. 18 shows the natural direction of the toes in the foot of a child. In some few instances the riding toe is observed in a new-born child, transmitted, like some other peculiarities of form, from the parent. Fig. 19, a fashionable boot of the present time, 1859; a small and high heel, and an antero-posterior arch in the sole. Now the smaller the heel, and the higher the heel of the boot or shoe, the more difficult is walking. A small heel requires extra muscular

effort to prevent the inward or outward turning of the foot. With a high heel the centre of gravity is thrown too far forward upon the foot. When a student of medicine, I assisted my preceptor in reducing a forward dislocation of the leg upon the foot, caused by the high heel of the patient's shoe being caught upon the edge of a step as she descended a stairway. Fig. 20, specimen of a wedding shoe 1795. I remember to have heard a lady accustomed to high-heeled shoes remark, that she could not walk at all with the foot flat upon the ground; in other words, she could not walk on her own heels.

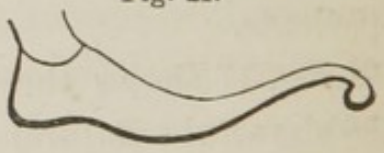
Fig. 20.



LADY'S SHOE — 1795.

The human foot is strictly a tripod. The weight of the body is sustained upon three points, — the heel, the joint at the base of the great toe, and that at the base of the little toe. Strong muscles are connected with these three points. The arch in the sole of a boot, made, as is supposed, to correspond with the arch in the human foot, is not physiological. The foot is made to tread upon a flat or level surface. The arch, or hollow of the foot, is evidently designed to allow the muscles which go from the heel to the toes to play freely and uncompressed, giving a due elasticity to the step. If a shoe be made with a high arch and a stiff sole it interferes, by compression, with the action of those muscles, rendering the gait in walking stiff, unsightly, and uncomfortable. A tight boot or shoe sometimes crowds the flesh upon the

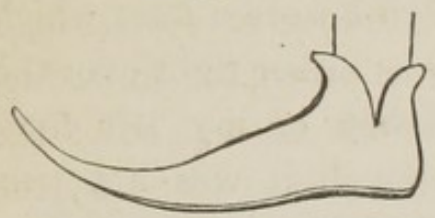
Fig. 21.



LONG SHOE,
TIME OF RICHARD II.

corner of the great toe-nail, causing a painful inflammation or a bad ulcer. Chilblains are liable to occur in cold or wet weather, when the feet are pinched, or not well clad; and frost bite, sometimes followed by mortification, occasionally comes in the same way. I recollect the case of a college student, who, in very cold weather, had his toes so badly frozen in a pair of tight boots as to require a good deal of surgical attention.

Fig. 22.



LONG SHOE, HOUSE OF YORK.

Square-toed, round-toed, and sharp-toed boots have all had their day. Figs. 22 and 23 prevailed at different periods of English history; and Fig. 23 has a remarkable clog, as an ornament and support.

Fig. 23.



SHOE AND CLOG.

A London bootmaker recommends that boots, instead of being made "rights and lefts," should be made on a straight last, and then worn rights and lefts. It may be added, that a boot or shoe should have a flat sole, fully as wide as the foot, in every part, with a capacity sufficient to admit of unrestrained motion of all the toes, and a heel broad, and of very little thickness. Cork movable soles, such as are now very commonly used, are valuable in guarding the feet against cold and dampness, and in diffusing more equally the pressure they are exposed to from walking upon irregular surfaces. In the early part of the Christian era this matter seems to have been understood. The elegant equestrian statue, in bronze, of Marcus Aurelius, on Capitoline Hill, at Rome, exhibits the Emperor in round-toed shoes, with broad, flat soles, and wide and low heels.

Every part of the foot should be free from pressure, so far as to allow a free circulation of the blood in the smallest vessels. Some years ago I wore a boot which was rather tight over the instep of my left foot, though it was not particularly uncomfortable. In three months I observed that there was a permanent numbness on a patch of skin where the pressure had been the greatest. From this time I took care to have the boot for that foot, which was always a little larger than the right, made perfectly loose; but it was two full years before the paralysis was entirely removed.

Fig. 24.



EXQUISITE — 1646.[1]

[1] Fig. 24 represents an English dandy or exquisite of 1646. His hat with a sugar-loaf crown, a bunch of ribbon on one side, and a feather on the other. His collar edged with lace, a moustache about his mouth, cheeks dotted with patches; two love-locks, one on each side of the head, hanging down in front of the bosom, tied with bows of ribbon at the end. A tight vest partly opened, and between it and his breeches large folds of his shirt hang out. His breeches ornamented with many points at the knees, and above them great bunches of ribbon of various colors. His boot-tops so large as to require a straddling walk.

CHAPTER II.

VENTILATION — LIGHT — SLEEP — EXERCISE — BATHING.

§ I. VENTILATION.

The necessity of pure air to the preservation of health is admitted by all, and appreciated only by few. In the construction of dwelling-houses, the same want of regard to this subject, with here and there an exception, is manifest that existed forty years ago. In the northern parts of our country great pains is taken, by tight rooms and double windows, when they can be afforded, for shutting the air out, but no provision made in way of regular supply for letting it in. Very extensively in our farming districts the open fire-place, sometimes broad enough for a rousing fire of wood four feet long, besides a row of children inside the jamb, has given place to the close iron stove. The large open fire, when in brisk action, secured an adequate ventilation, while the close stove requires only air enough for the combustion of the fuel within. One stove often answers for the whole family, during the cold season. The warming, cooking, and washing are all done in one room. The exhalations from the cooking-vessels, and from the lungs and persons of the whole family, are all mixed together, and breathed over and over, to sustain the movements of life. Is it to be wondered at that consumption is, as I am assured by some of

my friends, far more common among the Green Mountains of Vermont than it was twenty-five or thirty years ago, before the close stove was generally used, as now, instead of the open fire?

In our cities and large villages many a lady, who has the windows of her sleeping rooms opened for a short airing once a day, supposes that nothing more is necessary for the twenty-four hours. Speak to her on the importance of ventilation, — she agrees with you, remarking that her chambers are always ventilated every day. How surprised she would be, on being assured that seven to ten cubic feet of air per minute to each individual in an apartment should be admitted, in order to maintain its atmosphere in a state fit for healthy respiration.

In sickness, no sanitary influence is of more value than pure air. This is especially the case in fevers. In typhus, typhoid, and eruptive fevers, the exhalations from the bodies of the sick are sometimes so intense as to cause nausea and vomiting among the attendants. Soon after I commenced the practice of medicine, I had a patient, sick with typhoid fever, who was ill cared for, in a badly ventilated room. At one of my visits I inhaled effluvia so offensive as to create a nausea that lasted two hours. Within five days I was attacked with a similar form of fever, which confined me to my chamber for six weeks. Some years since, at Baltimore, I received a horrid impression, which I can never forget, from looking into a room, apparently wholly unventilated, containing ten colored men with small-pox. In one of our large cities I was requested to look in upon my friend, the Rev. Dr. ——, who, I was told, was sick with scarlet fever. I found him in his bed, which lay up snug in one corner of the chamber, although it was a large one.

He was surrounded by bed-curtains, with an opening sufficient to allow his friends to peep through and see him. I left the chamber with the impression that he would die of that sickness, as he did. In unpromising cases, the favorable change in the symptoms, when the patient, sunk and apparently near to death, is transferred to a cleanly and well-ventilated apartment, is sometimes very striking.

In the winter of 1837–8, while occupied at the Fairfield Medical School, Herkimer County, New York, I was requested to visit two patients, sick of typhoid fever, which for several weeks had prevailed in that neighborhood. One was a girl of sixteen, whose life was despaired of by her physician. She lay in a small bedroom without a window, the door of which opened into a larger room warmed by a close stove, the smoke-pipe of which communicated with the chimney through a fire-board that shut from the room a large fire-place. The poor girl lay unconscious, the mouth open and dry, the eyes half open, turned upward, motionless and glassy. I made a remark that the prospect for life of the patient, in that small place, with little else to breathe but the steam of her own body, was to my mind very much like that of the persons whose bodies had recently been laid in the burial-ground hard by. This remark, if it seemed harsh, had the effect to promote a ready observance of the suggestions which followed. She was to be removed to a clean bed in the large room, the stove and fire-board to be taken away, and a brisk fire made upon the hearth, as the weather was then cold, — the patient to be fed, in the small way, with diluent and farinaceous drinks, and to be covered with sufficient bed-clothing. In two or three hours consciousness returned. This was in the afternoon. She slept sev-

eral hours that night, was comfortable the next day, and had a rapid recovery, almost without medicine. The other patient, in the same house, a student of the Academy, had been sick several days, — his case not very unpromising, except that he had been daily getting rather worse. He was in a small chamber, warmed by a close stove. This and the fire-board were removed, and the room kept well ventilated. He, too, recovered under good nursing. How impotent is medicine in such cases, compared with pure air.

Dr. Thayer, in his Report on Practical Medicine, read at the annual meeting of the New Hampshire Medical Society, in 1858, remarking on the importance of ventilation in the treatment of disease, refers to the case of a large number of "emigrants, who arrived at Perth Amboy, from Liverpool, with ship fever, and who, for want of sufficient accommodation, were placed in shanties where they were exposed to the pure air, the buildings being so loosely constructed that they admitted the rain. Of the whole number of eighty-two patients *not one* died; of four others, who were removed to an ordinary dwelling-house, and who were subjected to precisely the same medical treatment, *two died*." [1]

"The deaths of new-born infants, between the ages of one and fifteen days, which, in the Dublin Lying-in Hospital, amounted in the course of four years to 2944 out of 7650 births, were suddenly reduced to only 269 deaths during the same period, after a new system of ventilation had been adopted." [2]

[1] Dr. Watson refers to an epidemic fever in Ireland, where "the mortality among the patients, who were placed in sheds upon straw, and left with very little medical attention, and even without any great personal attention from others, was very small indeed." — Lecture 86.

[2] Blackwood's Magazine, Sept. 1828.

Notwithstanding the increasing interest felt upon this subject, there is probably not one building in a hundred, in our large cities, that is erected with due reference to ventilation. Churches and lecture-rooms and court-rooms, with but rare exceptions, are fitted up to seethe an assembly in the noxious exhalations from two or three thousand pair of lungs. I have seen a chief justice, in a large court-room, fast asleep upon his high bench. How could he help it? He had been inhaling, for several hours, the oppressive vapors of two hundred human lungs and skins, unloading themselves of their nauseous animalized ordors, mixed with liquor and tobacco.[1]

§ II. LIGHT.

The influence of sunlight upon organic developments, and its necessity in the maintenance of health, seem not to have been extensively enough appreciated. From want of this vivifying power, the nutrient juices are deteriorated, the human countenance becomes pale and waxy, and some form of chronic disease is liable to follow. Sir James Wilie, for many years physician to the Emperors Alexander and Nicholas, of Russia, remarks that in a certain barrack at St. Petersburg the mortality on the dark side — that from which the sunlight was always excluded — was

[1] In all the recently constructed hospitals of England, the cubic space for each patient ranges from 1500 to 2400 feet. The latest and most approved plan for warming and ventilating hospitals and other public buildings in England, is by open fire-places in connection with openings for the admission of fresh air over the tops of the windows or near the ceiling, filled with wire-gause or perforated plates, to break the force of the current, or with frames so placed as to throw the current upwards towards the ceiling; diffusing it, and preventing its falling directly in a body on those below. In large establishments the air of the room, especially in hot weather, is changed by forced currents, kept in motion by the aid of machinery.

four times greater than on the side on which the sun shone and penetrated into the windows and doors of the apartment; and this, notwithstanding that equal attention was paid to ventilation on the two sides of the institution.[1]

At the annual meeting of the New York State Medical Society, in 1858, Dr. Augustus Willard, President of the Society, gave an excellent address on the subjects of Air, Exercise, and Light, in relation to health; in which are presented, in an impressive manner, the claims of sunlight to a high place as a hygienic agent. The experience and remarks of that intrepid explorer, Dr. Kane, in his two Arctic expeditions, are referred to as strongly supporting the position.

"At the withering temperature, sometimes, of 60° and 75° below zero, Dr. Kane and his companions passed two years nearer the north pole than had been, in modern times, the wintering place of any voyager before them. They had a night of total darkness of more than two months in each winter. For one hundred and twenty-four days the sun was below the horizon, and one hundred and forty passed before his rays reached the rocky shadowings of the brig. Animal life languished. Dr. Kane, under date of December 20, — the day preceding their "solstitial day of greatest darkness," — makes the following record: —

"In truth, we were all undergoing changes unconsciously. The hazy obscurity of the nights we had gone through made them darker than the corresponding nights of Parry. The complexions of my comrades, and my own, too, were toned down to a peculiar waxy paleness;

[1] North British Review, August, 1858.

our eyes were more recessed, and strangely clear. Complaints of shortness of breath became general; our appetite was almost ludicrously changed,.... and our inclination for food was at best very slight; more than this, our complete solitude, joined with the perpetual darkness, began to affect our *morale*." January 22. "I long for the day. The anomalous host of evils which hang about this vegetating in the darkness, are showing themselves in all their forms. My scurvy patients, — those, I mean, on the sick list, — with all the care it is possible to give them, are, perhaps, no worse; but pains in the joints, rheumatism, coughs, loss of appetite, and general debility, extend over the whole company..... We are a ghastly set of pale-faces, and none paler than myself."

In his second expedition, Dr. Kane notices the same influence of darkness in causing disease; and most of his dogs, "although the greater part of them were natives of the Arctic circle, died of an anomalous form of disease, to which," he believes, "the absence of light contributed as much as the extreme cold."

Under all the privation and suffering endured by these ice-bound explorers in the dreary polar night, it is natural that they should greet with joy the approach of day. Says Dr. Kane: "The day is beginning to glow with the approaching sun. The south, at noon, has almost an orange tinge. In ten days his direct range will reach our hill-tops; and in a week after, he will be dispensing his blessed medicine among our sufferers. The coming sun will open appliances of moral help to the sick, and give energy to the hygienic resorts which I am arranging at this moment..... For the last ten days we have been watching the growing warmth of the landscape as it emerged from the buried shadow through all the stages

of distinctness of an India-ink washing, step by step, into the sharp, bold definition of a desolate harbor scene. We have marked every dash of color which the great painter, in his benevolence, vouchsafed us; and now the empurpled hues, clear, unmistakable; the spreading lake, the flickering yellow, peering at all these poor wretches! Everything superlative lustre and unspeakable glory."

"I saw him (the sun) once more," says he, "and upon a projecting crag nestled in the sunshine. It was like bathing in perfumed water."

Arctic voyagers are very subject to scurvy. That this liability is largely owing to the privation or scanty supply of sunshine can hardly be doubted; while the diet and the extreme cold contribute to the deterioration of the blood.

The convicts in our penitentiaries, who enjoy but little of direct sunshine, make a singular impression upon the mind of a stranger who attends their chapel worship Sabbath morning, — their hair sheared close upon their heads, and row upon row of expressionless, waxy faces, without a spot of rouge or tint of a brunette upon one of them.

It will be recollected by those who are familiar with the history of Caspar Hauser, that he lived sixteen or seventeen years with but little light, never having the direct rays of the sun in his cell. His diet was the simplest possible, — bread and water; better for him, doubtless, than seal's flesh and bear meat.

The physiological influences of an Arctic climate impress the conviction that it was never designed for the comfortable residence of human beings. What a mistake, that sunshine must be shut out of our houses, and parasolled away from the face, neck, and arms of our women, from the lady of the parlor to the girl of the wash-tub.

§ III. SLEEP.

It is a law of the animal economy in man and all the inferior tribes, that some part of the time must be passed in sleep. This seems to be necessary for the renewal of nerve-power, expended under the excitements of the waking period, and for restoring the equilibrium of blood-distribution in parts which, during the same period, have been most exposed to changes of temperature, or enfeebled by extra exertion.

In infancy, the nervous power is largely employed in the processes of building up the organs; hence a great part of the time is passed in sleep. Night sleep is more refreshing than day sleep; and this must be true even when daylight is excluded from the sleeping-room. It has been asserted that the atmospheric electricity, from eight o'clock in the evening till four the following morning, has less protective influence over the human nerves than at any other period of the same length in the twenty-four hours; that at eight o'clock, P. M., the positive electricity begins to wane; that it sinks to its minimum from twelve to two, and is re-established at four. Be this as it may, it is a noteworthy fact that in severe forms of disease, as croup or cholera, the attack is either made in that period, or the symptoms aggravated, if the disease had already existed.

"Two colonels in the French army had a dispute whether it was most safe to march in the heat of the day, or at evening. To ascertain this point, they got permission from the commanding officer to put their respective plans into execution. Accordingly, the one, with his division, marched during the day, although it was in

the heat of summer, and rested all night; the other slept in the day, and marched during the evening and part of the night. The result was, that the first performed a journey of six hundred miles without losing a single man or horse, while the latter lost most of his horses and several of his men."[1]

How many hours should be expended in human sleep? Putting infancy and old age out of the question, the remarks of John Wesley are worth considering. He says, "If any one desires to know exactly what quantity of sleep his own situation requires, he may very easily make the experiment which I made about sixty years ago. I then waked about twelve or one, and lay awake for some time. I readily concluded that this arose from my lying in bed longer than nature required. To be satisfied, I procured an alarum, which waked me the next morning at seven, near an hour earlier than I rose before; yet I lay awake again at night. The second morning I rose at six; but, notwithstanding this, I lay awake the second night. The third morning I rose at five; but nevertheless I lay awake the third night. The fourth morning I rose at four (as by the grace of God I have done ever since), and lay awake no more. And I do not lie awake, taking the year round, a quarter of an hour together in a month. By the same experiment (rising earlier and earlier every morning) may every one find how much sleep he really wants." Wesley's period was six hours. Jeremy Taylor speaks of three hours. Lord Coke and Sir William Jones, seven, Sir John Sinclair, eight. Hon. Joseph Story, an eminent jurist of the United States Supreme Court, — an indefatigable student, — required, as he believed, eight hours of

[1] Quoted from Van Langin on Diet by Dr. McNish.

sleep. From six to eight hours may be regarded as the proper part of the twenty-four to devote to sleep. Sleeping too much, like sleeping too little, enfeebles and prostrates. The man who eats too much requires more sleep to rid him of the excess than he who eats just enough to supply the healthy wants of his organs. He is a loser in two ways, — he works the machinery of life too hard, and gets a less refreshing rest than needful.

Carnivorous animals sleep, it is said, more than the vegetable-eaters. They are day sleepers, dozing away the time till night, and then prowling abroad in quest of their prey. John Wesley's great self-control in eating and drinking aids in explaining his six hours complement of sleep for sixty years, under the extraordinary amount of labor which he accomplished.

In dreaming, the feeling of surprise is never present. Let the elements of the dream be ever so incongruous, let the personages dreamed of be individuals long since dead, the dream goes on in a *bonâ fide* manner, — the incongruity never once thought of.

The lapse of time in dreams is not appreciated as in the waking state. A dream may run through the mind in a minute, which seems to the dreamer to have occupied days, or even years. "A person who was suddenly aroused from sleep by a few drops of water sprinkled in his face, dreamed of the events of his entire life, in which happiness and sorrow were mingled, and which finally terminated in an altercation upon the borders of an extensive lake, into which his exasperated companion, after a considerable struggle, succeeded in plunging him."

Opium, in certain doses, increases the absurdities of dreams. I knew a physician, several years since, who, under an attack of inflammation of the lining membrane

of the stomach, had but very little sleep for about two weeks. A distinguished medical friend from a distance visited him, and prescribed a large dose of laudanum, to be given by injection. The patient had a disturbed sleep, and a dream which made a strong impression. He saw himself suspended vertically in the air, heels up and head down, the head cut off, and remaining nine or ten inches below the body, — all without any visible means of support, resting as if held quiet and motionless by a magnet. Nobody could inform him how long his body and head were to remain in that predicament.

De Quincey, in his "Confessions of an Opium-Eater," has described the influence of this drug upon dreams, as follows: "Under the connecting feeling of tropical heat and vertical sunlight, I brought together all creatures, birds, beasts, reptiles, all trees and plants, usages and appearances, that are found in all tropical regions, and assembled them together in China and Hindostan. From kindred feelings, I soon brought Egypt and all her gods under the same law. I was stared at, hooted at, grinned at, chattered at, by monkeys, paroquets, cockatoos. I ran into pagodas, and was fixed for centuries at the summit, or in the secret rooms. I was the idol. I was the priest. I was worshipped. I was sacrificed. I fled from the wrath of Brahma through all the forests of Asia. Vishnu hated me. Seeva lay in wait for me. I came suddenly upon Isis and Osiris. I had done a deed, they said, at which the ibis and the crocodile trembled. I was buried for a thousand years in stone coffins, with mummies and sphinxes, in narrow chambers, at the heart of eternal pyramids. I was kissed with cancerous kisses by crocodiles, and laid confounded with all unutterable slimy things, amongst reeds and Nilotic mud."

Alcoholic drinks often bring frightful images in sleep, and their influence sometimes extends to the waking state, as in *delirium tremens*, calling up, as if by natural affinity, ferocious beasts, serpents, and demons. A stomach overcharged with food, especially when mixed with alcoholics, makes its appropriate exhibition in the hideous monstrosities of nightmare.

§ IV. EXERCISE.

Of all the occupations of men for the promotion of health, the tiller of the ground has the best. He exercises the muscles of his body and limbs, breathes the open air of heaven, has his nerves soothed by the light of day, takes his meals at regular times, and retires to rest when the labors of the day are over. In other vocations nothing can fully supply the place of exercise. A sound body and a sound mind are properly regarded as holding a natural relation to each other. The institutions of Lycurgus required much athletic exercise, both for males and females, in order to rear a hardy and invincible race. For nearly five hundred years Sparta maintained her independence and her power, and was only overcome by the corrupting influence of wealth, and its ordinary accompaniments of luxury, effeminacy, and crime.

What single influence can do more to arrest the deterioration of our times, than connecting with our educational institutions some regular system of exercise? The Gymnasia of Germany, within the last few years, have been doing a great work for that part of Europe; and if, in the United States, in every school, from the primary to the college and university, calisthenic and gymnastic exercises were made indispensable, and if in every city

gymnasia should be established at the public expense, for clerks, and others who lead an indoor life, what an improved aspect would the coming generation exhibit. The exercise of walking, riding on horseback, cricket, ten-pins, skating, and boat-rowing, are all of value. A few years since, workshops for coarse cabinet furniture were tried in our literary institutions, but they did not last long. The students thought they ought to prepare themselves for "head work," rather than any sort of handicraft. There was an establishment of this sort at the Theological Seminary at Andover, Mass.; but as this part of the instruction was not compulsory, it was ultimately abandoned. The Rev. Henry Little, now of Madison, Ind., tells me that his class, while at Andover, wrought in the shop an hour and a half each day; that they were graduated, thirty-nine in number, in 1829; and that they are all, except one, still living this October 24, 1858. This period of twenty-nine years speaks favorably for the workshop.

The influence of the habitual employment and neglect of different sets of muscles was well illustrated in a shoemaker I knew several years ago. I saw him at the age of eighty-two, still working at his trade. It was with difficulty that he could walk across the room; yet he had such command of his fingers that he wrote for me a few lines, in a fair, legible hand.

§ V. BATHING.

Cleanliness is entitled to rank as a virtue in those communities where eating and drinking are among the leading elements of social refinement. Indeed, it is most natural to infer that an organ of so great extent as the human skin, and occupied in casting out from the blood

the worn-out tissues of the several organs, ought to be kept in a state in activity and vigor. In aid of this excretory function, bathing, of some form, is generally regarded as valuable; and still it cannot be denied that great numbers of individuals, in our farming districts, pass many years without, in a single instance, plunging or washing their entire bodies in water, and notwithstanding attain to an advanced age. Dr. Livingstone, in a communication recently read before the British Scientific Association, mentions that, in African explorations this year (1860), he found a tribe who live in villages; are industrious, cultivate and manufacture cotton, work in iron, and produce fruits, grains, and esculent roots. They have a healthy climate, judging from the number of white-headed men, apparently very old. They are averse to ablutions, or to bathing in any form. "An old man said he remembered washing himself once, when a boy,—never repeated it,—and from his appearance, the truth of his statement could hardly be doubted." ..... "The castor oil with which they lubricate themselves, and the dirt, serve as additional clothing."

The sponge-bath is one of the least troublesome varieties, occupying less time than any other. The apparatus is simple, viz. a basin of water, a sponge, a towel, and a mat, or bit of carpet, to stand upon. With the sponge, the body and limbs are moistened with water, and then rubbed dry with the towel. The water may be tepid or cold, according to the preference of the bather. In cold weather, when it is an object to excite a free re-action upon the skin, a hair mitten or a flesh-brush may be used after the towel.

The plunge-bath and the shower-bath may be warm or cold. Bathing should not be resorted to while the

stomach is occupied in the process of digestion. Elevén o'clock in the forenoon is a good hour for the tonic effect of the warm bath, or of the cool or cold bath, in hot weather, if the person has eaten nothing since six or seven o'clock.

For the shower-bath, the head should be protected by an oiled silk cap, unless the hair be so short as to be easily wiped dry. In the natural drying of much hair upon the head, too much heat is abstracted from the brain.

Few individuals have the resolution to encounter the cold shower or cold plunge bath in winter. I know an English gentleman who believes that the daily morning shower-bath, through summer and winter, protects him from a tormenting rheumatism, which had lasted for years. At Liverpool, in 1830, I made the acquaintance of Mr. Maury, the United States consul in that city. He informed me that after having, for a number of years, suffered much from rheumatism, he was advised to resort to the cold plunge-bath every morning; that he had practised this method for the last forty years, and during that period had enjoyed an exemption from the malady. He was then, as nearly as memory serves me, not far from eighty-three years of age. At the suggestion that a good share of firmness was necessary to perseverance in the practice, he remarked that for many years he had not come up to that tub of cold water, which was about to receive him bodily, without a momentary feeling of repulsion and dread.

Almost every one knows that bathing is not healthful unless speedily followed by a sense of warmth upon the surface; or a feeling of exhilaration, rather than languor or depression.

The public baths of Imperial Rome were among her

most magnificent specimens of architecture. Relics are still visible of those of Titus, Diocletian, and Caracalla. Those of Caracalla were furnished with sixteen hundred seats of marble, upon which three thousand persons could be seated at the same time. "Those of Diocletian surpassed all the others in size and sumptuousness of decoration." The public baths, in all the cities of Rome, frequented by all classes, ultimately became schools of idleness, effeminacy, and licentiousness, and had no small share in unnerving the power which had conquered the world.

Poppœa, the wife of Nero, had at her control five hundred she asses, in whose milk she was wont to bathe, for the benefit, as she supposed, of her complexion.

The last work (on bathing) of Dr. John Bell, of Philadelphia, published in 1859, seems to have exhausted the literature of the subject, leaving nothing for subsequent laborers in that department. Upon water, as a prophylactic, and a remedial agent in certain diseases, both in its ancient and modern history, it is very full. This book is entitled to a place in every medical library.

CHAPTER III.

ALCOHOL — DAVIS'S EXPERIMENTS ON CONSUMPTIVE PATIENTS.

Alcohol, when taken somewhat dilute into the human stomach, produces a sensation of warmth, which is in no long time diffused among the several organs, accompanied by a general feeling of exhilaration.

The pulse, in half an hour to an hour, is sometimes accelerated to the extent of six to ten beats in a minute, while the respirations are but slightly, if at all, changed in frequency.

In certain conditions of the nerves, however, even small doses of distilled or fermented liquor operate as a direct sedative upon the pulse. I have a medical friend, who, in convalescence from an attack of hemiplegia, tried, by the advice of his physicians, wine and Huxham's tincture of bark. The taking of a tea-spoonful of either of these articles was very soon followed by a falling of the pulse from fifty-two to forty-eight and forty-six. This effect was uniform on repeated trials. At the same time, there was a confused and uncomfortable sensation in the head. The doctor soon laid aside these remedies, and recovered without them, on the mildest food.

For several years past, the hypothesis has obtained that alcohol, as containing a considerable proportion of carbon,

must be a valuable agent in sustaining the vital temperature, by being burnt in the lungs; this hypothesis, too, chiming so well with social customs and individual appetites in almost every class, has widely prevailed. Plausible, however, as this view may be, there is good reason to believe that it is not true.

If alcohol combine with the atmospheric oxygen admitted to the lungs in respiration, it is natural to ask, why is there not, at the same time, an increased exhalation of carbonic acid? But so far from this being the fact, it has been clearly proved that the amount of carbonic acid discharged from the lungs while alcohol is in the circulation is decidedly diminished.

From the experiments of Bernard, it is inferable that no *combustion*, as it is called, takes place in the capillaries of the lungs; that oxygen is simply taken in, and carbonic acid given out; that the combination occurs in the capillaries of the body, and that there heat is evolved; and that it takes place by means of the oxygen which enters by the lungs.[1]

Robin and Verdeil, in their Physiological Chemistry, take substantially the same view. They regard heat as the *result* of nutritive changes of all kinds, but not the *object* of them.[2]

Carbonic acid gas exists in the lungs, the blood, the alimentary canal, and the urine. The amount dissolved in the blood would be sufficient in its gaseous state to occupy from one fifth to one third of the space filled by the blood. There is more in arterial than in venous blood, (one hundred and twenty-three to one hundred,) as is the case with oxygen and nitrogen also. It is dissolved in

1 Dr. Walter Atlee's Notes of M. Bernard's Lectures on the Blood.

2 Review of Robin and Verdeil, p. 119, Am. Med. Monthly.

both the serum of the blood and the corpuscles; while oxygen is dissolved principally, if not wholly, in the corpuscles.

Bernard found the blood in the right side of the heart to be warmer than that in the left, and the blood in the ascending cava, just coming from the liver, a little warmer than that from the descending cava.

The function of the lungs, then, so far as at present understood, is to take atmospheric oxygen, and other gaseous or volatile substances, into the blood, to exhale a certain proportion of its carbonic acid, and other effete or foreign matters, and to cast off or absorb water in proportion to its excess or deficiency in the circulation.

Alcohol, undecomposed, is capable of existing for a length of time in the blood, and passes out by the kidneys, skin, and lungs. Dr. Percy found it in the urine; it is often observed in the perspiration; and who has not a thousand times smelt it as it is poured from the lungs at every breath?[1]

From the experiments of Dr. Prout, it is plain that alcohol so interferes with, or prevents, the healthy vital processes, as to cause the blood to retain an undue proportion of carbonic acid; for the doctor found that after the alcoholic influence of the wine taken with his dinner had passed off, the exhalation of this acid recurred, and in a degree somewhat above the ordinary standard; doubtless to relieve the blood of the undue accumulation

[1] The very ingenious and satisfactory experiments of the French chemists, Lallemand, Perrin, and Duroy, lead decisively to the conclusion that alcohol is *never decomposed in the blood*, but that it goes out as it goes in, the same agent, hostile to the healthy, vital movements, whatever may have been the materials with which it was mixed; and that it is cast out by the skin, the kidneys, and the lungs.

of worn-out materials which would have been cast out without the alcohol.

It is stated that the air in a diving-bell is sooner exhausted when the diver has taken distilled or fermented liquor, than when his drink has been water only. This being the case, it should seem that the alcohol, in some manner, steals away the oxygen of the blood to no useful purpose, but to its detriment, as it interferes with the escape of its effete materials.

The very interesting and valuable experiments of our countryman, Prof. N. S. Davis, have gone a step further. They exhibit a manifest diminution of the vital temperature under the influence of alcohol.

"In the year 1850," says Dr. Davis, "I devised a series of experiments designed to test more fully the effects of alcohol on the functions of respiration, circulation, and animal heat. These experiments, commenced in the winter of 1850, have been continued from time to time since. The apparatus for performing the experiments consisted of a glass tube, graduated so as to indicate the fractions of a cubic inch, a very delicately graduated thermometer, a mercury bath, and a solution of caustic potash. With these arrangements, and an intelligent assistant, in a room of equable temperature, about three hours after any food had been taken, from three to four ounces of the best brandy that could be procured was administered. But previous to administering the brandy, the temperature of the body was carefully noted by inserting the bulb of the thermometer under the tongue, with the mouth closed around it for several minutes. A certain number of cubic inches of expired air was also collected in the graduated tube, over mercury, and transferred from this to the bath of caustic potash, by which the amount of carbonic acid

was rapidly absorbed, and its quantity indicated. Having ascertained and noted the temperature of the body, the proportion of carbonic acid in the expired air, and the frequency of the pulse before the brandy was taken, these same observations were made in precisely the same manner every thirty minutes after, until three or four hours had elapsed. In some of the experiments, brandy was used as a representative of the stronger distilled liquors, and in others, port wine was used, in quantities of eight ounces at a dose, to represent the fermented liquors. The result of all my observations may be summed up as follows, viz.:

"First. The most direct and obvious effect of alcohol on the human system is to excite or exhilarate the functions of the brain, and increase the rapidity of the heart's action. This effect begins to be manifest within thirty minutes after the liquor is taken, and if the dose is not repeated, perceptibly declines in from one and a half to two hours. It is the exhilarating influence of the alcohol on the brain and nerves that gives it its fascinating power over the human appetite and passions, and has induced in the popular mind the general idea that it is actually tonic, or supporting to the functions of life. The stimulant effect on the vascular system is much less than on the nervous; the pulse being increased, in my experiments, not more than from six to ten beats per minute, while its fulness and force both remained unaltered.

"Second. It directly diminishes the amount of carbonic acid gas thrown out from the lungs in the expired air. This diminution begins to be apparent in less than one hour after a single dose of alcoholic liquor, and becomes more and more so until the end of two hours, when the

proportion of carbonic acid begins again to increase, and at the end of three hours comes fully up to the natural proportion. The amount of diminution of carbonic acid varied in different experiments, but was well marked in all. In some instances it was diminished, for a short time, more than fifty per cent. below the proportion when the experiment began.

"Third. In all my experiments, the temperature of the system began perceptibly to diminish at the end of one hour, and continued to do so during the two succeeding hours, the mercury generally standing *three quarters of a degree* lower at the end of three hours than when the experiment began; and at no period of time, while the effects of the alcoholic beverage remained perceptible, was there any *increase* of temperature indicated by the thermometer."

These results aid us in explaining a truth well known to men of observation, that in cold climates the human frame has less power of resisting cold under alcoholic influence than when free from it. The apparently discrepant fact, that it blunts or destroys the feeling of cold, is fully compatible with an absolute diminution of temperature. Alcohol is a temporary excitant of the nerves, causing, like friction or other mechanical irritation, or some aromatic oils, a sensation of warmth or glow.

Whatever relations alcohol may sustain to the blood and to the vital movements of the capillary vessels, it is plain that it diminishes their ability to withstand cold, causes a detention of the proportion of carbonic acid thrown off by the lungs in health, and so perverts the sensibility of the nerves as to render them incapable of correctly reporting external impressions. A man in liquor

may freeze to death without any strong or painful perception of cold.[1]

Sir John Ross's voyage, from 1829 to 1833, was remarkable in its exposures and hardships, and in the fact that of a crew of twenty-three persons only three died. This exemption the commander attributes to unusual precautions, and especially to abstinence from intoxicating drinks. He says: —

"It is difficult to persuade men, even though they should not be habitual drinkers of spirits, that the use of these liquors is debilitating, instead of the reverse. The immediate stimulus gives a temporary courage, and its effect is mistaken for an infusion of new strength; but the slightest attention will show how exactly the reverse is the result. It is sufficient to give men under hard and steady labor a draught of the usual grog, or a dram, to perceive that often in a few minutes they become languid and, as they term it, faint; losing their strength in reality, while they attribute it to the continuance of their fatiguing exertions. He who will make corresponding experiments on two equal boats' crews, rowing in a heavy sea, will soon be convinced that the water-drinkers will far outdo the others.

"It is not that I am declaring myself an advocate for temperance societies, whatever may be their advantage, nor that I am desirous of copying a practice lately introduced into some ships, under whatever motives; but were it in my power, in commanding a vessel, I would exclude the use of grog on the mere grounds of its debilitating

[1] From December 19, 1851, to March 9, 1852, seventeen men were admitted into the surgical ward of the Commercial Hospital at Cincinnati, for frost-bite of the feet or hands, or both, under the influence of intoxication. A majority of them required amputation of parts of the frozen members.

effects, and independently of any ulterior injury it may do; reserving it for those cases alone in which its use may be deemed medicinal, or for any special reason useful."

This opinion and testimony may be considered as reliable, inasmuch as it comes from no sympathy with the temperance reform. Sir John Ross also speaks of "grog" as causing inflammation of the eyes, and as aggravating snow-blindness; and of abstinence from its use as a preventive of scurvy.

Mr. Edward Dusseault, of Somerville, Mass., crossed the African Desert in 1860. In a letter to his friend, G. L. F., of Boston, dated at Timbuctoo, June 10, 1860, he makes the following statement: "The next day (the seventh after leaving Algiers), our water had become so bad that I could scarcely endure the wetting my lips with it, much less to drink it. The whole of our company, excepting about fifteen, then used wine and other liquors, and endeavored to prevail on me to do the same; but, much to their astonishment, I steadily refused, notwithstanding the formidable summing up of all its wonderful properties as a preventive against African diseases. The sequel shows how little the workings of secret agencies are sometimes known; for the result was, that *all* who used wine died soon after reaching Timbuctoo. Out of the eighty-two who left Algiers, *there are only sixteen left!* So much for the *beneficial effects of 'moderate drinking!'* I am free to say that I consider it due, in a very great measure, to my being a teetotaler, that I have escaped the maladies to which I have been exposed since leaving home. We finally reached Timbuctoo, having consumed fifteen days in crossing the entire desert."

Alcoholic drinks diminish *muscular power*. The well-

known case of our countryman, Dr. Franklin, is in point. He could carry heavier weights, and had a greater power of endurance of labor, on his beverage of simple water, than his beer-drinking companions in a London printing-office.

The Turkish porters at Constantinople and Smyrna are celebrated for strength. "The boatmen and water-carriers of Constantinople are decidedly, in my opinion," says Mr. W. Fairbairn, an eminent machinist at Manchester, "the finest men in Europe, as regards their physical development, and they are all water-drinkers."

My friend Captain S. Rea, who, thirty years ago, frequently visited Smyrna, assures me that he never witnessed such feats of strength as are exhibited by the porters there. In unlading vessels freighted with Havana sugar, each porter carries a box of sugar upon his back from the vessel to the store-house; and this is done all day without complaint. The weight is over four hundred pounds; as their pay is in proportion to the weight of their burdens, Capt. R. has frequently seen them call for a bag of coffee to be placed upon the box of sugar, and in one instance two bags, the weight being about seven hundred and fifty pounds. And what is still more extraordinary, from the office of Mr. Offley, the American agent there, a porter was seen carrying a load of boards so large that the individuals present had the curiosity to detain him, and to have it weighed. Capt. R. saw it weighed, and paid his proportion for the gratification. The weight was nine hundred and five pounds. The drink of these porters was nothing but water, and bread the staple article of food.

The Hon. Mr. Buckingham assured me that he had frequently seen, at Calcutta, those Himmalaya moun-

taineers, who are trained to athletic exercises, pitted against English Grenadiers in running, leaping, carrying of weights, and throwing of missiles; and that one of them was very nearly equal in strength to three of the English. Their sole drink was water, and their food rice.

In 1786, Jaques Balmat, that enterprising guide at Chamouni, who had long entertained the project of being the first to reach the summit of Mont Blanc, made the attempt, provided with food and a small bottle of brandy. He gave out long before completing the ascent, and returned. He next carried a bottle of wine with his food; this attempt failed also. A third time he took water only, with a little syrup to flavor it, for his drink, and succeeded in planting the first human foot upon the summit of that far-famed mountain.

Dr. Carpenter gives us the following statement of a coal-whipper: "It 's food only that can give real strength to the frame. I have done more work since I have been a teetotaler, in my eight years, than I did in ten or twelve years before. I have felt stronger. I don't say that I do my work better, but this I will say, without fear of successful contradiction, that I do my work with more ease to myself, and with more satisfaction to my employer, since I have given over intoxicating drinks. I scarcely know what thirst is; before I took the pledge I was always dry, and the mere shadow of the pot-boy was quite sufficient to convince me that I wanted something. I certainly have not felt weaker since I have left off malt liquor. I have eaten more and drank less. I live as well now as any of the publicans do, and who has a better right to do so than the man who works? I have backed as many as sixty tons in a day since I took the pledge,

and have done it without any intoxicating drink, with perfect ease to myself, and walked five miles to a temperance meeting afterwards. But before I became a teetotaler, after the same amount of work I should scarcely have been able to crawl home; I should have been certain to have lost the next day's work, at least; but now I can back that quantity of coals week after week, without losing a day. I've got a family of six children under twelve years of age. My wife's a teetotaler, and has suckled four children upon the principle of total abstinence. Teetotalism has made my home quite happy, and what I get goes twice as far. Where I work now, four of us, out of five, are teetotalers. I am quite satisfied that the heaviest kind of work a man can possibly do may be done without a drop of fermented liquor; I say so from my own experience. All kinds of intoxicating drink is quite a delusion. We teetotalers can do the work better — that is, with more ease to ourselves — than the drinkers can. Many teetotalers have backed coals out of the hold, and I have heard them say, over and over again, that they did their work with more comfort and ease than they did when they drank intoxicating drink. Coal-backing from the ship's hold is the hardest work that it is possible for a man to do. Going up a ladder sixteen feet high, with two hundred and thirty-eight pounds' weight upon a man's back, is sufficient to kill any one; indeed, it does kill the men in a few years; they're soon old men at that work."

The effects of alcohol, in its habitual use, are strikingly illustrated in the cases collected by Dr. Ogston. These are *post-mortem* examinations of seventy-three intemperate persons who came to sudden deaths; "forty-two by drowning, five by hanging, and one by suffocation;

twenty of them were instances of violent death, either by syncope or by direct coma, speedily fatal, without vital re-action. The remaining five were cases of rapidly fatal coma, from narcotic poisons. Of the whole, twenty-five were known to be cases of suicide, thirteen of homicide, and eighteen of accidental death; leaving seventeen who must have died either from accident or suicide.

"Abnormal appearances within the cranium in 65 cases, or 79 per cent. of the whole; brain indurated in 26 cases.

"Abnormal appearances in the respiratory organs in 41 cases, or 56.16 per cent. of the whole.

"Abnormal appearances in the pericardium, heart, or aorta in 30 cases, or 41 per cent. of the whole.

"Abnormal appearances in the stomach in 20 cases, or 27.3 per cent. of the whole.

"Of the intestines, 10 cases, or 13.5 per cent. of the whole.

"In the liver, 30 cases, or 41 per cent. of the whole.

"In the spleen, 14 cases; pancreas, 1.

"In the kidneys, 33 cases, or 34.5 per cent. of the whole.

"In the abdomen, 54 cases, or 73.9 per cent.

"An entire absence of morbid appearances in the body, in one case."

Time would fail to trace, with any degree of minuteness, the effects of alcoholic beverages upon the intellect and the moral sense.

A certain dose of wine or spirit increases the propensity for conversation; a little more causes garrulity; a further addition makes a vociferous exhibition of the thoughts, which run out without order or regularity. You will see two friends, after sitting an hour at a dining-table well supplied with wine, talking into each other's face with

great vehemence, neither seeming to pay the least regard to what the other is saying; this I have seen in Italy, from the influence of the native wine of that country. Among the uneducated, but by no means in that class alone, alcohol begets in a company a remarkable freedom of demeanor, exhibited by one tweaking his neighbor's nose, or giving him a black eye, or some other form of unceremonious salutation.

The finer moral sentiments are superseded at the wine-table by indelicate and impure associations, which flow out in ribaldry and Bacchanal song. Lord Byron made the following note of a party at which Sheridan was present, where the wine was, as usual, freely circulated: "First silent, then talky, then argumentative, then disputatious, then unintelligible, then altogethery, then inarticulate, and then — drunk."

A man's estimate of his own intellectual powers is often raised many degrees by a few glasses of wine. He gives his opinions, weak and puerile though they may be, with an oracular emphasis. If a doubt of their correctness be suggested, he kindles with resentment, demands satisfaction, and the matter ends, perhaps, in a duel or a murder.

Has not many a war, in which thrones have been overturned and countries desolated, had its origin in the misapprehensions and resentments caused by intoxicating drinks?

Its influence upon the mind is not that of perversion only, but of ultimate prostration. Many a vigorous and educated intellect has been reduced to imbecility or idiocy by distilled and fermented liquor. Dr. Howe, in his Report on Idiocy to the Legislature of Massachusetts, makes the following striking statement:—

"The habits of the parents of three hundred of the idiots were learned; and one hundred and forty-five, or nearly *one half*, are reported as known to be habitual drunkards. Such parents, it is affirmed, give a weak and lax constitution to their children, who are consequently deficient in bodily and vital energy, and predisposed, by their very organization, to have cravings for alcoholic stimulants; many of these children are feeble, and live irregularly. Having a lower vitality, they feel the want of some stimulation. If they pursue the course of their fathers, which they have more temptation to follow and less power to avoid than the children of the temperate, they add to their hereditary weakness, and increase the tendency to idiocy in their constitution; and this they leave to their children after them. The parents of number sixty-two were drunkards, and had seven idiotic children."

What a wreck of intellect is exhibited in delirium tremens! The miserable victim is pursued by imaginary enemies, — serpents, wild beasts, and devils.

A man who had been a respectable merchant in one of our Eastern cities, was, on one occasion, seen flying in terror from the pursuit of a shark which he supposed was in his hat, which he kept in close grasp under his arm. A significant instance of the *horrible grotesque* which characterizes this disease.

Professor Huss, in July, 1852, read to the Scandinavian Scientific Society at Stockholm a paper on the Endemic Diseases of Sweden, in an abstract from which it is observed: "The author devotes a long article to the *abuse of whiskey* as one cause of the endemic diseases of Sweden. In the fact that cholorosis has become endemic in Sweden, first, during the last twenty to twenty-five

years; and in the other fact, that the number of recruits disapproved of as below the regulation standard of height has increased 2.22 per cent. in ten years Professor Huss finds proofs of increasing debility of constitution in both sexes, of which he considers the abuse of whiskey and coffee main causes, enfeebling both parents and children. To the same causes Huss attributes a large proportion of the very common disorders of digestion."

Dr. S. H. Smith stated to me the remarkable fact, that while he was physician to a hospital in Stockholm, of three hundred beds, no less than sixty persons died there in one year of delirium tremens. It is not difficult to comprehend this, when it is understood that for many years more than a hunderd and eighty thousand distilleries were in operation in Sweden to supply a population of three and a half millions with potato whiskey.

As a prophylactic, or preventive of disease, alcohol has but slender claims to public confidence. If ever useful, during the prevalence of epidemics, it has been by allaying the panic, which is one of the strongest predisposing causes of attack; at the same time, it is notorious that during the prevalence of cholera, for example, those who are in the habitual use of alcoholic drinks are especially liable to become victims of the disease.

In carbuncle, phlegmonoid erysipelas, and moist gangrene, wine or spirits given rather freely often appear to be efficacious in sustaining the vascular action for a limited period, until more enduring tonics and suitable food can be borne.[1]

In low or adynamic fevers, some distinguished physi-

[1] Mr. Higginbottom, a distinguished English surgeon, informs me that, for the last twenty-five years, he has not used alcoholic drinks in any form of disease whatever.

cians have regarded alcohol as a valuable stimulus in the stages of deep prostration. When the first sound of the heart becomes weak, resembling the second sound, it has been regarded as a good rule to give alcohol and other stimulants; and when under this use the first sound of the heart becomes distinguishable, recovery is to be looked for. These fevers prevail in those countries where strong drink is freely used, and the masses are ill-fed, as in Ireland and Sweden; the intemperance of those countries probably creating the chief necessity for this sort of medication in their fevers.

In the treatment of tubercular consumption there are members of our profession who place a high value upon brandy. Cases have been adduced in which all the symptoms were greatly relieved, the patient improved in flesh and strength, and life was apparently prolonged, even when an entire cure had not been wrought. These cases, however, were generally, at the same time, treated with much exercise in the open air.

At the thirteenth annual meeting of the American Medical Association in June, 1860, Dr. N. S. Davis, Professor of Medicine at Chicago, presented a paper "On the Influence of Alcoholic Drinks on the Development and Progress of Pulmonary Tuberculosis."

He had made records of cases, both in hospital and private practice, until his list contained 210 cases. Of these, 140 were males and 70 females; 85 were natives of Ireland, 60 of the United States, 26 of Norway and Sweden, 20 of Germany, and 15 of England, Scotland, and Wales.

"The leading object in recording all these cases was to ascertain just how far the subjects of them had been under the influence of alcoholic drinks, for a period of

not less than a year, previous to any active or noticeable symptoms of the tuberculous disease. To show the results in reference to this point I have been obliged to divide the whole number into three classes. The first class embraces such as had used some form of alcoholic beverage almost daily from one to twelve years previous to the active signs of tuberculosis; the second, such as used these drinks occasionally; and the third, such as had wholly abstained from their use. Of the 210 cases, 68 belonged to the first class, 91 to the second, and 51 to the third. Although so large a proportion as 68 out of the 210 cases were habitual drinkers of alcoholic liquors, only 15 of the number were such as are usually called drunkards; 5 of these were admitted into the hospital while affected with *delirium tremens*, and also in the advanced stage of phthisis. Among the 53 cases occurring among those habitually using alcoholic drinks, yet not to the extent of producing drunkenness, there were many presenting circumstances as favorable for determining this question, whether these drinks are capable of preventing pulmonary tuberculosis, as though they had been selected purposely for an experiment lasting through a series of years. Every one of the 210 cases was carefully and separately examined by auscultation and percussion, and none are included but such as presented unmistakable evidence of pulmonary tuberculosis, and the history of which could be obtained in a reliable manner.

"In the first class, numbering 68 cases, the disease uniformly commenced, and regularly progressed through the first and second stages, while the subjects of it were at the time, and had been from one to twelve years previously, regularly and habitually using alcoholic drinks, either fermented or distilled. In 33 of these cases the

disease was developed between the ages of 16 and 30 years; in 18, between 30 and 40 years; in 7, between 40 and 50 years; and in 10, between 50 and 60 years. The average duration of disease in those who remained under observation until a fatal result was reached was 19 months, dating from the time when the patient began to be troubled with cough.

"In the second class, numbering 91 cases, were included many who had used alcoholic drinks, and sometimes in excess, but not as a daily habit; while others in this group drank but very sparingly, and only on some social occasions. In 50 of these the disease was developed between the ages of 16 and 30 years; in 28, between the ages of 30 and 40 years; in 6, between 40 and 50 years; and in 7, between 50 and 60 years. The average duration of the disease, in those who remained under observation until the fatal result was reached, was 23 months.

"The third class, numbering 51, includes a larger relative proportion of females than either of the other classes. In 21 the disease commenced between the ages of 16 and 30 years; in 17, between 30 and 40 years; in 9, between 40 and 50 years; in 4, between 50 and 60 years. The average duration of the disease in those who have died was 25 months.

"From the foregoing collection of facts, it will be observed that in one third of the whole number of cases, the tubercular disease commenced and progressed through all its stages while the subjects of it were at the time, and had been from one to twelve years previously, habitually using either fermented or distilled spirits. In but little less than one half of the whole number the disease was developed while the subjects of it were only occasionally using these drinks; while in less than one quarter

of the whole number the disease was developed in subjects who had for years totally abstained from all such drinks. It is thus clearly demonstrated that the use of all alcoholic beverages, however uniform their administration, and however long continued, neither prevents the development of tubercular phthisis, nor retards the rapidity of its progress.

"If we turn from the narrow circle of personal observation to more general inquiries, we shall be forced to the same conclusion. Thus, by the sickness and mortality reports of the English and American armies, it is made apparent that soldiers who use regular rations of alcoholic liquors furnish a higher ratio of mortality from tubercular disease than any equal number of men who do not use such liquors. So true is this that many army surgeons have regarded the free use of alcoholic drinks as one of the prominent causes of consumption.

"Again, the statistics compiled by Dr. Bell of New York, in his prize essay on this subject, led him to the conclusion, not only that alcoholic drinks did not prevent the development of tubercular disease, but that they actually favored it.

"The foregoing results of my own clinical observations, corroborated as they are by all the reliable statistics to be found in the literature of the profession, are also in strict accordance with the rational inferences to be drawn from the known effects of alcohol upon the various functions of the human system.

"By a series of experiments commenced in 1849, and continued at intervals until the present time, I have fully satisfied myself that the presence of alcohol in the human system positively *diminishes* the great functions of respiration, capillary circulation, calorification, and meta-

morphosis of tissue; and, as a necessary consequence, leads to diminished excretion, and to the accumulation of effete matter, both in the blood and the tissues. This is corroborated by the experiments of Dr. Boker, showing that the presence of alcohol in the system diminishes the sum total of all the excretions and eliminations; and by the almost uniform tendency to fatty degeneration in the muscles, the liver, the kidneys, etc., in those who have been long accustomed to the use of alcoholic liquors. If the presence of alcohol thus diminishes the exchange of oxygen and carbonic acid in the lungs, lessens the sum total of all the excretions, retards both capillary circulation and calorification, it is easy to see how its habitual use would lead to deficient oxydation and metamorphosis of the tissues, and, consequently, to accumulations of adipose matter, degenerations, and morbid deposits; but extremely difficult to conceive how it should act as a tonic or invigorating agent.

"Although the object of this paper is simply to give the results of clinical observations on the use of alcoholic drinks as prophylactics against tuberculosis, it may not be amiss to allude to their influence or value as remedial agents after the disease is already fully developed. For it by no means follows, that if these beverages are shown to be useless as prophylactics in preventing the development of tubercles, they are therefore equally useless as remedies.

"Since the popularity of cod-liver oil has begun to wane, it is probable that no remedies have been more generally used in the treatment of all stages of phthisis than the alcoholic stimulants, and, when taken freely, their anaesthetic effect upon the nerves of respiration, diminishing the cough; their exhilaration of the brain, relieving the

mental despondency; and their diminution of organic change, or metamorphosis of tissue, by which the progressive emaciation is retarded and the fatty matter retained, — all contribute to give them an apparent beneficial effect, at least temporarily, that has increased their popularity both in and out of the profession. In endeavoring to trace the effects of alcohol on the development and progress of tuberculosis through a series of years, I have met with many cases of disease in the second and third stages of its advancement, in which any form of alcoholic drink so directly and manifestly deranged either the stomach or the brain, that after a few trials the patient would voluntarily refuse to take any more. I have met with many more who would take this class of stimulants for a few weeks with apparent amelioration of symptoms, when they would begin to create acid eructations, burning in the stomach, and sometimes vomiting, with almost entire loss of appetite. I have met also with a smaller class of patients who would take these stimulants freely, for any length of time, without either deranging the stomach or the brain, and with a decided amelioration of all the pulmonary symptoms, and an arrest of the emaciation. Some of these have actually increased in embonpoint, and from three to six months were highly elated with the hope that they were recovering. But truth compels me to say that I have never seen a case in which this apparent improvement under the use of alcoholic drinks was permanent. On the contrary, even in those cases in which emaciation seems at first arrested and the general symptoms ameliorated, the physical signs do not undergo a corresponding improvement; and, after a few months, the digestive function becomes impaired, the emaciation begins to increase more rapidly than ever, and

in a few weeks arrives at a fatal degree of prostration. A few cases pursue still another course, under the free use of alcoholic stimulants. The digestion remains tolerably good, the cough is much lessened, and a good degree of flesh is retained. Notwithstanding this, however, the shortness of breath on taking exercise, and some expectoration, continue; the lips, gums, and tongue become more and more bloodless or pallid; and after three or four months the feet and ankles begin to be anasarcous, while the urine becomes small in quantity and pale. If the urine is tested, it is found to contain a large proportion of albumen. When these symptoms have once begun, they generally increase with considerable rapidity, until the serous effusions invade all the internal serous cavities, and the patient is destroyed. I have met with three cases of this kind within the last eight months.

"From all the facts, experiments, and clinical observations that have come under my notice, I am led to the following conclusions, and to these I invite the critical attention of the section on Practical Medicine: —

"1. That the development of tubercular disease is facilitated by all those agents and influences, whether climatic or hygienic, which directly or indirectly impair or retard the metamorphosis of the organized structures and the efficiency of the excretory functions.

"2. That observations and carefully devised experiments both show that the presence of alcohol in the human system, notwithstanding its temporary exhilaration of the cerebral functions, positively retards both metamorphosis and elimination.

"3. That neither the action of alcoholic stimulants on the functions of the human body, nor the actual results of experience, furnish any evidence that these stimulants

are capable of either preventing or retarding the development of tubercular phthisis."

In dyspepsia, alcohol has been used in various forms; but, apart from the danger of its producing an artificial appetite for the medicine and causing intemperance, it may be confidently asserted that the judicious employment of a suitable diet, bathing, exercise in the open air, freedom from care, with the aid sometimes of mineral waters, are greatly to be preferred.

Fortunately the spirituous infusions of medicinal substances are now almost superseded by the dry and fluid chemical vegetable extracts, which may be preserved for an indefinite length of time without the aid of alcohol, which, in the tinctures, often renders them ill-suited and offensive to delicate stomachs.

A disposition to disclose certain reserved truths, or to tell one's secrets, has been attributed to the influence of wine. *In vino veritas* is an old maxim. Upon this, Dr. Samuel Johnson remarked, in reply to Mr. Boswell, "That may be an argument for drinking, if you suppose men in general to be liars. But, sir, I would not keep company with a fellow who lies as long as he is sober, and whom you must make drunk before you can get a word of truth out of him."

Tacitus[1] describes the same effects from beer: —

"The hours of rest of the Germans are protracted to broad daylight. As soon as they rise, the first thing they do is to bathe, and generally, on account of the intense severity of the climate, in warm water. They then betake themselves to their meal, each on a separate seat, and at his own table. Having finished their repast, they proceed,

[1] De Moribus Germanorum, §§ 22, 23.

completely armed, to the dispatch of business, and frequently to a convivial meeting. To devote both day and night to deep drinking is a disgrace to no man. Disputes, as will be the case with people in liquor, frequently arise, and are seldom confined to opprobrious language. The quarrel generally ends in a scene of blood. Important subjects, such as the reconciliation of enemies, the forming of family alliances, the election of chiefs, and even peace and war, are generally canvassed in their carousing festivals. The convivial moment, according to their notion, is the true season for business, when the mind opens itself in plain simplicity, or grows warm with bold and noble ideas. Strangers to artifice, and knowing no refinement, they tell their sentiments without disguise; the pleasure of the table expands their hearts and calls forth every secret. On the following day the subject of debate is again taken into consideration, and thus two different periods of time have their distinct uses: when warm they debate, when cool they decide.

"Their beverage is a liquor drawn from barley or from wheat, and, like the juice of the grape, fermented to a spirit. The settlers on the banks of the Rhine provide themselves with wine; their food is of the simplest kind: wild apples, the flesh of an animal recently killed, or coagulated milk. Without skill in cookery, or without seasoning to stimulate the palate, they eat to satisfy nature. But they do not drink merely to quench their thirst. Indulge their love of liquor to the excess which they require, and you need not employ the terror of arms; their own vices will subdue them."

Vivacity and wit are far from being dependent on wine or strong drink. Waller has been described as one of the most celebrated wits of his day. This was no easy repu-

tation, as his biographer observes, for a man of seventy to sustain in such society as that of the licentious court of Charles I. "The vivacity of his conversation was unflagging; and while Buckingham and others indulged freely in wine, he, confining himself to water, was equal to the highest pitch of their festivity."[1]

Dr. James Johnson, an eminent English physician, in his Tropical Hygiene, mentions his having met a gentleman in a large company at Prince of Wales Island, who was remarkable for his flow of spirits. He attributed his animation and hilarity to the wine which he supposed him to have taken, and expected to see them flag, as is usual, when the first effects of the stimulus had passed off. Dr. J., however, was surprised to find them maintain a uniform level after many younger heroes had bowed to the rosy god. He now contrived to get near him, and entered into conversation, in which the gentleman disclosed the secret, by assuring him that he had drank nothing but water for many years in India; as a consequence, his health was excellent, his spirits free, and his faculties unclouded, although far advanced on Time's list; in short, he could conscientiously recommend this antediluvian beverage, as he called it, to every one that sojourned in a tropical climate.

Sidney Smith, far-famed for sprightliness and wit, writes, in 1828, to his daughter, Lady Holland: "Many thanks for your kind anxiety respecting my health. I not only was never better, but never half so well; indeed, I find that I have been very ill all my life without knowing it. Let me state some of the goods arising from abstaining from all fermented liquors. First, sweet sleep. Having never known what sweet sleep was, I sleep like a baby

[1] Dr. Grindrod.

or a plough-boy. If I wake, no needless terrors, no black visions of life; but pleasing hopes and pleasing recollections; Holland House, past and to come! If I dream, it is not of lions and tigers, but of Easter dues and tithes. Secondly, I can take longer walks and make greater exertions without fatigue. My understanding is improved, and I comprehend political economy. I can see better without wine and spectacles than when I used both. Only one evil ensues from it. I am in such extravagant spirits that I must lose blood, or look out for some one who will bore or depress me. Pray leave off wine; the stomach is quite at rest; no heartburn, no pain, no distraction."

The power of poetic fancy is never created by alcohol, nor dependent upon it for its loftiest flights or its brightest visions.

Lord Byron writes to his friend Moore, Oct. 6, 1821, "How do you manage? I think you told me at Venice that your spirits did not keep up without a little claret. I can drink and bear a good deal of wine (as you may recollect in England), but it don't exhilarate, — it makes me savage and suspicious, and even quarrelsome. Laudanum has a similar effect; but I can take much of it without any effect at all. The thing that gives me the highest spirits (it seems absurd, but true) is a dose of salts. I mean in the afternoon, after their effect. But we can't take them like champagne."

Dryden's experience was not unlike. "When I have a grand design," says he, "I ever take physic and let blood; for when you would have pure swiftness of thought, and fiery flights of fancy, you must have a care of the pensive part; in fine, you must purge the belly."

Such witnesses as these can hardly fail to be credited.

Anacreon, for his lyrics on wine, had his reward from posterity in a most appropriate statue at the Acropolis, which represented him as singing in a fit of delirious intoxication.

The common saying that wine is the milk of old age, would be as near the truth by reversing the proposition, — milk is the wine of old age. If, in age, the processes of digestion and assimilation can be carried on without the diffusible stimulants, then such stimulants should be withdrawn, as under their use the small store of nervous power remaining must be sooner exhausted, and life shortened; but there is plenty of evidence to show that life can be prolonged to advanced age with a constant use of milk, and without alcohol. I have known more than one old man whose stomach could digest milk. Mr. Dix, a farmer in Middlesex county, Mass., now ninety-five years old (Nov. 1861), who is as erect in person as a young man, and who labors daily upon his farm, assures me that for the last sixty years he has drank no distilled or fermented liquor, and that milk constitutes a considerable part of his food. On his birthday, at ninety-five, he walked nine miles. As all extra excitants exhaust nervous power, it is unphilosophical, if not reckless, to resort to them while the machinery goes on at a healthy rate of movement.

Ephraim Pratt, who died at Shutesbury, Mass., in 1804, at the age of one hundred and seventeen, ate no animal food, drank no alcoholic drink, and for the last forty years of his life lived mostly on bread and milk.

As alcohol is never formed by a single process of animal or vegetable life, but comes only from the death and decomposition of organized matter, so when mixed with the blood, it is never deposited as an essential or nutrient

part of the living organism, but is cast out as an alien, by organs, an important part of whose function it is to rid the blood of useless, impure, or poisonous matters. These organs are the lungs, the skin, and kidneys. Accompanying the detention in the blood of a part of its impure or worn-out matters, while alcohol lingers in it, there has been observed a diminution of appetite for food; and as those who daily take alcoholic drinks eat less than those who do not, it has been inferred that these drinks supply the place of food, and may be regarded as economical! This reasoning goes on the assumption that alcohol brings no harm to the living organism; but this is merely assumed, without the shadow of proof. Upon this view, Prof. Peaselee remarks as follows[1]:—

"We use coffee, tea, and alcohol, not to prevent waste, and therefore save the expense of food to supply it; but simply because they are *stimulants*, and produce a certain well-known physiological effect; because they excite the nervous and muscular systems especially to a higher degree of activity for the time being; though the waste is here, as always, proportioned to that activity. It is the waste consequent on action that exhausts a tissue or organ; and if alcohol, coffee, and tea could enable us to think and feel and move without waste of the cerebral substance and of the muscular system, habitual drinkers would be the most intellectual of men, and their brain, never feeling the effects of exhaustion, would be superior to the necessity of sleep or repose. I am not here speaking in derogation of these substances properly used and administered. I am only objecting to the chemical explanation of their action, as totally at variance with all

[1] Annual Address before the N. Y. Acad. Med., 1858, p. 69.

physiology, though it is unhesitatingly accepted by some physiologists."

There may be occasions when alcoholic stimulation is of value by impelling the nerves to an activity beyond the ordinary rate, bringing into operation a portion of the vital energy which is stored up for special exigencies. A horse in a mud-pit may not extricate himself till roused to the full extent of his energies by the persevering application of the whip.

Alcoholic drink, in amount short of causing deep intoxication, if taken daily for years, may bring early death by delirium tremens. In small quantity, it may be taken for a long time without an unfavorable influence being suspected. Does it thence follow that there is no such influence? There are other poisons which may be taken daily, in portions too small to admit of their influence being appreciated by any powers of investigation we possess. We have seen the solution of arsenic given for weeks, without the least obvious impression, till at length a swelling of the face, or a diarrhœa, indicated the peculiar operation of this poison. So with lead. This metal may be taken in minute quantities for months, before symptoms of lead-poisoning make their appearance.

The appetite of the intemperate man for liquor has been fitly compared to that of the tiger for blood. This animal, it is said, may be tamed and made docile, so long as he is kept from the smell and taste of blood; but the moment blood touches his tongue his ferocity returns with all its terrors. So the appetite of the drunkard merges everything connected with social position or moral responsibility. In the statistics of intemperance, gathered some years since in the State of New York, we are informed that two thousand five hundred reformed

drunkards were brought back to confirmed intemperance by tasting fermented liquors. The very fact that strong drink produces such an indomitable appetite shows it to be a poison of no ordinary stamp, — a poison which diminishes the powers of bodily exertion, impairs health, shortens life, converts men into fools and maniacs, dissolves the ties and endearments of the family circle and of social life, and draws a dark and impenetrable veil over the light of futurity.

History is full of overwhelming evidence of the disastrous effects of alcoholic drinks to individuals, tribes, and nations. As far back almost as the flood, drunkenness and revelry exhibited the same features that exist in our own time. Drunkenness was no disgrace at the public feasts among the Greeks; indeed, it was a maxim that he who was not drunk at the vintage feast of Bacchus did not render true worship and honor to this god. Alexander, the Macedonian conqueror, killed his best friend in one drunken fit, and died in another. In one night, when a king and his nobles were revelling in wine, an old and mighty dominion passed into the hands of a Medo-Persian chieftain, whose army, according to Xenophon, had been disciplined to water-drinking. Carthage fell, it has been said, less by the arms of Scipio, than by the wines of Capua.

Pliny mentions fifty kinds of generous wine; thirty-eight varieties of foreign wine; seven kinds of salted wine; eighteen varieties of sweet wine; sixty-six varieties of artificial wine. The drunkenness of Imperial Rome was never outdone; indeed, it seems impossible that it should be, with the aids even of the distillation and drugging of modern times. Emperors and men of renown regarded their drinking powers as giving them an exalted

rank. The more distinguished bibbers took various articles to excite thirst, in order to drink more wine; some came reeking from their hot baths, and, without waiting for an article of clothing, gulped down almost incredible quantities, to be immediately vomited up by the aid of an emetic, or some other means of inverting the action of the stomach, in order to make room for another draught, and this was sometimes repeated in a third dose. This drunkenness, which pervaded all ranks, went hand in hand with the most hideous and loathsome licentiousness, and under these vices the warlike arm of Rome became enfeebled, and at length yielded to the hale power of the North.

How different from all the intoxicating drinks is the simple and safe beverage prepared for man by the benevolent Creator! The appetite for water, in a healthy individual, is regulated by the wants of the organs. When that fluid is deficient in the blood, there is thirst; when the supply is given, thirst ceases; and a pint of water drunk to-day, creates no appetite for the drinking of more than a pint to-morrow. This topic has been most ably discussed by my excellent friend and colleague, the late Dr. Daniel Oliver, Professor of Medicine, etc.:—

"The waste of the fluid parts of our bodies requires the use of drink to repair it, and we derive a sensible gratification from quenching our thirst. What use do we make of this fact? Why, to try if we cannot find something that we shall take pleasure in drinking, whether we are thirsty or not; and in this search mankind have been remarkably successful. To such a degree, indeed, have we succeeded in varying and increasing a pleasure which was designed by Nature merely as an incentive to quench our thirst, that to quench thirst is become one of the last things that people drink for. It is seldom, indeed, that

people in health have any natural thirst, except perhaps after exercise or labor in a hot day. Under all other circumstances we anticipate the sensation by drinking before it comes on, so as but seldom to enjoy the natural and healthful gratification of drinking because we are thirsty. Who has not observed the extreme satisfaction which children derive from quenching their thirst with pure water; and who that has perverted his appetite for drink, by stimulating his palate with bitter beer, sour cider, rum-and-water, and other beverages of human invention, but would be a gainer, even on the score of mere animal gratification, without any reference to health, if he could bring back his vitiated taste to the simple relish of nature? Children drink because they are dry. Grown people drink whether dry or not, because they have discovered a way of making drinking pleasant. Children drink water because this is a beverage of Nature's own brewing, which she has made for the purpose of quenching a natural thirst. Grown people drink anything but water, because this fluid is intended to quench only a natural thirst, and natural thirst is a thing which they seldom feel.

"One of the evils, though not the only or the greatest one, of perverting the natural appetite of thirst, is that it leaves us without a guide to direct us when we need drink and when we do not. There is no danger, it is true, that this want will mislead us into drinking too little; the danger is, that we shall be betrayed into drinking too much, i. e. when nature does not require it; and such, no doubt, is frequently the case. If a man is fond of some particular drink (and most people, I believe, have their favorite liquor), he will be tempted to take it when he does not really need it. This consideration points out the wisdom

of Nature in providing for us a beverage which has nothing to tempt us to drink, except when we are really thirsty. At all other times, water is either perfectly indifferent, or it is disagreeable to us; but when we labor under thirst, i. e. when nature requires drink, nothing is so delicious to a pure, unadulterated taste. While we adhere to this simple beverage we shall be sure to have an unerring prompter to remind us when we really require drink; and we shall be in no danger of being tempted to drink when nature requires it not. But the moment we depart from pure water, we lose this inestimable guide, and are left, not to the real instincts of nature, but to an artificial taste, in deciding on actions intimately connected with health and long life. What is more common than for a man to take a glass of beer, or cider, or wine, or rum-and-water, not because he is thirsty, and really needs drink, but because opportunity makes it convenient, and he thinks it will taste well. And this is true not only of fermented or distilled liquors, which are directly injurious in other modes, but, in a less degree, of any addition made to pure water to render it more palatable. Let me not be misunderstood. I am far from insinuating that lemonade, soda-water, and milk-and-water, are hurtful drinks. Far from it. But I say, that in using even these mild and healthful beverages we lose one important advantage we should derive from the use of pure water alone. If they are more palatable to us than water (and otherwise we should have no motive to use them) we shall be tempted to use them oftener, and in greater quantities, than is required by nature, and may thus unconsciously do ourselves an injury. It is rare for a person to drink a glass of water when he is not thirsty, merely for the pleasure of drinking; and as thirst is the natural guide, if he drinks when

not thirsty, he takes more fluid than nature points out as proper, and so far violates one of her obvious laws."

What class of men is so well acquainted, both by scientific research and by observation, with the mischievous influence of alcohol as the members of the medical profession? Do not we, who claim to be a band of philanthropists, owe a high duty to our race in regard to this thing; and has not the sober and virtuous part of the community a right to look to us for united and untiring exertion in every way toward confining this poison, along with its congeners, *arsenic*, *strychnia*, *morphia*, and *prussic acid*, to the shelves of the apothecary?

There is but one remedy for intemperance, namely, *total abstinence from all that can intoxicate.* This is simple, safe, and certain. How remarkable, that under all the light coming from observation, from science, and the faithful chronicles of human history, the culture of the grape, and its manufacture into alcoholic wine, — a liquor which kept the world drunk for centuries upon centuries before distillation was known — which cast down thrones and dominions, patriarchs and priests, philosophers and prophets, — should be seriously recommended as a cure for the world's intemperance!

When alcoholic drinks are employed in cases of prostration or disease, let them be taken under the direction of an intelligent and conscientious physician, who will watch their effects as he would watch those of arsenic or strychnia.

The physician who prescribes alcoholic drink for a dyspeptic, to be taken daily for weeks or months, knowing as he does its tendency to generate an uncontrollable appetite for it, takes upon himself a deep responsibility; and if, thereby, his patient becomes a confirmed inebriate, he

incurs the reflection that he has caused an evil, the amount of which cannot be estimated by any known method of numerical computation.

If there be a single professed lover of the human family, who can take intoxicating drink without fear of injury, or of kindling in himself an appetite which may result in intemperance, let him consider well whether an apostle fixed the standard of Christian duty too high, or over-estimated the power of example in emboldening the weak and wavering to violate conscience, when he declared, "It is good neither to eat flesh, nor to drink wine, nor anything whereby my brother stumbleth, or is offended, or is made weak."

If I take wine occasionally, as a beverage, and thereby a single individual is influenced to lay aside his scruples, till he is in the habit of daily intemperate drinking, I am holden in the guilt of having made a drunkard. "Wherefore, if wine make my brother to offend, I will drink no more wine while the world standeth, lest I make my brother to offend."

The foregoing has reference to fermented or alcoholic or drugged wine. A method of preventing fermentation in grape-juice has been tried with perfect success by James Reynolds, Esq., of Ripley, Brown Co., Ohio. From the last two vintages, viz. 1860 and 1861, he has made about fourteen hundred gallons of a rich and delicious liquor, retaining the natural fragrance of the Catawba grape, which yields not a trace of alcohol on a rigid analysis, and which can be kept unchanged for a long time, probably for years. Will not this figure in the world's history a hundred years hence?

CHAPTER IV.

TOBACCO — INFLUENCE UPON LIFE AND HEALTH.

§ I. USE OF TOBACCO UNNATURAL.

In the great kingdom of living nature man is the only animal that seeks to poison or destroy his own instincts, to turn topsy-turvy the laws of his being, and to make himself as unlike as possible that which he was obviously designed to be.

No satisfactory solution of this extraordinary propensity has been given, short of a reference to that

> "First disobedience, and the fruit
> Of that forbidden tree, whose mortal taste
> Brought death into the world and all our woe,
> With loss of Eden."

While the myriads of sentient beings spread over the earth adhere with unyielding fidelity to the laws of their several existences, man exerts his superior intellect in attempting to outwit Nature, and to show that she has made an important mistake in his own case. Not satisfied with the symmetry and elegance of form given him by his Creator, he transforms himself into a hideous monster, or copies upon his own person the proportions of some disgusting creature far down in the scale of animal being. Not content with loving one thing and loathing another, he perseveres in his attempts to make bitter sweet and

sweet bitter, till nothing but the shadow is left of his primitive relishes and aversions. This is strikingly exemplified in the habitual use of the narcotic or poisonous vegetables.

§ II. EFFECTS OF TOBACCO ON ANIMAL LIFE.

Dr. Franklin ascertained that the oily material which floats upon the surface of water, upon a stream of tobacco-smoke being passed into it, is capable, when applied to the tongue of a cat, of destroying life in a few minutes.

Mr. Brodie applied one drop of the empyreumatic oil of tobacco to the tongue of a cat: it occasioned immediate convulsion and an accelerated breathing. Five minutes after, the animal lay down on the side, and presented, from time to time, slight convulsive movements. A quarter of an hour after, it appeared recovered. The same quantity of the oil was applied again, and the animal died in two minutes.

In December, 1833, aided by several gentlemen of the medical class, and occasionally in the presence of other individuals, I made a number of experiments upon cats and other animals with the empyreumatic oil of tobacco.

First Experiment. A small drop of the oil was rubbed on the tongue of a large cat. Immediately the animal uttered piteous cries and began to froth at the mouth. In one minute the pupils of the eyes were dilated and the respiration was laborious; in two and a half minutes, vomiting and staggering; in four minutes, evacuations, the cries continued, the voice hoarse and unnatural; in five minutes, repeated attempts at vomiting; in seven minutes, respiration somewhat improved. At this time a large drop was rubbed upon the tongue. In an instant

the eyes were closed, the cries were stopped, and the breathing was suffocative and convulsed. In one minute the ears were in rapid convulsive motion, and presently tremors and violent convulsions extended over the body and limbs. In three and a half minutes the animal fell upon the side senseless and breathless, and the heart had ceased to beat.

Slight tremors of the voluntary muscles, particularly of the limbs, continued, more or less, for nineteen minutes after the animal was dead. The right side was observed to be more and longer affected than the left.

Half an hour after death the body was opened, and the stomach and intestines were found to be contracted and *firm*, as from a violent and permanent spasm of the muscular coat. The lungs were empty and collapsed. The left side of the heart, the aorta and its great branches, were loaded with black blood. The right side of the heart and the two cavæ contained some blood, but were not distended. The pulmonary artery contained only a small quantity of blood. The blood was everywhere fluid.

Second Experiment. A cat was the subject of this experiment. The general effects were very much like those in the last, excepting, perhaps, that the oil operated with a little less energy. This cat was said to have lived for several years in a room almost perpetually fumigated with tobacco-smoke. The history of the animal employed in the first experiment was unknown.

Third Experiment. Three drops of the oil of tobacco were rubbed upon the tongue of a full-sized but young cat. In an instant the pupils were dilated and the breathing convulsed; the animal leaped about as if distracted, and presently took two or three rapid turns in a small circle, then dropped upon the floor in frightful convul-

sions, and was dead in *two minutes* and *forty-five* seconds from the moment that the oil was put upon the tongue.

Fourth Experiment. To the tongue of a young and rather less than half-grown cat, a drop of the oil of tobacco was applied. In fifteen seconds, the ears were thrown into rapid and convulsive motions; in thirty seconds, fruitless attempts to vomit; in one minute, convulsive respiration, the animal falling upon the side; in four minutes and twenty seconds, violent convulsions; in five minutes the breathing and the heart's motion had ceased.

Fifth Experiment. In the tip of the nose of a mouse a small puncture was made with a surgeon's needle, bedewed with the oil of tobacco. The little animal, from the insertion of this small quantity of the poison, fell into a violent agitation, and was dead in six minutes.

Sixth Experiment. Two drops of the oil were rubbed upon the tongue of a red squirrel. This animal, so athletic as to render it difficult to secure him sufficiently long for the application, was in a moment seized with a violent agitation of the whole body and limbs, and was perfectly dead and motionless in one minute.

From the foregoing, and from additional experiments which it is not necessary to give in detail, it appeared that when applied to a wound made in the most sensitive parts of the integuments, the oil of tobacco, though it caused a good deal of pain, had a far less general effect than when applied to the tongue. Rats were less affected than cats. Two and sometimes three drops rubbed upon the tongue of a rat did not kill it in half an hour.

Three large drops rubbed upon the tongue of a full-sized cat usually caused death in from three to ten minutes, and in one instance, already stated, in two minutes and forty-five seconds. One drop passed into the large

jugular vein of a large dog occasioned an immediate cry, followed in a few moments by staggering, convulsive twitchings of the voluntary muscles, and vomiting.

In those cases in which full vomiting occurred, evident relief followed. Young animals suffered much more than those which had come to their full growth and vigor. In those animals whose lives were suddenly destroyed by the tobacco, no coagulation of the blood took place. The bodies of several cats were examined the next day after death, and only in a single instance was a slight coagulum observed; and this was in a cat whose constitution possessed strong powers of resistance, and whose death was comparatively lingering.

It is not improbable that the charge of inhumanity may be made against experiments prosecuted upon defenceless animals, with a poison so painful and destructive in its operation as tobacco. The justice of this charge is freely admitted, if such experiments be made merely for the gratification of curiosity and not with the object and reasonable hope of making them useful to mankind and of influencing at least some few individuals to abandon the practice — humane can it be called? — of administering this poison to themselves and their children, till it occasions disease and death. Indeed, there are but few who would willingly witness more than a single experiment of this kind, with no prospect of benefit to result from it.

When applied to sensitive surfaces of considerable extent, even in a form somewhat dilute, tobacco often produces the most serious effects. The tea of tobacco has been known to destroy the life of a horse, when forced into his stomach to relieve indisposition. When used as a wash, to destroy vermin upon certain domestic animals, tobacco tea has been known to kill the animals them-

selves. A farmer not long since assured me that he had destroyed a calf in this manner.

"A woman applied to the heads of three children, for a disease of the scalp, an ointment prepared with the powder of tobacco and butter. Soon after they experienced dizziness, violent vomitings and faintings, accompanied with profuse sweats."[1]

The celebrated French poet Santeuil came to his death through horrible pains and convulsions from having taken a glass of wine with which some snuff had been mixed.

The tea of twenty or thirty grains of tobacco, introduced into the human body for the purpose of relieving spasms, has been known repeatedly to destroy life.

The same tea, applied to parts affected with itch, has been followed by vomiting and convulsions. The same article, applied to the skin on the pit of the stomach, occasions faintness, vomiting, and cold sweats.

I knew a young man who, only from inhaling the vapor arising from the leaves of tobacco immersed in boiling water, was made alarmingly sick.

A medical friend assured me that he was once thrown into a state of great prostration and nausea from having a part of his hand moistened, for a few minutes, in a strong infusion of tobacco.

Col. G—— says, that during the war of 1812, under hard service on the Canadian frontier, the soldiers not unfrequently disabled themselves for duty by applying a moistened leaf of tobacco to the armpit. It caused great prostration and vomiting. Many were suddenly and violently seized soon after eating. On investigation a tobacco leaf was found in the armpit.

Dr. M. Long, of Warner, N. H., writes me, under the

[1] Orfila.

date of April 26th, 1834, that on the 6th of May, 1825, he was consulted by Mrs. F. on account of her little daughter L. F., then five years old, who had a small ringworm, scarcely three fourths of an inch in diameter, situated upon the root of the nose. Her object was to ascertain the doctor's opinion as to the propriety of making a local application of tobacco in the case. He objected to it as an exceedingly hazardous measure; and to impress his opinion more fully, related a case, a record of which he had seen, in which a father destroyed the life of his little son by the use of tobacco-spittle upon an eruption or humor of the head.

Immediately after the doctor left the house, the mother besmeared the tip of her finger with a little of the "strong juice" from the grandmother's tobacco-pipe, and proceeded to apply it to the ringworm, remarking that "if it should strike to the stomach it must go through the nose." The instant the mother's finger touched the part affected, the eyes of the little patient were rolled up in their sockets, she sallied back, and in the act of falling was caught by the alarmed mother. The part was immediately washed with cold water with a view to dislodge the poison. But this was to no purpose, for the jaws were already firmly locked together, and the patient was in a senseless and apparently dying state. The doctor, who had stopped three fourths of a mile distant, to see a patient, was presently recalled. The symptoms were "coldness of the extremities, no perceptible pulse at the wrists, the jaws set together, deep insensibility, the countenance deathly." He succeeded in opening the jaws, so as to admit of the administration of the spirits of ammonia and lavender; frictions were employed, and everything done which at the time was thought likely to pro-

mote resuscitation, but "it was an hour or an hour and a half before the little patient was so far recovered as to be able to speak."

"Till this time," says Dr. Long, "the child had been robust and healthy, never having had but one illness that required medical advice; but since the tobacco experiment she has been continually feeble and sickly. The first four or five years after this terrible operation she was subject to fainting fits every three or four weeks, sometimes lasting from twelve to twenty-four hours; and many times, in those attacks, her life appeared to be in imminent danger. Within the last three or four years those turns have been less severe."

The foregoing facts serve to show that tobacco is a most active and deadly poison. It acts directly upon the nervous power, enfeebling, deranging, or extinguishing the actions of life. Is it possible that the *habitual* use of an article of so actively poisonous properties can promote health, or indeed fail to exert an injurious influence upon health? It will be readily admitted that the daily use of any article which causes an exhaustion of the nervous power beyond what is necessarily occasioned by the ordinary physical agents, as heat, cold, light, together with mental and corporeal exertion, is not only useless, but hurtful, tending directly to produce disease and premature decay. Such is tobacco. Ample evidence of this is furnished by a departure, more or less obvious, from healthy action in the organic, vital movements of a large majority of tobacco-consumers.

From the *habitual use* of tobacco, in either of its forms of snuff, cud, or cigar, the following symptoms may arise: a sense of weakness, sinking, or pain at the pit of the stomach; dizziness, or pain in the head; occasional dim-

ness or temporary loss of sight; paleness and sallowness of the countenance, and sometimes swelling of the feet; an enfeebled state of the voluntary muscles, manifesting itself sometimes by tremors of the hands, sometimes by weakness, tremulousness, squeaking or hoarseness of the voice, rarely a loss of the voice; disturbed sleep, starting from the early slumbers with a sense of suffocation, or the feeling of alarm, incubus, or nightmare; epileptic or convulsion fits; confusion or weakness of the mental faculties; peevishness and irritability of temper; instability of purpose; seasons of great depression of the spirits; long fits of unbroken melancholy and despondency, and in some cases, entire and permanent mental derangement.[1]

The animal machine, by regular and persevering reiteration or habit, is capable of accommodating itself to impressions made by poisonous substances, so far as not to show signs of injury under a superficial observation, provided they are slight at first, and gradually increased; but it does not hence follow that such impressions are not hurtful. It is a great mistake, into which thousands are led, to suppose that every unfavorable effect or influence of an article of food or drink or luxury must be felt immediately after it is taken. Physicians often have the opportunity of witnessing this among their patients.

The confirmed dyspeptic consults his physician for pain or wind in the stomach, accompanied with headache or dizziness, occasional pains of the limbs, or numbness or tremors in the hands and feet, and sometimes with difficult breathing, disturbed sleep, and a dry cough and huskiness of the voice in the morning. The physician suggests the propriety of a light diet for a time; but the patient ob-

1 I have seen two cases; one caused by the excessive use of snuff, the other by the chewing of tobacco and swallowing the saliva.

jects, alleging that he never feels so well as when he has swallowed a good dinner. He is then advised to avoid spirit, wine, cider, beer, etc. The reply is, "It is impossible that the little I take can do me hurt; so far from that, it always does me good; I always feel the better for it. I do not need any one to tell me about that." He is asked if he uses tobacco. "Yes; I smoke a little, chew a little, and snuff a little." "You had better leave it off altogether, sir." "Leave it off? I assure you, doctor, you know but little about it. If I were to leave off smoking, I should throw up half my dinner." "That might do you no harm, sir." "I see you do not understand my case, doctor; I have taken all these good things for many years, and have enjoyed good health. They never injured me. How could they have done so without my perceiving it? Do you suppose I have lived so long in the world without knowing what does me good and what does not?" "It would appear so, sir; and you are in a fair way to die without acquiring this important knowledge."

The poor man goes away, in a struggle between the convictions of truth and the overwhelming force of confirmed habit. Under the sustaining power of a good constitution, and in the activity of business, he never dreamed of injury from the moderate indulgence, as he regarded it, in the use of stimulants, as spirit, wine, tobacco, till the work was done. His is the case of hundreds of thousands.

The vital principle in the human body can so far resist the influences of a variety of poisons, slowly introduced into it, that their effects shall be unobserved till, under the operation of an exciting or disturbing cause, their accumulated force breaks out in the form of some fearful or incurable disease. The poison which comes from vege-

table decompositions, on extensive marshes and the borders of lakes, after being received into the body remains apparently harmless, in some instances, a whole year, before it kindles up a wasting intermittent or a destructive bilious remittent fever.

Facts of this nature show that pernicious influences may be exerted upon the secret springs of life while we are wholly unconscious of their operation. Such is the effect of the habitual use of tobacco and other narcotics, and of all stimulants which, like them, make an impression upon the whole nervous system, without affording the materials of supply or nutrition.

It is an alleged fact that, previously to the age of forty years, a larger mortality exits in Spanish America than in Europe. The very general habit of smoking tobacco, existing among children and youth as well as adults, it has been supposed, and not without reason, might explain this great mortality. Like ardent spirits, tobacco must be peculiarly pernicious in childhood, when all the nervous energy is required to aid in accomplishing the full and perfect development of the different organs of the body, and in ushering in the period of manhood. I once knew a boy, eight years of age, whose father had taught him the free use of the tobacco cud four years before. He was a pale, thin, sickly child, and often vomited up his dinner.

To individuals of sedentary habits and literary pursuits, tobacco is peculiarly injurious, inasmuch as these classes of persons are in a measure deprived of the partially counteracting influence of air and exercise. I have prescribed for scores of young men, pursuing either college or professional studies, who had been more or less injured by the habitual use of this plant.

In the practice of smoking there is no small danger. It

tends to produce a huskiness of the mouth, which calls for some liquid. Water is too insipid, as the nerves of taste are in a half-palsied state, from the influence of tobacco-smoke; hence, in order to be tasted, an article of a pungent or stimulating character is resorted to, and hence the kindred habits of smoking and drinking. A writer in one of the American periodicals, speaking of the effect of tobacco in his own case, says that smoking and chewing "produced a continual thirst for stimulating drinks; and this tormenting thirst led me into the habit of drinking ale, porter, brandy, and other kinds of spirit, even to the extent at times of partial intoxication." The same writer adds, that "after he had subdued his appetite for tobacco, he lost all desire for stimulating drinks." The taker of snuff necessarily swallows a part of it, especially when asleep; by which means its enfeebling effects must be increased.

The opinion that tobacco is necessary to promote digestion is altogether erroneous. If it be capable of soothing the uneasiness of the nerves of the stomach occurring after a meal, that very uneasiness has been caused by some error of diet or regimen, and may be removed by other means. If tobacco facilitates digestion, how comes it that, after laying aside the habitual use of it, most individuals experience an increase of appetite and of digestive energy, and an accumulation of flesh?

It is sometimes urged, that men occasionally live to an advanced age who are habitual consumers of this article: true, and so do some men who habitually drink rum, and who occasionally get drunk; and does it thence follow that rum is harmless, or promotes long life? All that either fact proves is, that the poisonous influence is longer or more effectually resisted by some constitutions than by

others. The man who can live long under the use of tobacco and rum, can live longer without them.

An opinion has prevailed in some communities that the use of tobacco operates as a preservative against infectious and epidemic diseases. This must be a mistake. Whatever tends to weaken or depress the powers of the nervous system, predisposes it to be operated upon by the causes of these diseases. If tobacco affords protection in such cases, why does it not secure those who use it against cholera? In no communities, perhaps, has that disease committed more frightful ravages than where all classes of persons are addicted to the free use of this article. In Havana, in 1833, containing a stationary population of about one hundred and twenty thousand, cholera carried off, in a few weeks, if we may credit the public journals, sixteen thousand; and in Matanzas, containing a population of about twelve thousand, it was announced that fifteen hundred perished. This makes one eighth of the population in both places; and if, as in most other cities, the number of deaths as published in the journals falls short of the truth, and a considerable deduction be made from the whole population on account of the great numbers who fled on the appearance of the disease, the mortality will be still greater. In Havana, after the announcement of the foregoing mortality, and after a subsidence of the epidemic for some weeks, it returned, and destroyed such numbers as to bring back the public alarm. The degree in which the practice of smoking prevails may be judged of by a fact stated by Dr. Abbot in his letters from Cuba, namely, that in 1828 it was the common estimate, that in Havana there was an average consumption of ten thousand dollars' worth of cigars in a day.

Dr. Moore, who resides in the province of Yucatan in

Mexico, assures me that the city of Campeachy, containing a population of twenty thousand, lost by cholera in about thirty days, commencing early in July, four thousand three hundred and a fraction of its inhabitants. This is a little short of one fourth of the population; although Dr. Moore says that the people of Campeachy made it as a common remark, "We have lost one in four of our number." With reference to the habits of the people in that part of Mexico, Dr. Moore says: "Everybody smokes cigars; I never saw an exception among the natives. It is a common thing to see a child of two years old learning to smoke."

The opinion that the use of tobacco preserves the teeth, is supported neither by physiology nor observation. Constantly applied to the interior of the mouth, whether in the form of cud or of smoke, this narcotic must tend to enfeeble the gums, and the membrane covering the necks and roots of the teeth, and in this way must rather accelerate than retard their decay. We accordingly find that tobacco-consumers are not favored with better teeth than others; and on the average, they exhibit these organs in a less perfect state of preservation. Sailors make a free use of tobacco, and they have bad teeth.

The grinding surfaces of the teeth are, on the average, more rapidly worn down or absorbed from the chewing or smoking of tobacco for a series of years, being observed in some instances to project but a little way beyond the gums. This fact I have observed in the mouths of some scores of individuals in our own communities; and I have also observed the same thing in the teeth of several men belonging to the Seneca and St. Francois tribes of Indians, who, like most of the North American tribes, are much addicted to the use of this narcotic. In several instances,

when the front teeth of the two jaws have been shut close, the surfaces of the grinders in the upper and lower jaw, especially where the cud had been kept, did not touch each other, but exhibited a space between them of one tenth to one sixth of an inch, showing distinctly the effects of the tobacco, more particularly striking upon those parts to which it had been applied in its most concentrated state.

Dr. Habershon remarks: "It is, I believe, universally acknowledged that the long-continued habit of taking snuff irritates the fauces and epiglottis, producing cough, etc. Nor is dyspepsia the extent of its ill effects; the irritating particles extend through the whole length of the alimentary canal. Several inveterate snuff-takers have intimated to me the irritable state of the bowels; in whom it appeared that the mucous membrane was unnaturally stimulated and irritable. The oft-repeated stimulus leads to an enfeebled condition of the mucous membrane, a loss of contractile power, of healthy secretion, and of nervous stimulus: as regards the stomach, dyspepsia is the result; in the intestine, diarrhœa or constipation; in some cases, the rectum is principally affected, and it either retains the fæces, so as to form an impacted mass, which it is unable to propel, or, if fluid, the same feebleness allows the contents to pass rapidly to the sphincter, itself sometimes so enfeebled as to be unable to restrain an involuntary discharge. Snuff may actually be seen among these discharges.[1]

"It is more than twenty years (now 1859) since I was requested by a medical friend, Dr. S., to visit Mrs. O., a lady over sixty years of age, who for several months had

[1] Diseases of the Alimentary Canal, pp. 245, 246.

been affected, during her waking hours, with an involuntary and incessant opening and shutting of the mouth. The lower jaw was drawn down to the full extent of the power of the appropriate muscles, then brought up till the lips touched, then the same motions were repeated; but she had not lost the use of the tongue. She could converse, and did so very intelligently; but her appearance in conversation, with the accompaniment of a regular rhythmic motion of the jaw, was quite unique. On inquiry, I learned that she was in the habit of taking Scotch snuff freely and drinking largely of green tea. I was of opinion that the combined influence of these articles had caused her singular complaint, and advised her to quit them. Being a conscientious, good woman, she promised to try to leave them off. Six months afterward I requested Dr. S., by letter, to inform me of the state of Mrs. O.'s health. He replied that she was 'trying to leave off her snuff and tea, — that is, taking a little less one day, and a little more the next, — and her jaw was still going.' After the lapse of twenty years I learned from a member of her family that she ultimately succeeded in very greatly diminishing the narcotics, and that she survived a number of years, with the muscles of the jaw so far paralyzed as nearly to destroy the power of mastication."

The tobacco appetite, though often difficult to acquire, is still harder to subdue. A distinguished officer in one of the colleges of our country informed me that when a student he was six months in teaching himself to smoke, and that after he became a college officer he was two years in teaching himself not to smoke.

The late Dr. John C. Warren, Professor of Surgery in the Boston Medical School, used to remark to his classes, that he had but very rarely met with a case of cancer of

the lip in a person who did not use tobacco. The tobacco poison, mixed with the saliva, when applied to a naked or raw surface, is liable to kindle a diseased condition which is named epithelial cancer. The under lip is exposed to abrasion and poisoning, where the stem of the pipe in smoking is in contact with it; and cancer inside the cheek, or on the tongue, may come from abrasion of the lining membrane. As I have not kept a record of my operations on the lip, nor the number I have seen, my own observation may be regarded as not sufficiently definite; but in thirty-five years of surgical practice I have seen many cases, and as I have seldom if ever failed to ascertain the patient's habit in regard to tobacco, I have met with but two men with decided lip cancer who assured me that they had never used tobacco in any form.

In the present year, 1859, M. Bouisson, a surgeon of Montpelier, gained high praise from the Academy at Paris by his statistics and remarks upon the influence of tobacco-smoking in the production of lip cancer. He says that it is now one of the most dreaded diseases in their hospitals. In the short period of time from 1845 to 1859 he has himself performed sixty-eight operations for cancer of the lips, in the Hospital of St. Eloi. He says that the disease rarely appears before the age of forty. According to Mr. Lizars, impotence is sometimes caused by excessive smoking. The intensity of the poison of the chemical extract of tobacco induced the Count de Bocarmé, in Belgium, in 1851, to select it for the poisoning of his brother-in-law.[1]

In Rankin's Half-yearly Abstract of the Medical Sciences for 1854, an interesting case is quoted from Dr. Corson, of New York. "The subject was a highly intelligent

[1] An account of his trial and execution is contained in Wharton and Stiles's Medical Jurisprudence.

man, aged sixty-five, stout, ruddy, early married, managing a large business." After premising that he commenced chewing tobacco at seventeen, swallowing the juice, as is sometimes customary, to prevent injuring his lungs by constant spitting; and that years afterward he suffered from a gnawing, capricious appetite, nausea, vomiting of meals, emaciation, nervousness, and *palpitation of the heart*, he dictated to Dr. Corson, recently, the following: —

"Seven years thus miserably passed, when one day, after dinner, I was suddenly seized with intense pain in the chest, gasping for breath, and a sensation as if a *crowbar were pressed tightly from the right breast to the left, till it came and twisted in a knot round the heart, which now stopped deathly still for a minute, and then leaped like a dozen frogs.* After two hours of deathly suffering the attack ceased; and I found that ever after my heart *missed every fourth beat.* My physician said that I had organic disease of the heart, must die suddenly, and need only take a little brandy for the painful paroxysms, and I soon found it the only thing that gave them any relief. For the next twenty-seven years I continued to suffer milder attacks like the above, lasting from one to several minutes, sometimes as often as two or three times a day or night; and came to be sickly-looking, thin, and pale as a ghost.

"Simply from revolting at the idea of being a slave to *one vile habit alone*, and without dreaming of the suffering it had cost me, after *thirty-three* years' use I one day threw away tobacco forever.

"Words cannot describe my suffering and desire for a time. I was reminded of the Indian who, next to all the rum in the world, wanted all the tobacco. But my firm will conquered. In a month my paroxysms nearly ceased,

and soon after left entirely. I was directly a new man, and grew strong and hale as you see. With the exception of a little asthmatic breathing in close rooms and the like, for nearly twenty years I have enjoyed excellent health." Dr. C. found the pulse still intermitting at every fourth beat.

The consumers of tobacco are always benefited by quitting it altogether. I have conversed with a great many who have laid it aside, and have never met with one who had left it off for a year who did not admit that he was better since the omission of it. Occasionally we meet with a man who, not disposed to pitch battle with his inveterate relish for the poison, attempts to deceive himself or others with the notion that a little of it is necessary for *him*, to make food sit easy on his stomach; that while it is a good *general* rule to quit tobacco, there is something very peculiar in his individual case, that calls for a little. Such is the reasoning of vitiated appetite: "A little *poison* is necessary to my *health*." These men remind us of that Syrian officer, who, when he was cleansed of his leprosy, acknowledged the truth, declaring to the prophet, "Behold, now I know that there is no God in all the earth but in Israel;" but at the same time there was one *particular* occasion when he thought he must be allowed to practise idolatry.

Sir Isaac Newton, when solicited to use snuff or tobacco, declined, replying that "he *would make no necessities for himself*."[1]

"Very recently the French Emperor made an estimate of the effects of smoking in their schools and academies and colleges. They took the young men attending, classi-

1 Life of Sir Isaac Newton, by Sir David Brewster, Vol. ii. p. 410, Edinb. and Lond. 1855.

fied them into those who smoked habitually and those who did not, and estimated their physical and intellectual standing, perhaps their moral standing, too; but that he could not say. The result was, that they found that those who did not smoke were the stronger lads and better scholars, were altogether more respectable, and more useful members of society, than those who habitually used the drug. Louis Napoleon instantly issued an edict that no smoking should be permitted in any college, school, or academy. In one day he put out about thirty thousand pipes in Paris alone."[1]

The *expensiveness* of the habit of using tobacco is no small objection to it. Let the smoker estimate the expense of thirty years' use of cigars, on the principle of annual interest, which is the proper method, and he might be startled at the amount. Six cents a day, according to the Rev. Mr. Fowler's calculation, would amount to $3,529.30; a sum which would be very useful to the family of many a tobacco-consumer when his faculties of providing for them have failed.

The statement of Rev. Dr. Abbot, in his letters from Cuba, in 1828, already alluded to, is, that the consumption of tobacco in that island is immense. The Rev. Mr. Ingersoll, who passed the winter of 1832–3 in Havana, expresses his belief that this is not an overstatement. He says: "Call the population one hundred and twenty thousand; say half are smokers; this, at a bit a day," that is, twelve and a half cents, "would make between seven and eight thousand dollars. But this is too low an estimate, since not men only, but women and children, smoke, and many at a large expense." He says that "the free negro of Cuba appropriates a bit from his daily wages to increase

[1] March, 1861.

the cloud of smoke that rises from the city and country." This, in thirty years, would amount to $7,058.72, — a respectable estate for a negro, or even for a white man.

The "Scientific American" states that there are (1859) in the city of New York about 200,000 smokers, each using two cigars daily, making 400,000 cigars every day. These, at an average of four cents each, make the enormous sum of $16,000 daily consumed in smoke in New York alone. There are some 900,000,000 cigars manufactured in that city annually, which, at the same price, amount to $36,000,000.

Dr. Trall remarks: "As long ago as 1839, Great Britain derived a revenue of $18,000,000 from the duty on tobacco. The actual loss to the nation was, of course, treble or quadruple that enormous sum, — an amount sufficient to have fed, clothed, and educated every one of the starving millions under the government of Queen Victoria; and even sufficient to have extinguished, at no distant day, the immense national debt of the country."

A late writer in Blackwood's Magazine says: "Leaving the question of its origin, the reader will not be surprised, when he considers how widely the practice of smoking prevails, that the total product of tobacco grown on the face of the globe has been calculated by Mr. Crawford to amount to the enormous quantity of two millions of tons. The comparative magnitude of this quantity will strike the reader more forcibly, when we state that the whole of the wheat consumed by the inhabitants of Great Britain — estimating it at a quarter a head, or, in round numbers, at twenty millions of quarters — weighs only four and one third millions of tons; so that the tobacco raised yearly for the gratification of this one form of the narcotic appetite weighs as much as the wheat con-

sumed by ten millions of Englishmen. And reckoning it at only double the market value of wheat, or two pence and a fraction per pound, it is worth in money as much as all the wheat eaten in Great Britain."

The following estimate of the annual produce and value of tobacco is from "Chemistry of Common Life," by Prof. J. F. W. Johnston, F. R. S., etc.

"Produce per acre, 800 lbs.; acres employed, 5,600,000; total produce in pounds, 4,480,000,000; value per pound, 2d.; total value in pounds sterling, £37,000,000, or about $185,000,000. And it may be estimated," says Prof. Johnston, "that tobacco is used among 800,000,000 of men." Must it then be said of so many of our race, "They are all gone out of the way?"

The habit of using tobacco is uncleanly and impolite. It is uncleanly from the foul odor, the muddy nostril and darkly smeared lip it confers, and from the encouragement it gives to the habit of spitting, which, in our country, would be sufficiently common and sufficiently loathsome without it.

"True politeness," said a distinguished English scholar, "is kindness kindly expressed." The using of tobacco, especially by smoking, is anything but kindness or the kindly expression of it, when it creates an atmosphere which, whether it comes directly from the pipe, the cigar, the deeply imbued clothing, or the worse than alligator breath, is absolutely insupportable to many who do not use it, causing depression of strength, dizziness, headache, sickness at the stomach, and sometimes vomiting. By what rule of politeness, nay, on what principle of common justice, may I poison the atmosphere my neighbor is compelled to breathe, or so load it with an unhealthy and loathsome material as to make him uncomfortable or

wretched so long as I am in his company? What would be said of the physician who, having acquired a strong liking for assafœtida, should allow himself in the constant habit of chewing it, to the great annoyance, from his foul breath, of many of his patients, as well as more or less of the healthy individuals of the families who employ him? Or how would a gentleman traveller be regarded who should not only keep his breath constantly imbued with this assafœtida, but also insist upon spurting successive mouthfuls of the tincture of it upon the floor of a stage-coach, or of a railroad car, or of the cabin of a steam-boat? Would he be commended either for his cleanliness, politeness, or kindness? Nay, would he be tolerated in such a violation of the principles of good breeding? I have seen numbers who have been made sick, dizzy, and pale by the breath of a smoker; and I have seen a person vomit out of a stage-coach, from the influence of that indescribable breath which results from alcoholic liquor and tobacco-smoke.

How painful to see young men in our scientific and literary institutions — men who are soon to lead in our national councils, to shape the morals and the manners of the circles of society in which they will move — making themselves downright sick, day after day and week after week, in order to form a habit of taking a disgusting poison, steeping their nerves and their intellects in its narcotic influence, the direct tendencies of which are to impair their health, to enfeeble their minds, and to disqualify them for a place in cleanly and polite society.

The use of tobacco, like that of alcoholic liquor, should be abandoned totally and forever. The plan of taking less and less daily is seldom successful. This is what is called "trying to leave off." If a little less be taken

one day, generally a little more is taken the next. It does not answer to treat with the least deference an appetite so unnatural and imperative as that created by a powerful narcotic; it must be denied abruptly, totally, and perseveringly.

In several of our penitentiaries tobacco is not allowed to the inmates, almost all of whom were consumers of it. The testimony of the agents of these institutions is, that none are injured by quitting this narcotic, but that in a few days, seldom over twenty, their uneasiness and agitation subside, their appetite is increased, and their appearance is manifestly improved. A distinguished physician has assured me, that he never knew a person sustain the least permanent injury from the disuse of tobacco, but, on the contrary, every one had received decided benefit. My own observation is in perfect accordance with this remark. I have known a large number of this description, and can say that I have never conversed with an individual who, after having been freed from the habit a year, did not confess that an advantage, greater or less, had resulted from his self-denial.

Cases illustrative of its Effects. — A gentleman of distinction in the profession of law, in New Hampshire, wrote me under date of Dec. 10, 1833, as follows: —

"At the age of twelve years, misled by some boyish fancy, I commenced the use of tobacco, and continued it with little restraint for about nineteen years. Generally I was in the habit of chewing tobacco, but sometimes for two, three, or four months together, I exchanged chewing for smoking. I have always led a sedentary life. After attaining to manhood, my ordinary weight was about one hundred and thirty pounds; once or twice only rising to one hundred and thirty-five, and falling not

unfrequently to one hundred and twenty-five, and sometimes to one hundred and seventeen. My appetite was poor and unsteady, the nervous system much disordered, and my life was greatly embittered by excessive and inordinate fear of death. My spirits were much depressed. I became exceedingly irresolute, so that it required a great effort to accomplish what I now do even without thinking of it. My sleep was disturbed; faintings and lassitude were my constant attendants.

"I had made two or three attempts to redeem myself from a habit which I knew was at best useless and foolish, if not prejudicial. But they were feeble and inefficient. Once, indeed, I thought I was sure that the giving up the use of tobacco injured my health, and I finally gave up all hopes of ever ridding myself of this habit.

"In the summer of 1830, my attention was called to the subject by some friends whom I visited, and, by the advice and example of a friend who had renounced the practice with the most decided advantage, I thought seriously upon the subject, and felt, what had scarce occurred to me before, how degrading it was to be enslaved by a habit so ignoble. I threw away my tobacco at once and entirely, and have not since used the article in any form. Yet this was not done without a great effort, and it was some months before I ceased to hanker for the pernicious weed. Since then my health has decidedly improved. I now usually weigh one hundred and forty-five pounds, and have risen to one hundred and fifty-two; rarely below one hundred and forty-five. My spirits are better. There is nothing of the faintness, lassitude, and fearful apprehensions before described. My appetite is good and my sleep sound. I have no resolution to boast of, yet considerably more than I formerly had.

"In fine, I cannot tell what frenzy may seize me; yet, with my present feelings, I know not the wealth that would induce me to resume the unrestrained use of tobacco, and continue it through life."

To Dr. A. Hobbs I am indebted for the following case, which occurred in his own family connection: —

"Mr. J. H—— began to chew tobacco at an early age, and used it freely. When about fifty-five years old he lost his voice, and was unable to speak above the whisper for three years. During the four or five years which preceded the loss of his voice he used a quarter of a pound of tobacco in a week. He was subject to fits of extreme melancholy; for whole days he would not speak to any one, was exceedingly dyspeptic, and was subject to nightmare. When about fifty-eight years old, that is, about thirteen years ago, he abandoned his tobacco. His voice gradually returned, and in one year was pretty good; his flesh and strength were greatly increased, and he now has a younger look than when he laid aside his narcotic."[1]

The case of Mr. L. B——, a shoemaker, now about fifty-two years of age, exhibits strikingly the injurious effects of tobacco. About fourteen years ago he consulted me on account of dyspepsia, obstinate costiveness, and palpitation of the heart, which symptoms had existed for several years. The palpitation he had observed about seven years before. In a small degree it occurred almost daily. For years a slight fluttering was generally felt in the morning, for a short time after breakfast, which compelled him to sit still, avoiding mental as well as muscular exertion. After an hour or more he was better. He was, besides, subject to severe paroxysms of palpitation,

[1] April, 1834.

occurring at irregular periods. Six or seven of these took place in a year. These turns were excited under stomach irritations or oppression from indigestible food. They came on instantaneously, and often left in a moment; "the pulse was nothing but a flutter." So great was the prostration, that during the paroxysm he was obliged to lie still upon the bed. The length of the paroxysm was various; sometimes an hour, sometimes several hours.

He was in the habit of using tobacco in all its forms of cud, cigar, and snuff; he drank tea and coffee freely, and spirit and cider moderately. I advised the entire disuse of tobacco, tea, coffee, and all other drinks, save water, and to live on plain and unstimulating food. He followed the advice in regard to drinks in so far as to confine himself to water, and threw away the cud and cigar, but continued to take snuff. Under this change his health was improved, and the turns of palpitation were less frequent, and generally less severe. In this way he continued for about eight years, his general health being considerably improved; he was subject, however, to an occasional attack of palpitation. At length he had a paroxysm which was so terribly severe and protracted as to keep him nine hours and a half motionless upon his back, under the incessant apprehension of immediate dissolution. In the course of this nine and a half hours he made up his mind to take no more snuff. He has kept his resolution, and has not had an attack since, now about six years. He says he has sometimes felt a slight agitation or tremor, but this has been rare. Once his fingers were tremulous, now they are perfectly steady; and his memory, which was alarmingly impaired, is much improved.

A physician, with whom I was intimately acquainted during the greater part of his medical pupilage, which

included the latter part of his tobacco experience, has given the following account of his own case. He has a preference for withholding his name from the public, and has described himself as "the patient." The circumstances of the case as related may be relied on. I was present each time when he threw away his tobacco.

"The patient," says he, "at the early age of fourteen, under the impression that it was a manly habit, commenced chewing tobacco; and a long and painful course of training was required, before the stomach could be brought to retain it. At length the natural aversion of this organ to the poison was so overcome, that an exceedingly large quantity might be taken without producing nausea. For several years the patient continued its uninterrupted use, swallowing all the secretions of the mouth saturated with this baneful narcotic, without experiencing much disturbance of health. At length he began to be harassed with heartburn, attended with copious eructations of an intensely acid fluid, together with other indications of dyspepsia. A watery stomach was suspected, and smoking was at once recommended in addition to chewing, to alleviate the accumulation of water in the stomach and to assist digestion. Smoking was accordingly practised after every meal, with little alleviation of the difficulty. The patient, however, being determined to be benefited by its use, resorted to it more frequently, smoking not only after eating, but several times between meals. Yet, to his great surprise, his troublesome symptoms were gradually augmented, notwithstanding his strenuous adherence to the practice.

"To the heartburn and acid eructations soon succeeded nausea, loss of appetite, a gnawing sensation in the stomach when empty, a sense of constriction in the throat,

dryness in the mouth and fauces, thickening or huskiness of the voice, costiveness, paleness of the countenance, languor, emaciation, aversion to exercise, lowness of spirits, palpitations, disturbed sleep; in short, all the symptoms which characterize dyspepsia of the worst stamp. He was well-nigh unfitted for any kind of business, and his very existence began to be miserably burdensome.

"At last, being advised to abandon the use of tobacco in all its forms, and being fully persuaded that he either must relinquish it voluntarily, or that death would soon compel him to do it, he summoned all his resolution for the fearful exigency, and, after a long and desperate struggle, obtained the victory. All the inconvenience he experienced was a few sleepless nights, and an incessant hankering after the accustomed fascinating influence of the cigar and cud.

"In a few days a manifest improvement in health was apparent, his appetite and strength returned, his sleep became more sound and refreshing, and he directly found himself in the enjoyment of better health than he had possessed at any time during ten years of vile submixysm to a depraved and unnatural appetite.

"After abstaining from it about two months, he again, by way of experiment, returned to the cud, cigar, and pipe; and but a few days were requisite to recall all his former dyspeptic symptoms. He again relinquished the habit, under the full conviction that tobacco was the sole cause of his illness, and he firmly resolved never to make further use of it."

After recovering a second time from the effects of his poison, this gentleman assured me that at times his feelings had bordered on those of mental derangement; he thought everybody hated him, and he in turn hated every-

body. He had often, after lying awake for several hours in the night under the most distressing forebodings, arisen, and smoked his pipe to procure a temporary alleviation of his sufferings in fitful and half-delirious slumbers. He even thought of suicide, but was deterred by the dread of a hereafter. In a few weeks after relinquishing the indulgence, all these feelings were gone; and when I last saw him, about two years, I believe, after quitting his tobacco, he was in fine health and spirits.

The following letter from Dr. Moore describes his own case: —

WELLS, Maine, April 10, 1833.

DEAR SIR — It was not until this late hour that I received your letter of the 4th inst. With pleasure I hasten to answer your inquiries with regard to my experience in the use of tobacco.

In the autumn of 1817, I commenced, I know not why, the use of tobacco. It was not until the spring of 1825, that I experienced any ill effects from it, except now and then heartburn, acid eructations, and occasional fits of melancholy. At that time I became dyspeptic. My food gave me much uneasiness; I had a sinking sensation at the pit of the stomach, wandering pains about the limbs, especially by night, disturbed sleep, loss of appetite, great difficulty of breathing from slight exercise, debility, emaciation, depression of spirits. Such have been my symptoms and feelings the last seven years; and in that time I have had two attacks of hæmoptysis (spitting of blood), which I attribute solely to the relaxing effects of this narcotic.

The various remedies for dyspepsia were all tried in my case without the least benefit. About the first of December last, I gave up the use of tobacco, and, to my astonishment, within the first twenty-four hours my appetite returned; food gave no uneasiness, and strength returned. I have been generally gaining flesh, so that now my weight is greater than it ever was, except once.

I never was in the habit of using more than half an ounce of tobacco a day. This would be but a moderate allowance for most persons who use the cud. I never was a smoker; my use of it was wholly confined to chewing.

A gentleman called a few weeks ago to consult me. His countenance was pallid and ghastly. He said that he had no appetite, was extremely debilitated, had palpitation of the heart and copious perspiration on slight

exercise, wakefulness by night, and was gloomy. "Sir," said I, "do you use tobacco?" "I do." "How much on an average daily?" "One fig." I told him he must renounce its use, which he promised to do. He took no medicine. I saw him again in ten days. He said he was well, and was fully satisfied that his complaints were owing to the use of tobacco.

A friend of mine in this town, who has made a constant use of tobacco by chewing for more than thirty years of his life, was prevailed upon a few months ago to lay it aside, in consequence of having constant vertigo (dizziness); he is now well, and all who knew him are astonished to witness the increase of his flesh since he desisted from its use.

I can now count ten persons who were in a feeble state of health, and who have renounced tobacco by my advice, most of whom were troubled with nervous diseases and dyspepsia. They have all acquired better health.

You are at liberty to make what use of these remarks you please, and I will vouch for the truth of them.

Your obedient servant, E. G. MOORE.

PROF. MUSSEY.

Dr. Moore's case is peculiarly interesting, inasmuch as for some years he was regarded by many of his friends as near a fatal consumption. In the February preceding the date of his letter, I met him in a stage-coach, and was struck with his healthful appearance, and interested with the account of his restoration. The following letter from the same gentleman confirms the views contained in his first communication: —

WELLS, May 7, 1836.

DEAR SIR — Yours of the 3d inst. has just been received, and in answer to your inquiry I have to say, that my health is better than when I last saw you in 1833, although, since that time, I have been afflicted with all my former unpleasant symptoms, namely, loss of appetite, debility, tremors, dizziness, palpitations of the heart, anxiety of mind, melancholy, etc.

You may ask what could be the cause of all these unpleasant sensations. I will tell you. It was returning to the gratification of a depraved appetite in the use of tobacco; and I have no hesitancy in declaring it as my opinion, that could the causes of the many acts of suicide committed in the United States be investigated, it would be found that many instances were owing to the effects of tobacco upon the nervous system.

It is now nearly two years since I have had anything to do with this enemy of the human race, and my health has never been better. I have a good appetite for food. My dyspeptic affection troubles me so little, that I hardly think of it. I never weighed so much before by several pounds.

One of the persons of whom I wrote before is still in this vicinity, and uses no tobacco; he enjoys uninterrupted health. The others do not now reside in this place.

Yours, E. G. MOORE.

It is presumed that henceforward Dr. Moore will retain so little doubt as to the effects of tobacco, as to avoid making further experiments with it upon his own constitution.

Jonathan Cummings, Esq., an intelligent farmer of Plymouth, N. H., in a letter to Dr. Chadbourne, about three years ago (1833), says that he was accustomed to manual labor from childhood, and enjoyed almost uninterrupted health till he was twenty-five years old, about which time he commenced chewing and smoking tobacco, having for some time taken snuff for *weakness of his eyes.* His stomach soon became affected, he had faintings and tremblings, and was unable to perform the labor he was accustomed to do. "I went on in this way," says he, "for thirty years; tobacco seemed to be my only comfort; I thought I could not live without it.

"Two years ago, finding my strength still more rapidly declining, I determined to be a slave to my appetites no longer, and I discontinued the use of tobacco in every form. The trial was a severe one, but the immediate improvement in my general health richly paid me for all I suffered. My appetite has returned, my food nourishes me, and after thirty successive years of debility I have become strong.

"My weight, during the time I used tobacco, varied from one hundred and thirty to one hundred and forty

pounds, but never exceeded one hundred and fifty; I now weigh over one hundred and eighty, and am a vigorous old man. I am in a great measure free from those stomach and liver complaints which followed me for thirty years. I do more work than I did fifteen years ago, and use none of what you doctors call artificial stimulants; for I have more recently reformed as to tea, which I had drank at least twice a day for forty-five years. It is useless, therefore, for folks to tell me that it won't do to break off old habits; I know, for I have tried it."

In an estimate of the expenses incurred by what he calls his bad habits, he puts his tobacco only at two dollars a year (which he says is much below its actual cost), his snuff at one dollar, and his tea at four dollars. At annual interest he computes that the amount would be $615; "not reckoning loss of time, and now and then a doctor's bill, anything." "A pretty little sum," says he, "for one in my circumstances, having always been pressed for money."

In a letter I received from him about a year ago, he remarks, that among the symptoms of ill-health, while he used tobacco, were "a hollow, faint feeling at the stomach, want of appetite, and sometimes severe spasms at the stomach. All the time I used tobacco my complaint was supposed to be liver complaint, and I took medicine for it. I was troubled with my food lying in my stomach for hours after eating; frequently I took rhubarb and saleratus, to help digestion; when the weight passed off, it left my stomach debilitated and full of pain, and I then took my pipe to relieve it." There were frequent seasons when he was obliged to quit labor, although this was his whole dependence for a living.

Some additional particulars I obtained in April, 1836, in a personal conversation with Mr. Cummings. He

remarked that he continued to take a little snuff for about four months after discontinuing smoking and chewing. "While in the habit of smoking," said he, "there was a hollow place in my stomach large enough to hold my two fists, which nothing could fill: food would not do it; drink would not do it; nothing but tobacco-smoke." After quitting the tobacco, "the hollow place was gradually filled up; the appetite increased, food digested better, and all the unpleasant symptoms were removed in about a month after the entire disuse of the snuff."

He observed to me that he never in his life used tobacco to excess, but always "temperately;" although he admitted the employing it in three forms might have been equivalent to a rather free use of it in one mode. The effects of tobacco on the senses of seeing and hearing, in his case, were very striking. He used spectacles for several years during his indulgence in tobacco, and he assured me that at the age of fifty-five years he could not read a word in any common book, even in the strongest sunshine, without spectacles. He had also a ringing and deafness in both ears for ten years, and at times the right ear was entirely deaf. During the last year of his tobacco life this difficulty very perceptibly increased. "In about a month," said he, "after quitting tobacco in its last form, that is, snuff, my head cleared out, and I have never had a particle of the complaint since; not the least ringing, nor the least deafness." It was not many months before he could dispense with his spectacles, and "from that time to the present," says he, "I have been able, without spectacles, to read very conveniently, and to keep my minutes, having been a good deal engaged in surveying lands." He remarked, however, that when compelled to employ his eyes upon a book for some hours in succession, especially in the

evening, he found his spectacles convenient. He certainly hears quick, and his eye is altogether keener and stronger than usual with men of his age. He is now in his sixty-third year. That the defective vision and hearing were owing, in a great degree, to the tobacco, must be inferred from the fact of his food and drinks having been nearly the same both before and since quitting that article. Said he, "I never lived high; my food was always plain, and I eat now the same things I did formerly." For organs so enfeebled as his, and for so long a time, to regain their powers to so great an extent, denotes a native energy of constitution far above mediocrity.

An illustration of one frequent influence of the use of tobacco in causing neuralgic affections, is furnished by the following case of the late Chief Justice Richardson, of New Hampshire, as reported by himself in a letter dated July 31, 1837 : —

"I have never been much of a smoker or snuff-taker. I began to chew tobacco in 1807. I never was able at any time to hold in my mouth a piece larger than half a common pea, without making me sick. The practice of using it was continued till 1822, when I began to think my nerves affected by the use of it, and I abandoned it. In 1825 I resumed the use of it, taking every precaution to use it moderately. I did not carry it about me, but kept it where I could have access to it when I wanted it. I used only the mildest I could procure. But notwithstanding all my precaution, the spasms and disagreeable sensation I had formerly felt at my stomach returned. I could not persuade myself that the very moderate use I made of tobacco could be the cause, and I continued the use until within six or seven years last past. I had several most severe attacks of neuralgia, which confined me for weeks,

with the most excruciating pains in my right side and breast. It did not occur to me or to my physicians that the disorder had any connection with the use of tobacco, till in the last attack I had it occurred to me that it might be worth the trial to see what effect the abandonment of tobacco might have. This was in July, 1830. Since that time, I have had nothing to do with tobacco in any shape, I have not even taken a pinch of snuff, and during all the time I have thus abstained I have not felt the slightest symptom of my old complaints, but have enjoyed better health than I have had before for many years. I am satisfied that the use of tobacco, combined with my sedentary habits and great mental exertion, was the source of all my suffering; and my firm resolve is, never to have anything to do with it in any shape hereafter."

The influence of tobacco upon the nerves of volition is very distinct in some constitutions. D. C., Esq., of New Hampshire, at the age of seventy-nine, gave up tobacco, which he had chewed for many years. The muscles of his arms and hands had become habitually tremulous. When he was eighty-four years old, he assured me that his nerves were steady, and that he could now shoot a squirrel from the highest tree as unerringly as he could at fifty. He made this remark, that it did not satisfy him to be told that old folks could not give up bad habits; "I know," said he, "for I have tried it."

My friend Dr. Shaler, of Kentucky, recently remarked to me, that he considered the use of tobacco a stepping-stone to drunkenness; that it produced a feeling of sinking and depression at the stomach, which was relieved by alcoholic liquors. For this purpose, he usually took his brandy at least four times a day. He has done without tobacco for the last four years, and has no craving for brandy or other strong drink, and takes none.

The following statement from the late Dr. Chapman, professor of theory and practice of physic in Philadelphia, shows the influence of this article upon the functions of the alimentive organs, as well as of the brain: —

"Numerous are the instances of constipation which I have met with from this article. The primary effect of it, in whatever mode consumed, is rather aperient; and the persistent or inordinate use, directly the contrary." Also in an article on dyspepsia, the same author uses the following emphatic language: "The most common of the causes of the disease, in certain parts of our country, is the enormous consumption of tobacco in the several forms. Certain I am, at least, that a large proportion of the cases of it which come to me are thus produced. It is usually very obstinate, and sometimes of a truly melancholy character." Then follows the description of several striking cases; one "a member of Congress from the West, in the meridian of life, and of a very stout frame, who told me that he labored under the greatest physical and moral infirmity, which he was utterly unable to explain; and that from having been one of the most healthy and fearless men, he had become, to use his own phrase, 'sick all over, and timid as a girl.' He could not present even a petition to Congress, much less say a word concerning it, though he had long been a practising lawyer, and served much in legislative bodies. On inquiry, I found that his consumption of tobacco was almost incredible, by chewing, snuffing, and smoking. Being satisfied that all his misery arose from this poisonous weed, its use was discontinued, and in a few weeks he entirely recovered."

I was acquainted with a gentleman in Vermont who conscientiously abstained from all intoxicating drinks, yet died of delirium tremens from the excessive use of tobacco.

The reasonings employed in defence of the use of tobacco are sometimes not a little entertaining. A clergyman in Hamilton county, Ohio, chews tobacco, as he alleges, "to *prevent* his getting fat;" another clergyman in the same county, very lean of flesh, smokes cigars "to *make* him fat."

Several years ago, a man applied to me for advice, and commenced a narrative of his symptoms, in which I soon interrupted him by saying, "Sir, you use tobacco." "Yes," he replied, "I chew a little." "Well, sir, do you think it does you any good?" "No," said he, "I think not. I believe, on the whole, it hurts me." "Very well, then, why don't you stop it?" "Because a man naturally wants a little something, you know, to sweeten his mouth after dinner." "Pray, sir, what do you eat for dinner, if that nauseous thing will sweeten your mouth?"

A respectable lady consulted me for weakness in one eye (fistula lachrymalis), with which she had been afflicted for a number of years. I asked her if she had done anything for it. She said she had taken snuff for it. "How long have you taken snuff?" "Eleven years," was the reply. "Indeed, madam, you must have great faith in medicine, to take it perseveringly for eleven years, without a cure, or any essential improvement." "Yes," she replied, "but I suppose I am a great deal better than I should have been if I had not taken it."

A man consulted me for sore eyes and dimness of vision, which had lasted for a long time. I asked him whether he drank strong drink. "Yes," said he, "I drink a little every day." "Do you make use of tobacco?" "Yes, I'm very fond of it, and take it pretty freely." "Well, sir, before your eyes can be cured, you must quit entirely the use of liquor and tobacco." "As for the liquor," said he,

"I suppose I could stop that off, but the quitting of tobacco is out of the question." "What makes you think so, sir?" "Why," said he, "I don't believe I should have had a sign of an eye in my head by this time, if I hadn't used tobacco."

There are those who are ready to admit the habit of using tobacco to be filthy, disgusting, and pernicious, *generally;* but their own cases are peculiar, and to be regarded as exceptions. One has a tickling in his nose, calling for snuff; another a rising in his stomach, if he don't smoke; another, a dryness in his throat, if he don't chew.

How can a temperance man use tobacco? With what consistency can he ask his neighbor to abstain from alcohol, on the ground of its being injurious to body and mind, while he indulges himself in the habitual gratification of an appetite unnatural and pernicious, and holding in some respects a strong alliance with that produced by an alcoholic beverage? How long shall the widow's mite, consecrated, under many personal privations, to the great object of doing good to mankind, be perverted to sustain a disgustful and hurtful habit in the beneficiary of an education society?

What Christian can indulge himself in the habit of using tobacco — a habit which benumbs the moral sense as well as pollutes the body, that temple which is designed for the indwelling of the "Spirit of truth?" How long are the sacred altars of God to be polluted with this unhallowed offering, and the garments of the priesthood to remain uncleansed from its defilements? How long shall transgressors be called upon to listen, with a spirit of conviction and repentance, to sermons on the great duties of Christian *self-denial*, prepared and pronounced under the inspiration of this poison?

CHAPTER V.

TEA AND COFFEE.

§ I. TEA.

In the first volume of the Dublin Hospital Reports, Dr. Percival gives the following case: —

"A gentleman intending to walk some distance along the coast of Devonshire, set out in the morning of a hot summer's day, having previously breakfasted on strong green tea, a beverage to which he was not unaccustomed. Having walked twelve miles, he refreshed himself with a repetition of the same meal. Resuming his journey, he walked nine miles farther without hurry or fatigue. The heat of the day indisposed him to dine, as usual, upon animal food; and he therefore called a third time for green tea, and drank copiously of a strong infusion, eating at the same time only of bread or biscuit. He retired early to bed, resolving to use a similar diet on the following day.

"Soon after he lay down he began to feel some unusual distressing sensations about the præcordia (region of the heart), as if he were continually on the verge of fainting. But being much disposed to sleep, these sensations were for a while disregarded, and he passed two hours in a kind of troubled slumber, waking at short intervals. His respiration became irregular and oppressed, and his heart sometimes palpitated, and at other times seemed motion-

less. At length he awoke suddenly and entirely, as from a struggle of incubus. He now experienced acute pain, as from spasm, in the region of his heart; and in spite of all his efforts, he felt as if he were continually falling into deliquium. His pulse was feeble, irregular and intermitting, in an extraordinary degree; and slight fits of apparent breathlessness occurred every five or six minutes.

"He had with difficulty roused his servant in the inn where he lay, and procured from an invalid companion of his journey two opium pills, consisting of one grain each, and a small quantity of cold brandy-and-water. Deriving some temporary relief from these remedies, he again composed himself to sleep; but after an hour's slumber, almost as distressing as that which he had before endured, he awoke in great agitation, gasping for breath, and bedewed with a chilly moisture. Another pill of opium was procured, and a glass of brandy-and-water of greater strength than the former. From these he soon derived the wished-for relief, and at length fell into a sound and natural sleep, from which he awoke in the morning in perfect health.

"It deserves remark, that although perfectly unaccustomed to the use of opium and brandy, in any degree of dilution, yet he experienced neither thirst, headache, nor any other uneasy symptom from the remedies he had used in the preceding night. The bane and the antidote seemed mutually to cancel each other's noxious qualities. This gentleman has frequently used green tea, even strongly infused, since this occurrence, though never in the excess above described; and as he derives refreshment only, without inconvenience, from the beverage, it is reasonable to conclude, that no peculiarity or idiosyncrasy in his constitution occasioned the symptoms above detailed.

"A case analogous to this," continues Dr. Percival, "has

been obligingly furnished me by Dr. Harvey, whose communication I beg leave to subjoin. 'Upwards of thirty years ago, Dr. —— called upon me in the middle of the day, in the summer season. I happened to answer the door myself, as all the domestics were out looking at some public spectacle. He appeared to me to be actuated by great terror, and upon my asking him what was the matter, he said, "I have called upon you to request you would let me in, and allow me to die in your house." When he sat down, I examined his pulse, which was irregular, and scarcely discernible. He said he had called at the house of Dr. Hutcheson, and afterward at Dr. Purcell's, but finding neither at home, he came to mine, where he entreated I would allow him to expire — which event he was sure was inevitable.

"'I cannot say, at this distance of time, what circumstance it was which made me ask him if he had been drinking strong green tea. He immediately replied that he had drank a great deal of strong green tea during the whole of the preceding night, as he sat up with an uncle of his, who was to set off extremely early in a stage-coach. I gave him a large glassful of cherry brandy, and put him to bed. He slept for a couple of hours, and awoke quite relieved from all his disagreeable feelings.

"'I intended to have sent to the next apothecary's for a glass of ether and laudanum, believing that tea, coffee, and opium have antagonist powers. But from the circumstance, already mentioned, of there being nobody in the house, I waited to see the effects of the ardent spirit which had been administered.'"[1]

W. Newnham, Esq., an English surgeon, reports[2] the

[1] Dublin Hospital Reports, Vol. i. pp. 219–223. Published 1817.

[2] A pamphlet published in 1827.

following experiments, made by himself and his pupils, Mr. Carter and Mr. Nichols, upon tea:—

"An ounce of the very best gunpowder tea was infused in a pint of boiling water for twenty minutes, and divided into three portions, of which each took one.

"My pulse, which before taking the tea was perfectly regular at eighty strokes in the minute, was first quickened and rendered fuller, but in fifteen minutes it had again fallen to eighty, and had become very irregular and intermitting; in half an hour it had fallen to seventy-six, and continued exceedingly irregular. A feeling of anxiety had oppressed the heart, and a general tremor had come on, and continued for some hours, and indeed, to a certain extent, for the remainder of the day.

"The same experiment, repeated ten days afterwards, was attended with precisely similar results."

The effects upon the two pupils of this gentleman were very similar. One of them, Mr. Carter, described his first sensations to be those of temporary exaltation. "He felt a greater degree of 'confidence in himself,' which, however, quickly gave way to oppression and anxiety about the heart, palpitation, a slight degree of nausea, general tremor, and a feeling of debility, as if his knees refused to do their office in supporting the body."

There are some physicians who believe that the free use of tea has a tendency to induce disease of the kidneys. I have met with one case of diseased kidneys of which the patient, a literary gentleman, died; who for several years drank largely of tea, and once a day, at least, without food. Both tea and coffee have been observed to diminish the appetite for food, at the same time that the metamorphosis of the tissues is less active and the effete

or excrementitious parts of the blood are cast off in diminished quantity.

In reply to a letter of inquiry, dated Dec. 4th, 1859, Dr. Peter Parker, who for many years had charge of a hospital in Canton, expresses the belief that "the Chinese as a race do consume more tea than any other. Coffee is little known in China. The use of tea is universal; all classes drink it, and many several times a day. They drink it warm, tepid, and cold; I think they seldom take it *hot*, as Europeans do."

By the earlier Jesuits tea was recommended as a protection against calculous disorders. Dr. P. says: "I am of opinion that tea is *not antilithic*. That its free use is injurious to the kidneys has never occurred to me. Yet it is a fact that renal affections are very common in China, and foreigners residing there are not exempt from them. A large number have been under my care."

Dr. P. is of opinion that "stone is common throughout the Chinese Empire." One patient, a boy of ten years, born in Pekin, was brought to him. Dr. P. says: "I know the disease to be prevalent in the south of China; and it is as prevalent in the towns and country villages as in the densely populated cities." The doctor has a collection of *thirty-eight* calculi, which he took by the lateral operation in eleven years ending in 1855.

The animal food eaten by the poorer classes consists principally of dogs, cats, and rats. "Pork is very abundant and excellent, and consumed by all classes, and freely. I should judge that *nine* tenths of it is eaten *fresh*."

It is quite remarkable that Dr. Scudder, an intelligent missionary physician at Ceylon, who for seventeen years was in the habit of prescribing for all who called on him

from a population of two hundred thousand, never, as he declared to me, met with a single case of stone in the bladder among all his patients.

Tea-Tasting. — A New York correspondent gives the following particulars of the effects of "tea-tasting" and sampling upon the constitutions of those engaged in the business: —

"The death of a famous tea-broker in this city, lately, calls to mind the curious nature of his business. I wonder if any of your readers at the West know that their fastidiousness in the choice of the herb which cheers, but not inebriates, is the cause of the establishment of a profession, called "tea-tasting," which is as certain death to a man as the continued practice of opium-eating. The success of the tea-broker, or taster, depends upon the trained accuracy of his nose and palate, his experience in the wants of the American market, and his business tact. If he has these qualities in high cultivation, he may make from $20,000 to $40,000 per annum while he lives, and die of ulceration of the lungs. He overhauls a cargo of tea, classifies it, and determines the value of each sort. In doing this, he first looks at the color of the leaf, and the general cleanliness of it. He next takes a quantity of the herb in his hand, and breathing his warm breath upon it, he snuffs up the fragrance. In doing this he draws into his lungs a quantity of irritating and stimulating dust, which is by no means wholesome. Then, sitting down at the table in his office, on which is a long row of little porcelain cups and a pot of hot water, he "draws" the tea, and tastes the infusion. In this way he classifies the different sorts, to the minutest shade, marks the different prices, and is then ready to compare his work with the invoice. The skill of these tasters is truly marvellous, but the effect of the busi-

ness on their health is, as I have said, ruinous: they grow lean, nervous, and consumptive. At the end of a hard day's work they feel and act as fidgety and cross as a hysteric old maid."

§ II. COFFEE.

Coffee, like tea, on persons of a certain temperament, accustomed to its habitual and free use, has a damaging effect, producing a severe headache, which makes its attack at irregular intervals, generally in the morning, without premonition, and continues through the day.

"*The Coffee Headache* is an intolerable and frequently burning pain, attended with great sensitiveness of the scalp, so that the slightest touch is painful. The body and mind appear unpleasantly sensitive. The patient, apparently deprived of strength, seeks a solitary and dark spot, to avoid the light of day. He closes his eyes and passes his time (generally reclining on his back, with the head elevated) in a kind of wakeful slumber. Every kind of motion or noise increases his sufferings. He dislikes to speak, and avoids the conversation of others. The coffee headache appears early in the morning, soon after waking, and gradually increases, and seldom disappears before evening. The body is chilly, the feet and hands often cold. This headache recurs at irregular periods, from fourteen days to three or four weeks, and often takes place without premonition. Often, the night before the attack, the patient has no warning of the coming paroxysm the next morning."[1]

Dr. Hatch's Case. Dr. Hatch (over forty years of age) for the last year has drank cold water instead of coffee

[1] Hahnemann's Essay on Coffee.

and tea as formerly, and takes but a very small quantity of meat. The effect has been to exempt him from sick headache, which, for many years, he had once a fortnight, often once a week, so severely as to confine him to his bed for half a day, sometimes a whole day. He was generally obliged to take to his bed when attacked with it. He remarked to me to-day,[1] that for the last year he had not felt enough headache to detain him a moment from his professional practice, which is so great as to keep him almost constantly employed.

A young lady, a school teacher, consulted me for sick headache. She had had it for some years, and at the time she applied to me it recurred once in from two to four weeks. It came on in the morning, as she awoke from sleep, after an unusual degree of exhilaration of spirits the evening before. It always occupied a whole day, during which she required seclusion from light and noise. I prescribed an entire change of diet: unbolted flour-bread, with other vegetable aliment, and water for the only drink. She had been very much addicted to coffee-drinking. Her comment upon my prescriptions was this: "Oh," said she, "how the idea of that cold water in my stomach makes me shudder!" She pursued the course, however, resolutely and perseveringly; and months afterwards, when I saw her, she was well, and had not experienced a single return of the complaint.

Dr. C., of Essex County, Massachusetts, had a patient, a man of forty to forty-five years of age, with naturally a good constitution, who had been subject to violent palpitation of the heart for many years. He first laid aside the use of spirit, then of tobacco, both of which he had used

[1] Hanover, May 28, 1836.

temperately, and was much benefited, though far from being cured by the change. He still continued to drink strong coffee and tea, which he had taken for some years. Coffee was the main drink. He often took it twice, and occasionally three times, a day.

In about one year after leaving his tobacco he quitted coffee and tea, and used cold water as his only drink. He was immediately relieved, and in a short time entirely well, and has remained so ever since — a period of more than two years. He is also much less troubled with colds than formerly.

The same physician was in several instances consulted by another patient, a young man about thirty years of age, on account of a severe palpitation of the heart, with which he had been afflicted for more than two years. He had taken strong coffee twice or three times a day, for several years. The doctor gave him various medicines at different times, with no lasting benefit. He at length, two years ago, prescribed the disuse of coffee. The patient was immediately better, and has been well since, and has not had a single attack of the complaint except after taking a cup of coffee, as he has occasionally done when away from home. In every such instance the coffee has brought on an attack of his palpitation.

Dr. C. himself was often troubled with throwing off his food soon after eating. This complaint lasted six or eight years. After quitting his tea and coffee, and resorting to water as his only drink, the affection immediately disappeared, and he has since had nothing of it.

We have no means of measuring the permanent influence upon health of coffee and tea as they are ordinarily taken in the farming districts of our country. Some individuals attain a high age under the use of one or both

of them, at a moderate strength. But it is not rare to meet with those who suffer disorder of the heart, the stomach, or the head, which is removed by their disuse.

Early in my professional life I drank for a few years two large cups of rather strong coffee every morning, except when I was from home, and could not get it. Ultimately I felt, within an hour after breakfast, a nausea which ended in vomiting a great part of what I had eaten. For some time I was at a loss to account for this new state of stomach. At length I suspected that my coffee had something to do with it. I laid it aside, and was almost immediately well of the complaint. Since that time I have not taken it at all, except perhaps in half a dozen instances, by way of experiment. It has operated upon the bowels like a saline cathartic.

CHAPTER VI.

CASPAR HAUSER.

The case of Caspar Hauser is introduced here on account of his remarkable nervous system, scarcely less sensitive than that of a new-born infant.

His history was most extraordinary. At the age of sixteen or seventeen, he was discovered (May 26, 1828) in the streets of Nuremberg, an entire stranger to everybody, and unacquainted with language, except a few phrases, which he repeated over and over. He was kept in the tower of the prison at Nuremberg till the 18th of the following July, when he was transferred to the family of Professor Daumer, who undertook his education. Oct. 17, 1829, while at Prof. Daumer's house, an attempt was made upon his life, by an assassin. In Dec. 1831, he went to reside at Anspach. In 1832, a publication of his mysterious history was made by Anselm Von Feuerbach, an eminent jurist, including notes by Prof. Daumer. Dec. 14, 1833, he was murdered.

From his earliest recollection, until he was carried to Nuremberg, — probably in an artificial sleep, and from what distance no one can tell, — he had been kept in a narrow dungeon, and had lived exclusively upon bread and water. He was left wandering in the streets, with no other guide than a letter addressed to a captain of cav-

alry; and from his subsequent history we gather some peculiar facts. Von Feuerbach says: "Of his astonishing memory, which is as quick as it is tenacious, he gave us the most striking proofs. In noticing any of the numerous things, whether small or great, which were in his possession, he was able to mention the name and the title of the person who had given it to him; and if several persons were to be mentioned, whose surnames were alike, he distinguished them accurately, by their Christian names or by other marks of distinction. About an hour after we had seen him, we met him again in the street, it being about the time when he was conducted to the burgomaster's. We addressed him; and when we asked him whether he could recollect our names, he mentioned, without the least hesitation, the full name of every one of the company, together with all our titles, which must nevertheless have appeared to him as unintelligible nonsense. His physician, Dr. Osterhausen, observed, on a different occasion, that when a nosegay had been given him, and he had been told the names of all the different flowers of which it was composed, he recognized, several days afterwards, every one of these flowers; and he was able to tell the name of each of them. But the strength of his memory decreased afterwards, precisely in proportion as it was enriched, and as the labor of his understanding was increased." "Uncleanliness, or whatever he considered as such, whether in his own person or others, was an abomination to him. He observed almost every grain of dust upon our clothes; and when he once saw a few grains of snuff upon my frill, he showed them to me, briskly indicating that he wished me to wipe those nasty things away.

"One of the most difficult undertakings was to accus-

tom him to the use of ordinary food, and this could be accomplished only by slow degrees, with much trouble and great caution. The first that he was willing to take, was water gruel, which he learned to relish daily more and more, and on this account he imagined that it was every day made better and better; so that he would ask what was the reason that it had not been made so good at first. Also all kinds of food prepared from meal, flour, and pulse, and whatever else bore a resemblance to bread, began soon to agree with him. At length he was gradually accustomed to eat meat, by mixing at first only a few drops of gravy with his gruel, and a few threads of the muscular fibres of which the juices had been well boiled out, with his bread, and by gradually increasing the quantity."

In the notes respecting Caspar Hauser which Professor Daumer has collected, he has made the following observations: "After he had learned regularly to eat meat, his mental activity was diminished; his eyes lost their brilliancy and expression; his vivid propensity to constant activity was diminished; the intense application of his mind gave way to absence and indifference, and the quickness of his apprehension was also considerably diminished. Whether this was really the effect of his feeding on meat, or whether this bluntness was not rather the consequence of the painful excess of excitement which preceded it, may justly be questioned. We may, however, conclude with much greater certainty, that the change of his diet, which was made by accustoming him to warm nourishment and to some animal food, must have had a very perceptible effect upon his growth. In Professor Daumer's house, he increased more than two inches in height, in a very few weeks. The inflammation of his eyes, and the constant

headache with which every application of his eye-sight was attended, made it impossible for him to read, to write, or to draw.

"Of the beauties of nature he had no perception. Nor did nature seem to interest him otherwise than by exciting his curiosity, and by suggesting the question, who made such a thing? When, for the first time, he saw a rainbow, its view appeared for a few moments to give him pleasure. But he soon turned away from it; and he seemed to be much more interested in the question, who made it? than in the beauty of its apparition. Yet there was one view which made a remarkable exception from this observation, and which must be regarded as a great and never-to-be-forgotten incident in the gradual development of his mental life. It was in the month of August, 1829, when, on a fine summer evening, his instructor showed him, for the first time, the starry heavens. His astonishment and transport surpassed all description. He could not be satiated with its sight, and was ever returning to gaze upon it; at the same time fixing accurately with his eye the different groups that were pointed out to him, remarking the stars most distinguished for their brightness, and observing the differences of their respective color. 'That,' he exclaimed, 'is indeed the most beautiful sight that I have yet seen in the world. But who has placed all these numerous, beautiful candles there? Who lights them? Who puts them out?' When he was told that, like the sun, with which he was already acquainted, they always continue to give light, he asked again, 'Who placed them there above, that they may always continue to give light?' At length, standing motionless, with his head bowed down, and his eyes staring, he fell into a train of deep and serious meditation. When he again recov-

ered his recollection, his transport had been succeeded by deep sadness. He sank trembling upon a chair, and asked why that wicked man had kept him always locked up, and had never shown him any of these beautiful things."

Of the almost preternatural acuteness of his senses, his biographer says: "As to his sight, there existed in respect to him no twilight, no night, no darkness. This was first noticed by remarking that at night he stepped everywhere with the greatest confidence; and that, in dark places, he always refused a light when it was offered to him. He often looked with astonishment or laughed at persons who, in dark places, for instance, when entering a house, or walking on a staircase by night, sought safety in groping their way, or in laying hold on adjacent objects. In twilight he even saw much better than in broad daylight. Thus, after sunset, he once read the number of a house at the distance of one hundred and eighty paces, which in daylight he would not have been able to distinguish so far off. Towards the close of twilight, he once pointed out to his instructor a gnat that was hanging in a very distant spider's web. At a distance of certainly not less than sixty paces, he could distinguish the single berries in a cluster of elder-berries from each other, and these berries from black currants. It has been proved by experiments carefully made, that in a perfectly dark night he could distinguish different dark colors, such as green and blue, from each other. His sight was as sharp in distinguishing objects near by as it was penetrating in discerning them at a distance. In anatomizing plants, he noticed subtile distinctions and delicate particles, which had entirely escaped the observation of others.

"Scarcely less sharp and penetrating than his sight was his hearing. When taking a walk in the fields he once

heard, at a distance comparatively very great, the footsteps of several persons, and he could distinguish these persons from each other by their walk. He had once an opportunity of comparing the acuteness of his hearing with the still greater acuteness of hearing evinced by a blind man, who could distinguish even the most gentle step of a man walking barefooted. On this occasion he observed that his hearing had been formerly much more acute, but that its acuteness had been considerably diminished since he had begun to eat meat; so that he could no longer distinguish sounds with so great a nicety as that blind man.

"Of all his senses, that which was the most troublesome to him, which occasioned him the most painful sensations, and which made his life in the world more disagreeable to him than any other, was the sense of smelling. What to us is entirely scentless, was not so to him. The most delicate and delightful odors of flowers, for instance the rose, were perceived by him as insupportable stenches, which painfully affected his nerves. What announces itself by its smell to others only when very near, was scented by him at a very considerable distance, excepting the smell of bread, of fennel, of anise, and of caraway, to which he says he had already become accustomed in his prison, for his bread was seasoned with these condiments. All kinds of smells were more or less disagreeable to him. When he was once asked which of all other smells was most agreeable to him, he answered, "None at all." His walks and rides were often rendered very unpleasant by leading him near to flower gardens, tobacco fields, nut-trees, and other plants which affected his olfactory nerves; and he paid dearly for his recreations in the free air, by suffering afterwards from headaches, cold sweats, and attacks of fever.

"He smelt tobacco, when in blossom in the fields, at the distance of fifty paces, and at more than a hundred paces when it was hung up in bundles to dry, as is commonly the case about the houses in the villages near Nuremberg. He could distinguish apple, pear, and plum trees from each other, at a considerable distance, by the smell of their leaves. The different coloring materials used in the painting of the walls and furniture, and in the dyeing of cloths, etc., the pigments with which he colored his pictures, the ink or pencil with which he wrote, all things about him, wafted odors to his nostrils which were unpleasant or painful to him. If a chimney-sweeper walked the streets, though at the distance of several paces from him, he turned his face shuddering from his smell. The smell of an old cheese made him feel unwell, and affected him with vomiting. The smell of strong vinegar, though fully a yard distant from him, operated so powerfully upon the nerves of his sight and smell, as to bring the water into his eyes. When a glass of wine was filled at table, at a considerable distance from him, he complained of its disagreeable smell, and of a sensation of heat in his head. The opening of a bottle of champagne was sure to drive him from the table or make him sick. What we call unpleasant smells were perceived by him with much less aversion than many of our perfumes. The smell of fresh meat was to him the most horrible of all smells. When Professor Daumer, in the autumn of 1828, walked with Caspar near to St. John's church-yard, in the vicinity of Nuremberg, the smell of the dead bodies, of which the Professor had not the slightest perception, affected him so powerfully that he was immediately seized with an ague, and began to shudder. The ague was soon succeeded by a feverish heat, which at length broke out into a violent

perspiration, by which his linen was thoroughly wet. He afterwards said that he had never before experienced so great a heat. When on his return he came near to the city gate, he said that he felt better; yet he complained that his sight had been obscured thereby. Similar effects were once experienced by him when he had been for a considerable time walking by the side of a tobacco-field."

Prof. Daumer found him peculiarly sensitive to the presence of metals, and these results are given of experiments with the magnet, etc. "When Professor D. held the north pole towards him, Caspar put his hand to the pit of his stomach, and, drawing his waistcoat in an outward direction, said that it drew him thus; and that a current of air seemed to proceed from him. The south pole affected him less powerfully, and he said that it blew upon him. Professor Daumer and Professor Hermann made afterwards several other experiments similar to these, and calculated to deceive him; but his feelings always told him very correctly, and even though the magnet was held at a considerable distance from him, whether the north pole or the south pole was held towards him. Such experiments could not be continued long, because the perspiration soon appeared on his forehead, and he began to feel unwell.

"In autumn, 1828, he once accidentally entered a store filled with hardware, and particularly with brass wares. He had scarcely entered before he hurried out again, being affected with violent shuddering, and saying that he felt a drawing in his whole body, in all directions. A stranger who visited him once slipped a piece of gold of the size of a kreutzer into his hand without Caspar's being able to see it; he said immediately that he felt gold in his hand. At a time when Caspar was absent, Professor Daumer

placed a gold ring, a steel and brass compass, and a silver drawing-pen under some paper, so that it was impossible for him to see what was concealed under it. Daumer directed him to move his fingers over the paper without touching it; he did so, and by the difference of the sensation and strength of the attraction which these different metals caused him to feel at the points of his fingers, he accurately distinguished them all from each other, according to their respective matter and form. Once, when the physician, Dr. Osterhausen, and the royal crownfiscal Brunner, from Munchen, happened to be present, Mr. Daumer led Caspar, in order to try him, to a table covered with an oilcloth, upon which lay a sheet of paper, and desired him to say whether there was any metal under it; he moved his finger over it, and then said, 'There it draws.' 'But this time,' said Daumer, 'you are mistaken, for' (withdrawing the paper) 'nothing lies under it. Caspar seemed at first to be somewhat embarrassed, but he put his finger again to the place where he thought he had felt the drawing, and assured him repeatedly that he *there* felt a drawing. The oilcloth was then removed, a stricter search was made, and a needle was actually found there. He described the feeling which minerals occasioned him as a kind of drawing sensation, which passed over him, accompanied with a chill, which ascended, accordingly as the objects were different, more or less up the arm; which was also attended with other distinctive sensations. At the same time the veins of the hand which had been exposed to the metallic excitative were visibly swollen."

In 1859 Professor Daumer himself published a further account of this extraordinary person, from which the following statements are extracted: —

"The uncommon faculties which Hauser manifested in

the early period, as well as the very peculiar fineness and delicacy of his whole being which distinguished him at that time, were in evident connection with his pure and innocent diet. These peculiar qualities continued in him even when he no longer, as in the beginning, lived upon mere bread and water, but upon water soups, chocolate, and preparations of milk. He lost them, however, as soon as he became accustomed to meat, which food had a particularly dulling and enfeebling effect, although he was brought into it very gradually, and with extreme caution. He lost the unexampled sensitiveness to animal and mineral influences, which were so trying and tormenting to him. This was counted upon, and the expectation was fully verified; but something else showed itself which had not been intended. The astonishing fineness and keenness of his senses also diminished, especially his far-reaching eye and ear; and unfortunately also his great power of comprehension and memory disappeared. He did not become stupid and dull, neither was he, nor did he ever become, lazy; but he comprehended and learned no longer with his former facility, and showed in his whole being and development no more extraordinary powers and talents, and appeared in almost every respect as a common person.

"I find in my annotations the following remark: 'Hauser developed with the greatest rapidity in the first period until he became sick in the tower. Then came a period in which he indeed could apprehend very well, and on the whole made great progress, but on account of over-irritated nerves was very little fit for definite work or exertion; just as it happens that a morbidly irritable eye can see, to be sure, but not without pain and evil consequences. With the habit of eating meat came another

condition of things. His mental activity was impaired; his eyes lost their lustre and expression; his desire for work was gone; the intensity of his being passed over into indifference and a seeking after diversion; his power of apprehension was diminished. His condition was not so much that of over-irritation and pain, but it was that of dulness. This is not to be understood as if there were no traces left of spirit and talent. It is rather to explain the first violent effect of that diet.'

"I have mentioned already in my communications that he had also afterwards moments of clearer and more spiritually-exalted condition; times when the spiritual qualities, formerly so much admired in him, showed themselves at least for a while. At intervals he would even have flashes of poetical talent and speculative philosophical power, which could excite the highest admiration. In March, 1829, he showed again a more active psychical life, and more energetic thinking. His eye beamed as formerly, and his countenance regained its former expression of spirituality. His brain worked incessantly, and he formed, especially on religious subjects, many opinions with great clearness and distinctness. Very remarkable also was his spiritual condition after he was wounded in my house, October 17, 1829. This wound had the effect to put him back into the same condition in which he was before he began to eat meat, namely, with his mental gifts and exaltation returned; for instance, his sensitiveness to metal, glass, and animal influences.

"I hereby bear testimony that Hauser's appetite was strictly and exclusively for bread and water only; that during the period of this diet he never wanted anything else, liked anything else, bore anything else, nor took anything else of his own accord. Especially everything ani-

mal was terrible to him; flesh a real disgust, physically; and the idea of eating anything that was killed, a horror for his heart and his imagination. After he had been living for some time on water gruel, milk porridge, and chocolate, he became at last, and only with great difficulty and after long preparation, accustomed to our common food. Even a single drop of meat soup mingled with his water gruel was perceived by him. All spicy, spirituous, and exciting things, such as wine, beer, coffee, and tea, were absolutely intolerable to him. Only the few spices which he formerly had eaten with his bread made an exception.

"Burgomaster Binder speaks of the sensitiveness of his olfactories and nerves of taste to the simplest things; as, for instance, flowers, strawberries, milk. In my communication I have reported: 'From meat he becomes feverish; vegetable acids cause painful irritation; sweets are disagreeable to him; everything spicy and spirituous produces symptoms of an alarming character. Indulgence in grapes, or in fresh grape-juice, brought on a state of elevation, excitement, and drunkenness in such a degree that he was obliged to sleep off the intoxication.'

"Feuerbach writes in a letter, dated Sept. 20, 1828: 'He could eat only bread and water; every other drink, even milk, and the smallest morsel of meat, caused not only nausea and shuddering, but even fever in him. Even now he eats neither meat, nor vegetables, nor fruit.' Of Hauser's later manner of living in Anspach, Feuerbach reports: 'His present diet is almost the same as that of other people; he eats, with the exception of pork, all kinds of food, without any heating spices. His favorites continue — caraway seed, fennel and coriander. His drink is water, only in the morning he takes a cup of homœo-

pathic chocolate. All fermented liquids, beer, wine, and also tea and coffee, continue to be a horror to him, and would make him infallibly sick if even a drop were forced upon him.'

"In my communications I have said that snuff, tobacco, and spirits were forced upon him, to whom the very smell of such things was horrible; and he was thereby thrown into a condition which made even those barbarians tremble who did it, or allowed it to be done.

"From the smell of whiskey, which was placed near him, he had the headache for days. From cheese, which he was forced to eat, pressure of the stomach, also lasting.

"Hauser, in his former unknown prison, has not eaten common, coarse, black bread, but a finer, strongly spiced kind, such as is baked in the country on festival occasions and for the better classes. The bread which he ate in Nuremberg was by no means what he desired. He ate it, but only for want of the better, which he with difficulty dispensed with, and had a constant longing for. When he once accidentally caught sight of this bread he cried for joy. The spices of this bread were the only dietetic excitements which he loved and could bear; an exception founded upon habit. These spices were caraway, anise-seed, coriander, and fennel seed; and it is remarkable how he, in spite of his otherwise unexampled debility and irritability, could bear the strongest fennel-seed sugar from the druggists, also caraway tea, which answered with him medicinal purposes.

"No one will undertake to assert that it was possible for Hauser to produce, by the mere exercise of will, and for the purpose of deception, such symptoms, when it is considered that besides being thrown into convulsions by the influences as described, he also changed color in

the face, became yellow over his whole body, sudden perspiration appeared on his forehead, his eyes filled with tears and gave evidence of inflammation, the veins and limbs swelled, the fingers exposed to the effect became cold, dry cold, while the rest of the hand perspired. Bleeding from the nose, vomiting, rapid emaciation ensued, etc. etc."[1]

After his death, the popular feeling was somewhat allayed by the appearance of a pamphlet which proposed to make Caspar an *impostor;* another opinion diligently propagated was, that he was an *idiot.* The authors of these attempts, it is natural to conjecture, felt an interest in having Caspar put out of the way. Feuerbach had investigated the case before his publication in 1832, and seems to have leaned to the opinion that Hauser was the legitimate heir to the Grand Duchy of Baden.

[1] Professor Daumer's publication, 1859.

CHAPTER VII.

ORGANIC SYMPATHIES.

The human body is made up of numerous organs or parts, each designed for a specific office or function, yet so associated that a morbid impression upon one may be extended to one or all of the others. Organs the most essential to the maintenance of life exhibit the liveliest sympathies. The alimentary canal, the lungs, and the skin, are so many inlets to foreign articles, which are required for the nutrition and activity of the body, at the same time that they give exit to worn-out materials, which become poisonous unless they are cast off. In this last work they are joined by the kidneys.

The stomach is a wonderful organ. Doomed, as it is, with all its delicacy of structure, to take into itself and try its powers upon the thousand products of the animal and vegetable kingdoms, and that too at all temperatures, from boiling hot to icy cold, it is no marvel that the head, the heart, the lungs, the skin, the bowels, and the voluntary muscles, should give the alarm, or take part in efforts for relief.

The whole system sympathizes with the stomach in the digestion of food, by furnishing nervous influence in greater amount than it requires when empty, causing a general languor and inactivity. But when the quantity of

food is in excess, or the quality objectionable, the torpor is more deep and prolonged. In some instances there is an annoying sense of fulness, or oppression at the pit of the stomach, amounting sometimes to pain, spasm, and convulsion.

There is at the outlet of the stomach a valvular or sphincter-like arrangement of muscular fibres, called the *pylorus*, the object of which is to keep the passage into the intestines shut against the contents of the stomach while undigested. Here the pylorus, like a faithful sentinel, stands to guard the intestines against the incursion of an enemy so hostile to their healthy operations. As if endowed with intelligence, it seems to say, "No; you can't come out here: if you cannot be changed into chyme where you are, then go back the way you came, through the gullet and the mouth. If you were to be let through here, you might put in jeopardy our whole commonwealth of alimentary organs."

A student, pursuing a college education, ate, late at evening, a liberal meal of beef-steak, when probably little or no food was necessary. What he drank with it was not mentioned. That night he scarcely slept. A physician was called in the morning; the patient had a sense of weight or load, and at intervals violent pain in the stomach, with an oppressed pulse. Not inclined to an emetic, he took, with some relief, the volatile alkali and the bicarbonate of soda. He passed the day and the following night uncomfortably, with occasional cat-naps and paroxysms of suffering. The following morning, nausea and vomiting came on, in which the beef-steak was thrown off, with scarcely a trace of digestion having been begun. In three days he was able to resume his *literary* pursuits.

Early in my professional life I visited a child of a year and a half, in convulsions, about an hour after the family had dined. On learning that the child had taken freely of baked mutton, I gave it an emetic; lumps of the mutton, of course unmasticated, were in succession thrown off, to the amount, as it then seemed to me, of rather more than a gill. The little patient then became conscious, though languid, and was well the next day. In these cases, the voluntary muscles sympathize with the oppressed organ.

It is now fifty years since a case belonging to the same category came to my knowledge. A lady of my acquaintance, about forty-five years of age, after eating freely of animal food, and the ordinary accompaniments at that time of a genteel dinner, was attacked at evening with frightful stomach spasms. A physician, eminent in that region, was called. He began by giving an opium pill of five grains, and repeated it at short intervals until relief was given. The doctor afterwards related the case to me, and seemed to derive great satisfaction from the consideration that he gave nothing but opium, and that he had the sagacity to follow it up till his patient had taken *two drams of excellent opium*, as he expressed it. The good lady was prostrate and helpless for several days, but having a good constitution, she ultimately recovered. An emetic would have been the appropriate and safer remedy.

Undigested articles of food which have passed the pylorus into the intestines, sometimes excite frightful convulsions before they are discharged; while other articles, less irritating, lodged in some part of the intestinal tube, occasion chronic indisposition, which may last for days, or even weeks, Dr. Watson says months. When a student in medicine, I frequently visited with my preceptor a lady

of forty years by estimation, who for three or four weeks had been an invalid, with occasional nausea, pains in the bowels, and an irregular diarrhœa, great prostration of strength, and a sallow skin. The doctor, a distinguished physician, was at a loss as to the nature of the case, and varied his treatment without apparent benefit, until, under the use of mild laxatives with subtonics, his patient was greatly relieved by a discharge from the bowels of a considerable quantity of greens, which I think were the leaves of the dandelion, and which had been eaten no less than six weeks before. From this time she rapidly recovered.

In certain irritations of the stomach, where the quality of food, rather than the quantity, is at fault, spasm or cramp in one or more of the voluntary muscles, commonly in the lower limbs, may rouse from his slumbers a person who considers himself to be in good health. For several years in succession I could not eat at midday or after a piece of sponge-cake, or even of common gingerbread, without being awaked the following night by a cramp in the right leg or foot, either in one of the fibular muscles at the middle of the leg, or in the short extensor of the toes. I always found immediate relief from drinking half a glass of water, or the solution of twelve or fifteen grains of the bicarbonate of soda.

On one occasion I slept in the same chamber with an excellent medical friend. His voice, under the pain of cramp, awoke me. I got up and handed him a glass of water, which he drank, and in a few moments was easy. He presently remarked that he had not known that water was a remedy for cramp in the legs. I replied that I supposed it operated by diluting the acid or irritating materials in the stomach, thus weakening the impression

with which the muscles sympathize. I had observed him the day before topping off his dinner with a piece of hot mince pie. An eminent physician in Massachusetts, who attained a high age, was very subject to cramp of the legs in the night. He kept under his pillow a bottle of dilute solution of ammonia, of which a small portion, when he was roused by his cramp, gave prompt relief.

"Dr. Wollaston had eaten some ice-cream after dinner, one day, and his stomach did not seem capable of digesting it. Some time afterwards, when he had left the dinner-table for the drawing-room, he found himself rendered lame by a violent pain in the ankle. Suddenly he became sick, the ice-cream was vomited, and instantaneous relief from the pain followed its ejection from the stomach."

"A gentleman," says Sir Benjamin Brodie, "awoke in the middle of the night, laboring under a severe pain in one foot. At the same time certain other sensations, to which he was not unaccustomed, indicated the existence of an unusual quantity of acid in the stomach. To relieve the latter, he swallowed a large dose of alkaline medicine. Immediately on the acid of the stomach being thus neutralized the pain in the foot left him."[1]

Sympathetic pains in particular nerves are often severe, and sometimes seemingly capricious. A few days after arriving in Paris, in the month of May, with a good appetite, after a protracted sea-sickness, I had an attack in the forenoon, at a distance from my lodgings, of exquisite pain in the right fibular nerve at the middle of the leg. I could walk only a few steps, in the greatest agony. Luckily a carriage was near, in which I reached

[1] Watson, Lecture 39.

my lodgings. The painful spot was too sensitive to bear the least pressure. Immediately I took ten grains of the sulphate of quinine, which I was led to do under the suspicion of a malarious element in the source of the pain, from lake exposure the preceding autumn. In half an hour there was no more pain nor tenderness; the part which had been so sensitive would bear any amount of pressure as well as the corresponding nerve in the other leg. There was no return of the pain afterward.

I have known several instances of protracted pain in the heel and sole of the foot, which I attributed to a sympathetic relation of these parts with the stomach, or possibly with some other part of the alimentary canal. A few years since, away from home, about two hours after breakfasting upon such food as I had been accustomed to, but very differently cooked, I was seized with an acute pain in the lower surface of the great toe, as if the spine of a thistle had been suddenly thrust into the part, or the sting of a bee had penetrated to the most sensitive point. This lasted fifteen or twenty minutes, and after having entirely subsided for half an hour, returned, to stay but ten or twelve minutes. I attributed this to some peculiar impression in the stomach. This fine nerve has twinged for a few moments at a time only twice since.

Stomach irritation under difficult digestion is sometimes attended with a copious flow of tears, mixed with more or less mucus from the lining membrane of the eyelids. This sympathetic relation between the stomach and the appendages of the organ of vision is more commonly exhibited in advanced life, but it is not confined to it. I have seen a man of middle age assiduously wiping his eyes in the forenoon, and complaining of a great flow

of tears, which, although a physician of distinction, he was unable to explain; notwithstanding that in the preceding night he had been almost without sleep, and instead of it had been loading his stomach with poultry, cake, fruits, and wine.

In rare instances entire blindness in one or both eyes has its origin probably in the stomach. Major K., a farmer in New Hampshire, seventy years old, generally healthy, though occasionally troubled, as he said, with rheumatism, found himself on rising from bed one morning blind in one eye. There was no inflammation visible upon the coats of the eye, nor did his general health seem materially to suffer, and he kept about his ordinary occupations as before.

After three and a half months of uninterrupted blindness, in which he could only distinguish daylight from total darkness, he commenced taking, by the advice of his son, Dr. T. K., a physician, the volatile tincture of guaiacum in the dose of a table spoonful in a glass of milk three times a day. In one week he found his vision returning, and in two weeks more it was entirely restored. He lived to the age of ninety-two, and occupied much of his time in reading. The blindness never returned, and there were no more attacks of rheumatism. I have supposed that the defect of vision in this case was sympathetic of a morbid impression, either in the stomach or some other part of the alimentary canal, which was ultimately modified or removed by the medicament.

Partial paralysis of the retina sometimes occurs in connection with irritation or oppression of the stomach from some undigested material or an excess of acidity. The patient, looking at his friend, sees perhaps but one eye and no nose upon his face; at the same time sharp, angular

lines of prismatic colors are in motion before his eyes, but not directly in the axis of vision. These symptoms soon pass off spontaneously, or are quickly removed by a draught of water holding in solution a few grains of carbonate of ammonia or bicarbonate of soda.

Nausea and vomiting from a blow upon the head evince the sympathy between the stomach and the brain. Dizziness is commonly owing to materials in the stomach difficult of digestion, the brain sympathizing.

The Stomach and the Heart. — Almost every variety of pulse may arise from a stomach over-distended with food or with gas; the brain too takes a share in the derangement, in frightful dreams and spectres as in nightmare. There is reason to believe that many of those who die unexpectedly in their beds have the heart's motion suddenly stopped by an oppressed stomach. An intermitting pulse after a full meal is no uncommon thing with dyspeptics or with persons advanced in life, even when there is no evidence of structural disease of the heart. A gentleman of standing in New England several years since visited Europe to learn more about his intermittent pulse, impressed with the belief that he had organic disease of the heart, and came home with his impression fully confirmed. He was in the habit of eating at evening a warm supper, — roast chicken and duck were his favorite dishes. He died short of old age; and a post mortem inspection of his heart found it free from organic disease.

For this intermission of the pulse some physicians have prescribed alcoholic drinks, as brandy, Bourbon whiskey, Schiedam schnapps or Dutch gin! I have known vegetable tonics, as sulphate of quinine, to correct the intermission. Dr. Headland refers to a case by Darwin, in which the suspension of the pulse occurred every third

or fourth beat, successfully treated by giving three times a day four drops of a saturated solution of arsenious acid. In a girl of sixteen I knew a remarkable irregularity of pulse, which had lasted several weeks, to pass off entirely under medication of the digestive organs.

The Stomach and Lungs.—When the stomach is stimulated by the introduction of food, as at ordinary meals, there is commonly an extra secretion of mucus or phlegm in the bronchial tubes; with some individuals the quantity of this bronchial mucus is very large, and is dislodged by expectoration. In common colds or catarrhs this secretion from the bronchial membrane bears a direct relation to the state of the stomach. In asthma, the influence of a guarded diet in moderating the severity of the paroxysms, or in suspending them for a long period, is another instance indicative of this relation between the stomach and the lungs. Oppressed breathing, with cough, in connection with a stomach overloaded or irritated with food, is speedily relieved by an emetic.

The Stomach and Kidneys show their relation to each other in the speedy removal by the urine of various aromatic and irritating articles, as juniper berries, balsam of copaiva, and spirits of turpentine.

The Intestines, having an organization analogous to that of the stomach, show sympathies very like those which belong to that primary receptacle of aliment. When the peristaltic action of the intestines for a length of time is arrested, as in volvulus or strangulated hernia, there is great prostration of power in the voluntary muscles. From irritations in the intestines, cramps and convulsions in the voluntary muscles sometimes take place. In rare instances of irritation from retained fæces in constipation, there is a convulsive movement of a single voluntary muscle.

Mrs. J——, a lady of forty-five, who for many years was subject to constipation and piles, and had taken at irregular intervals various kinds of aperient medicine, and by whom my advice for a modification of her diet, to promote regularity of the bowels, had been irregularly followed, was attacked with a convulsive twitching of the outer portion of the right lower eyelid. This convulsive action, always aggravated by mental emotion, was relieved at times by the operation of a cathartic, but rarely if ever a day passed for five years without it. In the spring and summer of 1858, she took every morning before breakfast a glass of the artificial Kissingen water, which always operated as an aperient. This affection of the lid, when I saw her in October of 1858, had been wholly suspended for the last five months. During the winter of 1858–9 she omitted the mineral water, and in May, 1859, the inactivity of the bowels had in a degree returned, and with it an attack of the involuntary motion of the eyelid.

This is one of those cases which, under a suitable diet and regimen, might admit of an entire cure without medicine; but there is, probably, not one case in a hundred in which the patient can be induced to adhere with sufficient perseverance to the requisite course.

In constipation it sometimes, though seldom, occurs, that the lungs manifest their sympathy by casting off in the breath a fetid exhalation which from the smell seemed to belong to the larger intestines.[1] Several years ago I was acquainted with a man who was a complaining invalid, whose breath was always intolerable from its

[1] Dentists complain that they are sometimes compelled to encounter the disgusting breath of their patients, who confess to a state of habitual constipation when questioned upon the subject.

stercoraceous odor. He died short of old age. Constipation is often attended with headache and dulness in intellectual operations.

The Skin. — Largely endowed with sentient nerves, the skin sustains a sympathy with all the internal organs. Its quick response to impressions upon the stomach, from swallowing certain nauseous drugs, in a sense of coldness upon the surface of the body, with shuddering, has been often experienced; a free perspiration of the skin, too, is connected with some aromatic or subnauseating medicament received by the stomach. An active state of the skin is necessary to a healthy condition of the liver. Cold feet and dulness or pain of the head are often attendant upon each other. A warm poultice, a local vapor-bath, an anodyne or stimulant wash, from the relief they afford to an internal pain or inflammation, exhibit a sympathy between patches of skin and parts lying directly under them, however circuitous may be the nervous communication between the one and the other. When the integument of the chest is not sufficiently protected against atmospheric changes by clothing, the lungs are liable to suffer from bronchial irritation, cough, increased secretion of mucus, and sometimes inflammation.

The Skin and Kidneys show a mutual sympathy and interchange of function. Few persons have failed to recognize this under changes of atmospheric temperature. When the cutaneous transpiration is large, as in hot weather, the secretion of the kidneys is small, and vice versa.

The Liver. — The liver is a quiet, unobtrusive organ, having only a moderate supply of sentient nerves, and presenting comparatively few marks of diseased structure during life, yet, from the agency it must be believed to

exert upon the large tide of blood flowing through it, the presumption is natural that it must hold important relations with other parts of the vital machinery. Overfeeding, indigestion, and exposure to vicissitudes of temperature, are capable of inducing functional and organic derangements in this large gland. Redundance and deficiency of bile are observable in different forms of dyspepsia; and the exciting cause of inflammation and abscess, especially in hot climates, is the arrest of perspiration, from exposure of the body without the necessary clothing during sleep to the night air, sometimes to a sea-breeze.

Says Mr. McIlwain, "Where the liver has been once diseased, or when it retains any chronic form of disorder, no persons know better how soon it is excited into active disorder than those who labor under the malady." He recollects the case of severe jaundice in a woman who was doing exceedingly well, but who, without any apparent cause, had on two occasions a sudden relapse of her symptoms. She had been forbidden to eat animal food; and on the second relapse she inquired whether it was possible that a small piece of ham, actually not more than a moderate mouthful, could have caused the recurrence of her symptoms? On her being told, somewhat doubtingly, that very small portions of offensive matter did sometimes produce considerable disturbance in deranged conditions of the stomach, she said, "I think it must be so; for on the first occasion I had eaten precisely the same thing."[1]

By keeping in view the sympathetic relations of different parts, we may often find valuable suggestions in regard to the treatment of disease. The following interesting case from Mr. McIlwain is in point: —

[1] Med. and Surg. one Inductive Science. London, 1838. McIlwain.

"Sarah Jones, aged forty-two, 13 Water Court, Islington, a patient in the Finsbury Dispensary, applied for relief on account of the following symptoms: She has lost her voice, not being able to speak otherwise than in a whisper. She attributed the loss of her voice to getting wet in the feet almost five months since, her bowels being at that time costive, which is her general habit. Her catamenia have ceased rather more than two months; her bowels are costive; her tongue yellowish-white; her gums are much elevated, and highly vascular; her urine scanty, but clear. Her skin acts every night in an unusual manner; she describes herself as being bathed in a most profuse perspiration. Mr. Leigh and myself agreed to try first what stimulating the kidney would do, since, she being able to go about her business with such important functions imperfectly executed or actually suspended, it seemed probable that the profuse action of the skin was the source of immunity from more serious ailments. Taking, therefore, the hint thus afforded, we proposed to make the kidney participate more than it appeared to do in the excreting function. In order to keep the reasoning as close as we could, we simply gave her a diuretic — the nitrate of potash.

"In three days, she came and surprised us not a little, in the first place, by speaking in her natural voice. She said that the medicine had produced more water, and natural in appearance; but that her bowels had also acted very freely; and, on the occasion of the second action, the catamenia had returned. The profuse night perspirations, she said, she had 'quite lost.' We kept her under our care about a week longer, during which time she remained quite well."

CHAPTER VIII.

MAN BY NATURE A VEGETABLE-EATER — VEGETARIANISM.

§ I. MAN BY NATURE A VEGETABLE-EATER.

Among the larger animals, the organs which are employed in preparing the food for nutrition show a distinct relation to those articles designed by nature for them to feed upon. Animals are herbivorous, carnivorous, and omnivorous, or vegetable-eaters, flesh-eaters, and eaters both of flesh and vegetables.

Of vegetable-eaters there are two varieties: fruit-eaters and grass-eaters. The first feed upon pulpy fruits, esculent roots, nuts, and seeds; while the others derive a great part of their nourishment from the grasses, leaves, and twigs of vegetables. The teeth of the fruit-eaters are formed upon a particular model. The lip teeth or incisor teeth are chisel-shaped. Behind these are the cuspid or canine teeth, each terminating in a single point, generally obtuse. Next in order are the bicuspid or premolars, each terminating in two blunt points or cusps or tubercles. The remaining teeth, sometimes called cheek teeth, molars, or large grinders, are four-sided, with rounded angles — their broad terminal surfaces presenting four or five cusps or tubercles. On each side of the median line, in each jaw, there are two incisors, — the upper central ones broader than the lateral, — eight in all; one cuspid or canine, four

in all; two bicuspids or premolars, eight; three cheek teeth, or molars, twelve — thirty-two. All are covered with enamel.

These differently shaped teeth are arranged in broad arches in the jaws. The lip teeth in the upper jaw shut down anterior to those in the lower; while the premolars and the molars, or small and large grinders, meet and close upon each other when the mouth is shut.

Fig. 24.



HUMAN SKULL OF AN ADULT.

If we refer to the highest order of apes, as the orang-outang, the chimpanzee, and the gorilla, — all of which in the natural state are frugivorous, — we find their teeth answering to the foregoing description. The chisel-shaped lip teeth are well fitted for dividing into convenient morsels the materials naturally fed upon; the canine teeth, especially in the male, projecting somewhat beyond the level of the others, are obviously weapons of defence — having probably nothing to do with the food, unless, perhaps, in some instances, to aid in removing the rind or shell from certain nutrient articles; the long and sharp canine teeth of the gibbon, or long-armed ape, make him a respectable enemy under an attack, notwithstanding the comparative want of strength in his arms; the premolars and molars are evidently made for crushing and grinding the food — this process being greatly facilitated by

Fig. 25.



SKULL OF A YOUNG ORANG-OUTANG.[1]

[1] In early youth the orang has a high and rounded head, but as he grows older its form changes, and at full age his skull is flat and not capacious.

the motion of the under jaw, which is so articulated with the skull as to admit of motion from side to side, and to some extent, also, in the antero-posterior direction.

The grass-eaters have teeth adapted to the comminution of their food; the grinders in the lower jaw shutting against those in the upper, while the lateral or side motion of the lower jaw exists, as with the fruit-eaters.

Fig. 26.



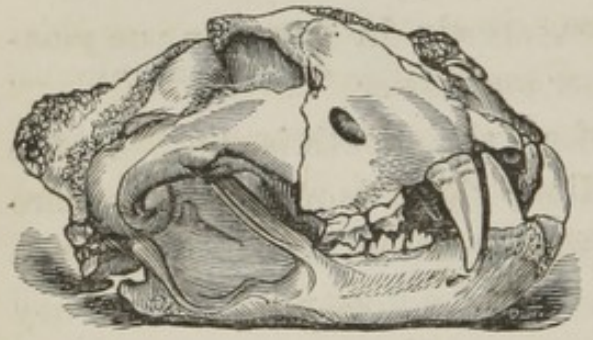
SKULL OF THE FULL-GROWN CHIMPANZEE.

The large carnivorous quadrupeds have teeth of a very different type. Their lip teeth, or incisors, are six in each jaw; those in the upper and lower exactly meet each other when the mouth is shut. In the cat family, — as the cat, lion, tiger, leopard, — they are arranged nearly in a straight line from one canine to the other. In the dog family, — as the dog, wolf, fox, — they are somewhat arched, with an anterior convexity. These would seem to be designed for gnawing off small fragments of flesh adherent to bones too hard and strong to be crushed down by the larger teeth.

Next are the canines, one in each side of each jaw, strongly implanted, long and pointed, and employed in seizing and lacerating the animals they feed upon. Back of these are the premolars, different in shape and number in the different flesh-eaters. Next are the trenchant or cutting teeth, generally two in each side of each jaw. From a thick base, where they emerge from the jaw, they are scarfed on the inner and outer side to a blunt edge, which is deeply notched. These teeth in the lower jaw shut within those of the upper, forming a kind of shears, adapted to cutting off successive pieces of flesh; the notches in the trenchant edges prevent the bit of flesh

from gliding out of the shear-blades before it is cut off. These teeth have nothing of the grinding operation, and none of the side motion of the under jaw which belongs to the vegetable-eaters. When the bit of flesh engaged in the shears is cut off, it is immediately swallowed. It is interesting to observe a dog's mode of carving a piece of partially dried flesh. He thrusts two opposing tusks into the mass, and tears out a piece still hanging by one end; he then applies his shears to cut off a bit; if the muscles of that side become fatigued before the morsel is cut off, he turns the fresh shears of the other side upon it to finish the operation. The tuberculated teeth, behind all the others in some of the flesh-eaters, may assist in comminuting the spongy parts of bones which these animals are capable of eating.

Fig. 27.



SKULL OF THE LION.[1]

Ought not man to be placed at the head of the fruit-eaters when estimated by the form, number, and arrangement of his teeth? The highest orders of apes, as we have already stated, so far as is known, are, in their natural state, exclusive vegetable-eaters. M. Du Chaillu, that successful hunter who passed four years in Africa, and who has recently brought to this country a number of skeletons and stuffed skins of the gorilla, assures us that he has opened the stomachs of numbers of them when recently killed, and has never discovered anything in them but vegetable materials. In man and these apes the milk teeth are twenty in number, and the permanent

[1] The incisor teeth had been lost when the photograph was taken.

thirty-two of the same form in both, with the exception that the canines in the apes project beyond the level of the others. In man the teeth are arranged in regular parabolic arches, uninterrupted by open spaces, and all projecting from the jaw to the same level.

"The most marked distinction," says Prof. Owen, "in the dentition of man and the highest quadrumanes, is the absence in the former of the interval between the upper lateral incisor and canine, and the comparatively small size of the latter teeth."[1] Man has no impediment from projecting canines to a free lateral motion, or an antero-posterior motion of the lower jaw; this arrangement placing him fairly at the head of the fruit-eaters.

The omnivorous quadrupeds — as the bear, the hog, the raccoon, the opossum — have cheek teeth with tuberculated or cusped surfaces, which meet each other when the mouth is closed; but the lip teeth and the premolars are of a different type from those of the fruit-eaters, and, like the flesh-eaters, they are destitute of the lateral motion of the lower jaw. Among all the rodents, many of which are more or less omnivorous, there are none that I am aware of whose premolars agree in number and type with those of the fruit-eaters. They too, like the exclusive flesh-eaters, are destitute of the lateral motion of the lower jaw, under which deficiency mastication can be but imperfectly performed.

Fig. 28.



SKULL OF THE BEAR.

A large number of flesh-eating animals, as the serpent

[1] Odontography, p. 152.

and most of the fish tribes, employ their teeth in no other manner than as aids in catching and swallowing their prey, depending on the stomach to do the work of softening and digesting the mass.

When naturalists style man an omnivorous animal, it is to be presumed they take him as they find him, omnivorous self-made, not as he was primitively made. If marked by nature as a vegetable-eater, it is natural to conclude that those articles of food indicated by his organism must on the whole be best for his health.

Most of the quadrumana, or some of the higher orders even, as the orang and the chimpanzee, in a state of captivity can be taught to eat flesh; and if pressed by extreme hunger it is not unlikely that in their native state they might even seize upon some kind of flesh for food. The grass-eating cow and horse have been known to relish fish and oysters. Now and then a dog may be seen eating apples. I knew a dog that was kept for his work in a small treadmill machine and was fed exclusively for several months upon corn-meal mush, as it was cheaper than a flesh diet; but he lost flesh and became feeble under this regimen. His owner, fearful that he might lose him, inquired how he could be restored. He was advised to give him raw flesh from the butcher's. By this means the invalid was cured in a short time. It was announced of the apes kept at London in the Tower some years since, that they were not as healthy on a mixed diet as on fruits. A young orang-outang, brought from Borneo by my friend Dr. Arms, was sickly, and showed a relish for cooked meats, but was never entirely cured, and at last sunk and died. The gibbon brought to Boston several years ago was fed on a mixed diet aboard ship, and was taught to drink wine. All this disagreed with his health, and the

poor animal died with an abscess under the lower jaw, just before entering Boston harbor.

The whole alimentary apparatus in man and the orangs is strikingly alike: the stomach and intestines are like in form, having about the same relative capacity, each with a saculated colon and a vermiform appendage to the cæcum. If in one animal this organization is indicative of particular articles of food as best suited to health, is it not a reasonable inference that the same intention is denoted in the other? If a mixed diet induces disease and shortens life in the quadrumana, should we not look for a similar effect from it in man? What was an orang, a chimpanzee, or a gorilla made for? In reply it may be asked, for what more probably than to present to man a standing attestation to the truth and the value of the dietetic lesson given him in Paradise; to demonstrate to him that an animal with an organization like his own in relation to food may subsist exclusively on the eatables granted to himself in Eden, and yet enjoy enduring health and an adequate amount of activity and strength?

In the mechanism of the alimentary canal there is a relation to the kinds of food adapted to the various tribes. In those which feed on the grasses, or the herbaceous and woody parts of vegetables, this canal is long and capacious, and possesses various contrivances for retarding the progress of the alimentary matter — conditions necessary to accomplish the difficult digestion of these substances, and to extract the nutriment from them. And as a considerable proportion of them is innutritious, the terminal part of the intestine, or what is commonly called the large intestine, is capacious, and serves as a reservoir until the nutritious parts are duly extracted.

In the carnivorous animals the alimentary tube is of a

more simple structure, generally much shorter and less capacious. This structure is adapted to the nature of their food, which is chiefly nutritious; the residual or innutritious part requires, as it is in such small quantity, a smaller reservoir for its accommodation.

The alimentary canal of fruit-eating animals is in length and size intermediate to those of the grass-eating and flesh-eating tribes. It has less complexity of structure, and is less capacious than that of the former, more so than that of the latter. No flesh-eating animal has the large intestine so much developed as the fruit-eating families; and it is remarkable that we find an alimentary tube similar to man's only in the apes and monkeys.

Cuvier says that "apes are the only quadrumana in which the hyoid bone, the liver, and the cæcum exactly resemble those parts in man." In another place he says: "Fruits, roots, and the succulent parts of vegetables, appear to be the natural food of man; his hands afford him a facility in gathering them, and his short and comparatively weak jaws — his canine teeth not projecting beyond the common level of the others — would not permit him to feed either on herbage or to devour flesh, unless these aliments were previously prepared by the culinary process."

"The form of the stomach and cæcum, and the structure of the whole canal," says Mr. Lawrence, "are very much alike in man and the monkey kind. The orangs have the appendix vermiformis, which the others want. Man possesses a tolerably large cæcum and cellular colon, which, I believe, are not found in any carnivorous animal. Thus we find that, whether we consider the teeth and jaws, or the immediate instruments of digestion, the human structure closely resembles that of the simiæ, all of which in their natural state are completely herbivorous" [i. e. frugivorous].

A curious fact was discovered by Professor Meyer, viz. that in all the vegetable-eating tribes the anterior tubercula quadrigemina are larger than the posterior, while in the flesh-eaters the posterior are uniformly larger than the anterior; and this, so far as this point has been investigated, is found to be the case without exception. In man the anterior, as is well known, are larger than the posterior.

§ II. VEGETARIANISM.

On the subject of the natural food of man we have two revelations, both from the same source, and in strict accordance with each other: — one, in the account given of man in the book of Genesis; the other, in the form and adaptation of the organs employed in preparing the food for digestion and nutrition.

When man was placed in Paradise, he was told what he might eat. "And God said, Behold, I have given you every herb bearing seed which is upon the face of all the earth; and every tree in the which is the fruit of a tree yielding seed, to you it shall be for meat." No intimation was given that animal flesh should form any part of his food. It was not until after the flood that permission was given to eat flesh. We are assured that man was made upright, but that he had sought out many inventions. Some of these are by no means adapted to the preservation of health or the prolonging of life. The wickedness of man drew down the judgment of heaven in the form of a flood. "God saw the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually." "The earth was corrupt before God, and the earth was filled

with violence." The bulk of the human family had arrived at the highest pitch of depravity and corruption, and it became necessary that they should be swept from the earth. Now it will be readily admitted that no community of men can become so savage, ferocious, and wicked, under the influence of a well-chosen vegetable diet, with water for the only drink, as under flesh-eating and the use of intoxicating drinks. If they made themselves vile and wicked by all the means which human ingenuity could invent, it is natural to infer that fermented liquors, narcotics, and flesh-eating, with all their exciting and maddening influences, were in general use. If the eating of flesh were in all respects as safe and healthful as vegetable food, and would multiply man's pleasures, no satisfactory reason can be offered why it was not given him in Paradise, while he was innocent, and while the Divine complacency towards him was perfect. The grant to eat flesh, after the flood, is as follows: "Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things. But flesh, with the life thereof, which is the blood thereof, shall ye not eat." Now why was this permission given, if it was not fitting that it should have been granted in Paradise? We know of no reason, except that assigned by our Saviour in reference to the Mosaic permission for men to put away their wives: it was "because of the hardness of their hearts."

The Divine Lawgiver, in legislating for communities which have become perverse and have perseveringly resisted the strongest motives to obedience, adopts the course which under the circumstances makes the nearest approach to the end in view. So the children of Israel were prevented from eating animals that had died of

themselves, which otherwise they would have done, by being allowed to sell them to "aliens." A benevolent and solicitous father, after having long tried in vain to reclaim a perverse son, at length gives him up to learn by experience what he refused to learn by precept and example, and says, "Well, take your own course; you may sometime find out that my way is the best." To Noah, the representative of the human family, God said, "Every moving thing that liveth shall be meat for you; — even as the green herb have I given you all things." As if he had said, "I gave you in Eden the green herb or the vegetable kingdom for your food. You were not satisfied with it, but insisted on eating flesh. Now eat flesh, — eat anything you choose, — every moving thing that liveth. You may possibly find out some thousands of years hence that my way is the best to secure health, to prolong life, and to preserve the moral sense. But you shall not eat it with the blood. This must be got out of it by bleeding the animal, and by cooking, which modifies the bad effects of flesh."

From this condition being annexed to the grant of flesh-eating, it can hardly be doubted that, before the flood, the habit of eating flesh with the blood in it, and even taking it raw, had prevailed. In modern times, an African tribe, who eat flesh raw and full of blood, being just cut from the living animal, are represented as ferocious and cruel. After the flood the life of man was shortened, not suddenly as by miracle, but gradually, as if under physical influences that operated slowly from generation to generation through a long period of time. What influences would be more likely to abridge the period of life than flesh-eating with strong drink and narcotics? Diet has a stronger influence upon health and life than climate. In both very hot and very cold climates we find striking

examples of longevity, especially among those whose diet is simple and unstimulating. It occupied several centuries to reduce the life of man to a hundred years. The great age of eight hundred years and upwards belonged to those who were in a direct line from Adam, through his son Seth, to Noah; and as those who observed the primitive institutions were called the sons of God, in distinction from the children of Cain, called the sons of men, it is not unreasonable to suppose that while the masses of mankind were shortening their days by every kind of iniquity and excess, those in the direct line lived in obedience to God's commands, as did Enoch and Noah. As an objection to the vegetarian system, it has been urged that our Saviour wrought a miracle to supply fish as well as bread; and that he himself ate fish with his disciples after the resurrection. This is freely admitted. All this is consistent with the declaration made before he left our world: "I have yet many things to say to you, but ye cannot bear them now." While on earth he conformed in his living to the temperate usages of society at that period. The time had not come for all the improvements which should be introduced by the operation of the principles he had laid down. Wine-drinking and flesh-eating were to remain for future developments. The benevolent Creator, having stamped upon the organization of man a reference to his most natural food in characters unmistakable and ineffaceable, having given him specific directions in Paradise, and having afterwards legislated upon it, allowing him, on account of his perverseness, to eat what was not the best suited to his health, saw fit to leave the remedy to grow out of the results of observation and experience, aided by science and those gospel principles which call for an elevated standard of Christian piety and self-denial.

CHAPTER IX.

DISEASES OF THE TEETH AND OF WILD ANIMALS.

§ I. DISEASED TEETH.

HUMAN teeth are subject to no inconsiderable variety of disease, as neuralgia, inflammation of the periosteum of the root, inflammation and abscess in the pulp, or in the bony substance of the body or root, or in the wall of the socket; necrosis of the root, caries or rot in the bony tissue of the body; deposit of tartar upon the necks of the teeth, causing an absorption of the gum or socket, until the teeth become loose and fall out of the jaw.

The suggestion cannot for a moment be entertained, that the benevolent Author of our being could have sent out from his creative hand man, his crowning work in our world, with a set of teeth so imperfectly organized as to be far less durable than those of the beasts of the forest. A diseased tooth is one of the rarest things to be found, if found at all, in the skull of a wild animal. I have examined the skeletons of some hundreds of wild animals, without observing an unquestionable specimen of caries in the teeth. In the spring of 1857, I addressed a note to Dr. Leidy, Professor of Anatomy in the University of Pennsylvania, whose acquirements in comparative anatomy are very extensive, asking if he had seen caries of the teeth in animals which died in the state of nature.

His reply was, "I do not recollect to have ever noticed true caries in the teeth of wild animals." Prof. Jeffries Wyman, that eminent naturalist in Harvard University, possesses the skull of a gorilla in which two or three of the teeth seem to have been worn into the pulp cavity, rather than affected by caries. The skeleton was found in Africa, dry, in the woods. The animal must have been a very old one, as would appear from the grinders being so remarkably worn. He had lost the middle grinder of the right lower jaw, as if it had been wrenched out by violence, the space occupied by its roots being filled up and smoothed over with new bone. Our domestic animals, particularly the horse and the cow, badly fed, and kept in a vitiated atmosphere, occasionally have caries in the teeth, and deposits of tartar upon the necks of them. Cows, fed upon the slops from distilleries for a few months, have their front teeth corroded down to a level with their gums.

Caries, or rot, is said by dentists to destroy more teeth than all other diseases. When the saliva becomes vitiated it is liable to act upon the teeth. Dr. Westcott found that "human teeth, immersed in vegetable as well as diluted mineral acid, at the temperature of ninety-eight degrees, had their surface so much softened in forty-eight hours, that much of the enamel might be scraped off with the finger-nail. Acetous, citric, and malic acids acted upon the teeth, and cream of tartar destroyed the enamel very rapidly." "Raisins so corroded the enamel in twenty-four hours, that its surface presented the appearance and was of the consistence of chalk." "Sugar had no effect till after acetous acid was formed; then the effect was the same as when this acid was directly applied."[1]

[1] Dissertation on Caries of the Teeth, by A. Westcott, M. D., read before the

According to Tiedemann and Gmelin, the saliva and the mucus of the œsophagus are alkaline in all cases, not only in man, but in every other animal which they had examined.

M. Donné, led by his experiments, assumes it as a position beyond all doubt, that the natural state of the saliva is alkaline. He found it to be alkaline before and during the taking of the food, and also during digestion, provided the stomach is in a healthy condition. He regards acidity in the saliva as evidence of disease of the stomach, and says he has never met with the saliva being acid when the functions of the stomach were healthily performed. At the Hospital La Charité, he examined the saliva of patients in bronchitis, pneumonia, continued fever, gastro-enterite, and found it acid. After the restoration of health, the saliva gave an alkaline reaction. In the case of a young woman with gastro-enterite, with tenderness of the epigastrium, thirst, tongue red and parched, and the saliva acid, under treatment convalescence took place, and the saliva became alkaline. This patient had two relapses, and on both occasions the saliva was acid at first, and became neutral, and then alkaline, as the symptoms disappeared.[1] For many years I have observed that young children who are largely fed upon cake, confectionery, and sweetmeats, usually have bad teeth. The stomach becomes deranged, and the fluids of the mouth vitiated.

The teeth of wild animals wear out, but do not, like man's, rot out in early life. Dr. Livingstone represents the

Fourth Annual Meeting of the Am. Soc. Dental Surgeons, Vol. iii. Am. Jour. Dent. Science, pp. 38–43.

[1] Lond. Med. Chir. Review, by James Johnson, M.D., Vol. i. for 1836, from the Archives Générales.

old lions in South Africa as becoming unable to master their accustomed prey, from their teeth being much worn. "When a lion becomes too old to catch game, he frequently takes to killing goats in the village; a woman or a child, happening to go out at night, falls a prey too." "A man-eater is invariably an old lion; and when he overcomes the fear of man so far as to come into villages for goats, the people remark, 'His teeth are worn; he will soon kill men.' They at once acknowledge the necessity of instant action, and turn out to kill him."

It is not necessary to go into a description of all the diseases which have been observed in teeth. They may be found in books of dentistry.

Family peculiarities are often exhibited in the teeth. The first tooth of a set, invaded with decay in a parent, be it incisor, cuspid, bicuspid, or grinder, has been the first with the child on the corresponding side of the face, and even of the grandchild, when arrived at the time of life which marked the decay in the ancestor, showing that defective organization is transmitted.

Certain articles of food seem particularly to promote decay of the teeth. It is the opinion of some dentists and physicians, that salæratus and bicarbonate of soda, so largely used in our country in the making of bread, is injurious to the teeth. This is probably correct. The habitual use of alkalies seems to promote dyspepsia, and whatever does this, perpetuates the predominance of acidity. The permanent influence of an article of diet is to be learned from observation rather than from its chemical relations out of the body. Vital chemistry, or rather physiology, is a far different matter from the chemistry of the laboratory.

In the formation in man of the masticating surfaces of

the grinders, or cheek teeth, the enamel is first applied in the form of a thin cap upon the point of each of the elevations or tubercles. These caps thicken and coalesce or are fused at their edges so as to form a covering to the bony substance beneath. The caps of enamel, however, instead of always coalescing or uniting as by fusion, seem to have their edges shut against each other, leaving a minute crack or fissure, through which, by capillary attraction, a fluid might find its way to the bony surface beneath. An acid, though very weak, thus brought in contact with bone, might be expected to act upon it. Accordingly, caries is often found to have commenced in this position, and to have made considerable progress before the enamel covering it has crumbled away.

Caries also is often observed upon the sides of the bodies of contiguous teeth. Some article of food which does not readily dissolve is crowded between the teeth, and remains, like a bit of sponge, to keep the saliva applied after each meal, for a length of time, to a particular spot. Thus caries on the side of the body of a tooth is often observed to be attended with caries upon the surface opposed to it of the tooth adjoining.

Caries occurring upon the side of a tooth looking toward the cheek, or toward the tongue, is observed to commence at or near the neck, where the enamel terminates, and where the fluids of the mouth are more likely to be detained in the groove between the edge of the gum and the tooth than upon the smooth surface, which is kept clear by the motions of the cheek or tongue gliding upon it.

An eminent dentist, Dr. N. C. Keep, of Boston, tells me that he has often observed a slip of litmus paper to indicate acidity by being reddened when pushed into the

cavity of a carious tooth; he mentions also having occasionally observed the incisors nearly destitute of enamel upon their lip surfaces, as if the secretions from the lip contained an acid which had dissolved it. A carious tooth is sometimes preserved for twenty years, when the cavity has been skilfully filled with goldleaf.

Wild animals, who never swallow hot food or liquids, seem not to be more liable to inflammation and abscess of the sockets, or of the dentine, or of the pulp-chambers of their teeth, than they are to caries, nor are they troubled with deposits of tartar.

§ II. DISEASES OF WILD ANIMALS.

From the soundness of the teeth of animals which have never been brought into an artificial state, it has been hastily inferred that such animals are not liable to any form of disease whatever. This view does not fully correspond with observed facts. The lower tribes, even in a state of nature, are exposed to several forms of disease. In the Anatomical Museum of the Boston Society for Medical Improvement, the following specimens are found: — On page 13, Descriptive Catalogue,

No. 91. Exostosis, as large as the fist, from the horn of a deer; picked up in the woods in the south of Illinois.

No. 92. Exostosis, or tumor, about the lower jaw of a cod-fish, about the size of a small orange.

No. 79. Cranium of a mink, showing caries of the anterior portion of the lower jaw. — From Dr. Winslow Lewis.

No. 80. Cranium of a skunk, showing the same as above. — Dr. Winslow Lewis.

No. 81. Several bones of a skunk; lower jaw carious;

two of the caudal vertebræ, and one of the tibiæ at the lower extremity, have new bone thrown out on their surface, and two of the metatarsal bones are firmly anchylosed. A carious femur from another skunk is also shown. — Prof. Jeffries Wyman.

No. 123. Lateral curvature of the spine of a pickerel. The seventh vertebra from the head is completely absorbed on the right side, but not at all on the left, causing a curvature at an angle of about forty-five degrees. There was no appearance externally of former injury. — Prof. Jeffries Wyman.

No. 170. Humeri of a partridge, much enlarged, uneven on the surface, heavy and very dense; one of them, sawn longitudinally, shows the whole to be solid bone, the cavity being entirely obliterated. — Dr. Samuel Cabot.

No. 175. Scapula and humerus of a muskrat, showing an entire destruction of the shoulder joint, the bones being otherwise healthy. — Prof. Jeffries Wyman.

No. 635. "Several calculi taken from the bladder of a spermaceti whale. Of thirteen specimens which were sent to the Society by Dr. Eastham in the year 1841, the largest measured two inches and a half, and the smallest one inch in diameter; otherwise they were remarkably uniform in their character, being perfectly white, of a fine, compact structure, very distinctly laminated, and generally of a tetrahedral form, with well-marked facettes. One of them, analyzed by Dr. Charles T. Jackson, was found to consist of phosphate of magnesia and ammonia, with some phosphate of lime. Three large boxes of these calculi were sent home to New Bedford, from the South Sea, by Capt. Paul Chase, of the ship Nassau; the whale was a very large old male, and so much emaciated as to furnish very little oil. In the Museum at Nantucket, which

was destroyed by the extensive fire in that place, there was a calculus from the same subject, and which perfectly resembled those already described, except that it was about as large as the double fist; upon this specimen was a label, which stated that the weight of the calculi which were removed amounted altogether to eighty-six pounds."

In the London "Lancet" for August, 1856, it is stated that at a meeting of the Pathological Society of London, Mr. Gibb exhibited a calculus, of the weight of three grains, found in the bladder of a field mouse. He observed that in the rodentia, very commonly in the rat, and sometimes in the hare, it was met with, but he had not heard of its having before been observed in the field mouse.

Dr. Livingstone informs us that in South Africa, between 20° and 27° south, a disease called *horse-sickness*[1] (peri-pneumonia), or inflammation of the lungs, prevails between December and April, winter commencing in the latter month. This disease is so destructive to horses that without stabling and great care a clean sweep would sometimes be made of fifty in a troop. Cattle and sheep are subject to it, but it is less severe than with horses.

"This disease attacks wild animals too. During our residence at Chonuan great numbers of tolos or koodoos were attracted to the gardens of the Bakwains, abandoned at the usual period of harvest, because there was no prospect of the corn *(holcus sorghum)* bearing that year. The koodoo is remarkably fond of the stalks of this kind of millet. Free feeding produced that state of fatness favorable for the development of this disease,

[1] Researches in South Africa, pp. 115, 116.

and no fewer than twenty-five died on the hill opposite our house. Great numbers of gnus and zebras died from the same cause." . . . . . "I have seen the kokong or gnu, kàma or hartebeest, the tressébe, kukama, and the giraffe so mangy as to be uneatable even by the natives." This diseased state was probably owing to epizoa or minute animals preying upon the skin.

. . . . . "I once found a buffalo, blind from ophthalmy, standing by the fountain Otse; when he attempted to run, he lifted up his feet in the manner peculiar to blind animals." . . . . . "All the wild animals are subject to intestinal worms besides. I have observed bunches of a tape-like thread, and short worms of large sizes, in the rhinoceros. The zebra and elephants are seldom without them, and a thread-worm may often be seen under the peritoneum of these animals. Short red larvæ, which convey a stinging sensation to the hand, are seen clustering round the origin of the windpipe of this animal at the back of the throat; others are seen in the frontal sinus of antelopes; and curious flat, leech-like worms with black eyes are found in the stomachs of leeches."

The facts recorded by Dr. Livingstone show that the instincts of wild animals as to *quantity* of food are not to be relied on, especially when they have access to articles they are particularly fond of, and they are liable to make themselves plethoric, and die of acute inflammatory disease. What a fearful mortality among mankind might be laid to the account of over-feeding, as well as of preying upon materials they would do better to avoid.

Prof. Wyman brought from Labrador two vertebræ of the whale, firmly anchylosed upon each other. The same indefatigable naturalist, a few weeks since (now April, 1860), returned from an exploring excursion to Florida.

He brought home a turtle, with a large stone in his bladder. He found a specimen of a globular tumor, about an inch in diameter, imbedded in the interior of a muscle in a black-fish.

He discovered numerous small worms beneath the dura mater covering the cerebellum of the snake-bird, so called from its long neck. He examined the brains of *eight* of these birds, and found these parasites in *seven* of them.

He was assured by the inhabitants that during the winter just passed there had been great destruction, from disease, of the wild deer in that region. Numbers had been found dead, with the tongue swollen and protruded from the mouth. Prof. Wyman also brought home two ulcerated vertebræ of the alligator.

But disease among wild animals does not belong exclusively to the present period of the world. Prof. Jeffries Wyman has directed my attention to a German journal, from which it appears that fossil bones of extinct varieties of quadrupeds have been found, which exhibit evidence of caries, necrosis, exostosis, and anchylosis. The soft parts must, of course, have been diseased, in connection with the morbid changes in the bones.

The law of death, then, either by violence, catastrophe, disease, or decay, seems to have been stamped upon animal existence prior to the advent of man; and upon his taking his place as lord of the terrestrial creations, a specific injunction was given, guarded by a penalty for its violation: "In the day thou eatest thereof thou shalt surely die." But having taken upon himself the fearful responsibility of casting off the authority of his rightful Sovereign, he came to disregard all wholesome laws, whether outspoken from the cloud upon Sinai, or written upon

the organism of his physical nature; hence the insane perversions in physiology and psychology, including the poisoning of the senses of taste and smell, those faithful guardians of life and health and beauty; and hence the thousand forms of disease that flesh is now "heir to."

CHAPTER X.

MAN OMNIVOROUS BY PRACTICE—GLUTTONY, SICKNESS, AND CORPULENCY — DR. BEAUMONT AND ALEXIS ST. MARTIN — REMEDIAL AGENCY FOR THE CURE OF DISEASE.

§ I. MAN OMNIVOROUS BY PRACTICE.

The authority of Plato is referred to for the statement that "the first ages of men abstained wholly from flesh, from an opinion that it was unlawful to eat, or to pollute the altars of the gods with the blood of living creatures. Swine were used for food first of all animals, being wholly unserviceable for all other purposes, and having, in the language of Cicero, *animam pro sale ne putrescant*,—lives only instead of salt, to keep them from putrefying."[1]

Probably not a single species of animal was ever found that has not been tried for the food of man. Beasts, clean and unclean, serpents, lizards, toads, grubs, and spiders have all contributed to make out the variety, regarded as a necessity of the human appetite. Humboldt, in South America, saw the centipedes, or "thousand legs," as we should call them, some of them a foot and a half long, dragged from their holes and craunched alive by the children. The white ants of Africa are put alive into a dry kettle or frying-pan, and, when duly roasted over a slow fire, are eaten by handfuls, as we eat parched corn. Labillardiere informs us that the inhabitants of New Caledonia

[1] Potter's Grecian Antiquities, p. 672.

roast and devour great quantities of a large spider, nearly an inch long. Lalande, a famous French astronomer, ate the spider as a delicious morsel. At the celebrated inn at Terracina, in Italy, serpents and eels for the accommodation of travellers were some years ago furnished by the marshy country around it. The host of that establishment was represented as politely inquiring of his guests whether they preferred "the eel of the ditch or the eel of the hedge." Rattlesnake soup is said to furnish a rich and savory repast for Western American hunters.

Modern cookery rivals the Stygian broth in Macbeth:

> "Fillet of a fenny snake,
> In the cauldron boil and bake;
> Eye of newt and toe of frog,
> Wool of bat and tongue of dog,
> Adder's fork and blind-worm's sting,
> Lizard's leg and owlet's wing,
> For a charm of powerful trouble,
> Like a hell-broth boil and bubble."

The gastronomy of the Romans at the time of the Emperors was remarkable for some of the articles employed as food. The teats of a sow three days after farrowing, and served up in hot milk, were regarded as indescribably delicious. Parts of the same animal, still more revolting and abominable, which must here be nameless, were placed at the pinnacle of savory meats, rivaling the ambrosia, or food of the gods.

Wild animals, by gluttonous eating after exhaustion from hunger, or compelled by long fasting to devour such food as is not the most natural to them, may become sickly and short-lived. The chati (*Leopardus mitis*), a flesh-eating animal, "when he is fed upon cat's flesh, becomes mangy and soon dies, while the flesh of snakes, vipers, and toads causes a continual vomiting, under which he loses

flesh and dies. The hen-roost affords him a favorite and wholesome article of diet."[1]

If an animal, by nature a flesh-eater, can be made to sicken and die from being fed upon some kinds of flesh-meat, can it be believed that the same kinds of flesh, as of cats, toads, and serpents, could be made wholesome either for vegetable or flesh eaters, by cookery? The skill of a Grecian cook, such a one as was said to have been employed by Trimalchus, who of the flesh of a pig could make "fish and wood-pigeons," if it could conceal the native flavor of those meats, would not extract the material which poisons the blood of the eater.

§ II. GLUTTONY, SICKNESS, AND CORPULENCY.

Large feeding and idleness are liable to be followed by disease. "At Freemantle, in Australia," says an English writer, "the convicts, during the time that our soldiers were dying from want of food in the Crimea, suffered from what was significantly called the *gluttony plague.* Excessive over-feeding and under-working were, it appears, the rule in the convict establishment, and in consequence no less than five hundred and fifty-four patients were under medical treatment in less than six months, with diseases of the digestive organs, inflammatory affections of the eyes, and cutaneous eruptions. The physic of short allowance and plenty of work soon set things to rights."

Large feeding joined with moderate exercise results with some individuals in corpulency or extensive deposits of fat. This condition may be regarded as a form of dis-

[1] Rev. J. G. Wood, Illustrated Natural History, p. 190.

ease. As the eating of much fatty food tends to corpulency, it may aid in explaining the Divine injunction to the Israelites: "It shall be a perpetual statute for your generations throughout all your dwellings that you eat neither fat nor blood."

We have in our country a sufficient number of large eaters, but we have not produced a Daniel Lambert nor a Kröcher, the fat butcher of Berlin, whose weight was four hundred and fifty pounds; nor a Dr. Cheyne, whose weight was upwards of four hundred and forty-eight pounds. Kröcher, after the age of thirty, acquired a voracious appetite, and on one occasion ate on a wager a whole calf in twenty-four hours. Ultimately he became too fat to walk or stand alone. Under the treatment of the eminent physician Graefe, by numerous blood-lettings, the daily use of carthartics, which operated from thirty to sixty times in twenty-four hours, and iodine as an emaciating agent, at the same time being confined to a strictly vegetable diet, his weight from December, 1825, to April, 1826, was reduced one half, so that he could move about and attend to business.[1]

Dr. George Cheyne, an eminent London physician, by free living in the early part of his life, became so corpulent that his weight exceeded four hundred and forty-eight pounds. He abandoned distilled and fermented liquors, and lived upon vegetables, milk, and water. This course reduced his weight to one hundred and forty pounds. After a few years he relapsed into free living, and became corpulent as before. Again he reduced himself by vegetables, milk, and water, did a large professional practice, wrote a number of books, and lived to the age of seventy-two years.

[1] Am. Med. and Surg. Jour. Vol. v. p. 453.

The Romans in their gluttony had a method of avoiding such extravagant growths from excessive eating. They took care first to clear themselves out by an emetic, or to leave the dining table once or twice for an emetic to disgorge what they had swallowed, and then to return and fall to again. Claudius Cassius and Vitellius, two emperors, indulged themselves in this habit. Cicero in his 52d letter, Book III., to Atticus, describing a dinner he gave to Julius Cæsar, not long before his assassination, says that this emperor, in preparing himself for the dinner, took a warm bath and anointed himself; that he ate heartily and drank freely; "you must know," continues he, "that he had taken an emetic as one of the preparatives."

Epicures sometimes cram the esculent birds, to load them with fat and enlarge their livers. Others, to make a large liver, in the goose for instance, nail its feet to the floor to prevent exercise, keep it in a dark place, or stitch its eyelids together to exclude the light, and give it nothing to eat and drink. This causes an immediate fever, under which there is a rapid emaciation of the fleshy parts, while the liver, greatly diseased, is swollen far beyond its healthy dimensions, and fit for the mouth of him who can pay an extravagant price for it.

In the northern section of our country, the annual feasts of Thanksgiving and Christmas, it may be presumed, seldom or never pass without making extra work for the physician, if not for the undertaker. During my professional life I scarcely ever lived through one of these occasions without being consulted for ailments caused by improper eating. I was once called to prescribe for an adult, the day following one of these festivals, who, I was credibly informed, ate, among other things, roast turkey with the stuffing, plum pudding, and mince pie; the sequel

was a most fearful and distressing neuralgia in one of the lower limbs, which interfered with locomotion for several days. It would seem as if multitudes regarded themselves as furnished with a gluttony license at least once a year, and thought the most appropriate way of expressing their gratitude for the bounties of Divine Providence was to prepare as great a variety of good things for eating as their condition or convenience would allow, and then to eat of all sorts as much as could be crowded into their stomachs. I have known young children, crying with distention of their organs, called up to the supper table, three or four hours after a Thanksgiving dinner, because it would be very unfeeling to send them to bed without their supper.

§ III. DR. BEAUMONT AND ALEXIS ST. MARTIN.

It is generally known that our countryman, Dr. Beaumont, some years ago had a young man, Alexis St. Martin, a Canadian, under his charge, who had received a wound in his side, which healed in such a way as to leave a large opening into his stomach. Through this opening the doctor was able to introduce food and medicine, to extract gastric juice, and to watch the changes which occurred upon the lining membrane of the organ. He noticed diseased appearances upon this membrane, which sometimes continued for days without very sensibly deranging the general health, or causing a coat upon the tongue. Dr. B. observes as follows:—

"In febrile diathesis or predisposition, from whatever cause, obstructed perspiration, undue excitement by stimulating liquors, overloading the stomach with food, fear, anger, or whatever depresses or disturbs the nervous

system, — the villous coat becomes sometimes red and dry, at other times pale and moist, and loses its smooth and healthy appearance; the secretions become vitiated, greatly diminished or entirely suppressed; the mucous coat scarcely perceptible; the follicles flat and flaccid, with secretions insufficient to protect the vascular and mucous papillæ from irritation.

"There are sometimes found, on the internal coat of the stomach, eruptions or deep red pimples, not numerous, but distributed here and there upon the membrane, rising above the surface of the mucous coat. These are, at first, sharp-pointed and red, but frequently become filled with white purulent matter. At other times, irregular, circumscribed, red patches, varying in size or extent, from half an inch to an inch and a half in circumference, are found on the internal coat. These appear to be the effect of congestion in the minute blood-vessels of the stomach. There are also seen at times small aphthous crusts in connection with these red patches. Abrasions of the lining membrane, like the rolling up of the mucous membrane into small shreds or strings, leaving the papillæ bare, for an indefinite space, are not an uncommon appearance.

"These diseased appearances, when very slight, do not always affect essentially the gastric apparatus. When considerable, and particularly when there are corresponding symptoms of disease, as dryness of the mouth, thirst, accelerated pulse, no gastric juice can be extracted, not even on the application of alimentary stimulants. Drinks received are immediately absorbed or otherwise disposed of, none remaining in the stomach ten minutes after it is swallowed. Food taken in this condition of the stomach remains undigested for twenty-four or forty-eight hours, or more, increasing the derangement of the whole

alimentary canal, and aggravating the general symptoms of disease.

"After excessive eating or drinking, chymification is retarded, and the appetite is not always impaired at first; the fluids become acrid and sharp, excoriating the edges of the aperture, and almost invariably produce aphthous patches and other indications of a diseased state of the internal membrane mentioned above. Vitiated bile is also found in the stomach under these circumstances, and flocculi of mucus are much more abundant than in health.

"Whenever this morbid condition of the stomach occurs, with the usual accompanying symptoms of disease, there is generally a corresponding appearance of the tongue. When a healthy state of the stomach is restored, the tongue invariably becomes clear."[1]

Dr. B. instances the effect of medicine upon the following symptoms in the case of St. Martin. "The distress of the stomach and pain of the head continuing, accompanied with costiveness, a depressed pulse, dry skin, coated tongue, and numerous white spots or particles, resembling coagulated lymph, spread over the inner surface of the stomach, I thought it advisable to give medicine. I accordingly dropped into the stomach through the aperture half a dozen *calomel pills*, four or five grains each, which, in about three hours, had a thorough cathartic effect, and removed all the foregoing symptoms, and the diseased appearance of the inner coat of the stomach. The effect of the medicine was the same as when administered in the usual way, by the mouth and œsophagus, except the nausea commonly occasioned by swallowing pills."[2]

The observations of Dr. Beaumont sufficiently attest the

[1] Dr. Beaumont on Digestion, pp. 107-109. [2] Ib. 126.

fact that the "lining membrane of the stomach may be extensively diseased, the gastric juice vitiated or its secretion arrested under wrong feeding, while the general health is not entirely prostrate. Ulcerations, too, have been observed in post-mortems, which involved all the coats, exposing the peritoneal cavity to the fluid contents of the organ. In other instances, the ulcers had left the peritoneal, perhaps the muscular coat, still entire; while the puckered gatherings at different points marked the sites of ulcers long since healed."

Chronic disease of the stomach may exist for a long time in a form utterly incurable. I have known cancer of this organ in which the thickening of the coats, for most of its extent, was three fourths of an inch, presenting an ulcerated surface upon the inferior and posterior part of this sac, of not less, by estimation, than eighteen or twenty square inches. I have reason to believe, from the extreme dyspepsia and tenderness at the pit of the stomach which the patient, a man of fifty, had, that the ulceration had existed more than two years.

But cancer of the stomach, in many instances, causes no distinctive symptoms whatever. I have in mind a medical friend in whose stomach a post-mortem revealed a cancerous growth of the lesser curvature, not ulcerated, the existence of which neither he nor any of his professional advisers suspected. Among my professional friends, several instances of cancer of the stomach, which had not been detected during life, were disclosed under post-mortem inspections. Dr. Watson refers to several cases of this sort that fell under his own observation.

Dr. Beaumont came to the conclusion that the stomach furnishes no more gastric juice at each meal than is requisite to dissolve, or convert into chyme, all the food

which the system needs for due nutrition. This would seem to be a valuable adaptation of the functions of different parts of the machinery to each other. When the stomach is the principal organ cultivated, it may, with some individuals, absorb so large a portion of nerve power as to cause the digestion, imperfect though it be, of a larger amount of aliment than is disposed of in its healthiest condition under natural feeding, as in the case of the Prussian butcher Kröcher. When the quality of the food is bad, the gastric juice secreted is liable to be vitiated, acrid, sometimes bloody, the quantity diminished, and to be capable of acting but very imperfectly as a solvent of the food; or when the lining membrane is beset with pimples and pustules, and crythemathous and aphthous patches, the secretion of the gastric juice is wholly arrested. When the food is not objectionable in quality, but taken in greater quantity than needful, the organs are unduly tasked to get rid of the excess, and the nutrition is diminished. Instances illustrative of this are not wanting, and would be much more numerous if accurate observations were made.

§ IV. REMEDIAL AGENCIES FOR THE RELIEF AND CURE OF DISEASE.

There are those who place their chief reliance on medicinal agents for the relief and cure of diseases. To this class belong most of the uneducated, whose minds have never been enlightened on the subject of bodily ailments or of the action of medicines, and who know next to nothing of the powers of the constitution to grapple with and modify or remove disease. Even among the educated in other departments of knowledge, so great ignorance pre-

vails in this, that the invalid can easily believe himself to have derived important benefit from the prolonged use of large doses of evacuant medicine, which in fact have done him real and perhaps permanent injury; the same invalid, be he M. D., D. D., or LL. D., released for a few weeks from confinement, care, and hard study, and taking the benefit of a journey among friends, comes with all his heart to the conclusion that he has been cured of his prostration by a pellet, urged upon him by a "personal friend," containing a medicine so attenuated or subdivided by being mixed with sugar (according to the directions of the inventor) that, in order to get a single grain of it into his stomach, he must eat a lump of sugar large enough to fill the orbit of Saturn!

On the other hand, there are those who, from the mishaps incurred by unscientific or excessive medical dosing, have been led to undervalue or discard medication altogether, professedly relying upon the inherent power of the organism for the cure of disease. There are, indeed, many chronic ailments which admit of a cure under a suitable diet and regimen, while there are diseases that *require* medicine to save life. Take the graver forms of malarious fever; sometimes the attack is so severe that if nothing is done for its arrest, the patient dies in the first, second, or third paroxysm. The constitutional powers, however, can, in some mild forms of malarious fever, overcome the disease; but is it wise to trust to this mode of treatment? In a mild intermittent, who can know in advance what time will be required for nature to remove the disease? And when it is understood that protracted intermittents often occasion visceral disease, and leave some part of the organism permanently injured, is it not safer and better to meet the case by medication at once,

under which the disease can ordinarily be subdued in a few days, while the constitutional powers are but little if at all impaired? Several years ago, I was consulted by a man, between forty and fifty years of age, who had labored under an intermittent for two years. He had not passed all that time without medicine, but the treatment had been inefficient, and although not entirely confined within doors, he was feeble, sallow, and sickly-looking. I prescribed Fowler's solution, under the use of which the paroxysms were permanently extinguished in three weeks. Far preferable had it been for him, if a judicious medication had been promptly resorted to, and his ague been quelled in two weeks, instead of running on for two years. Millions of lives have doubtless been saved by one medicine, the Peruvian bark and its chemical extracts, although it is only about two hundred years since its introduction into medical practice.

Gout, it is well known, is susceptible of a cure, in a majority of cases, by permanent abstinence from high feeding, and from all intoxicating drinks; and yet, since a medicine has been discovered, the colchicum, which relieves the pain in a paroxysm of that terrific visitation, is it not safe to give it, trusting for a radical cure to the dietetic arrangements?

It is manifest that there are two sources of remedial agency for the relief of bodily disease; the one inherent in the organism, the other wholly independent of it. By the first, numerous disorders, under the salutary aid of a suitable diet and regimen, are corrected, and health is restored; and mechanical injuries also are, to a certain extent, repaired. By the second, many diseases of various degrees of intensity are met and often relieved or removed. Individual organs, as the stomach, intestines,

skin, kidneys, lungs, and nerves, are provided with medicaments appropriate to each in their respective derangements. This gift of a materia medica, with special adaptations to the variety of ailments of organs unlike in structure and function, is indicative no less of the skill than of the benevolence of the Giver. As disorders of the alimentary canal are especially common, materials for relief are found in plenty, both in the torrid and temperate zones; and the mineral springs distributed over the world, and kept flowing for thousands of years, are to be ranked among the kind provisions of the Creator for the relief of human suffering, often aggravated, if not caused, by a violation of the laws of our physical being.

Mr. Paget closes one of his lectures on surgical pathology with an eloquent paragraph on the law of remedial influences in our world: —

"If I may venture on so high a theme, let me suggest that the instances of recovery from disease and injury seem to be only examples of a law yet larger than that within the terms of which they may be comprised, a law wider than the grasp of science; the law that expresses our Creator's will for the recovery of all lost perfection. To this train of thought we are guided by the remembrance that the healing of the body was ever chosen as the fittest emblem of His work whose true mission was to raise man's fallen spirit, and repair the injuries it had sustained; and that once the healing power was exerted in a manner purposely so confined as to advance, like that which we can trace by progressive stages to the complete cure; for there was one upon whom, when the light of heaven first fell, so imperfect was his vision that he saw confusedly 'men as trees walking,' and then, by a second touch of the Divine hand, was 'restored, and saw every

man clearly.' Thus, guided by the brighter light of revelation, it may be our privilege, while we study the science of our healing art, to gain by the illustrations of analogy a clearer insight into the oneness of the plan by which things spiritual and corporeal are directed. Even now we may trace some analogy between the acts of the body and those of man's intellectual and moral nature. As in the development of the germ, so in the history of the human spirit, we may discern a striving after perfection; after a perfection not viewed in any present model (for the human model was marred almost as soon as it was formed), but manifested to the enlightened reason in the 'express image' of the Father of Spirits. And so, whenever, through human frailty, amid the violences of the world and the remaining 'infection of our nature,' the spirit loses aught of the perfection to which it was once admitted, still its implanted power is ever urgent to repair the loss. The same power, derived and still renewed from the same Parent, working by the same appointed means and to the same end, restores the fallen spirit to nearly the same perfection that it had before. Then, not unscarred, yet living, — '*fractus sed invictus*,'— the spirit yet feels its capacity for a higher life, and passes to its immortal destiny. In that destiny the analogy ends. We may watch the body developing into all its marvellous perfection and marvellous fitness for the purpose of its existence in the world; but this purpose accomplished, it passes its meridian, and then we trace it through the gradual decays of life and death. But for the human spirit, that has passed the ordeal of this world, there is no such end. Emerging from its imprisonment in the body, it soars to the element of its higher life; there, in perpetual youth, its powers expand as the vision of the Infinite unfolds

before it; there, in the very presence of its Model, its Parent, and the Spring of all its power, it is 'like him, for it sees him as he is.'"

The Rev. Albert Barnes, in his chapter on the probabilities of an atonement, presents interesting views somewhat in detail on this topic.

"All the arrangements in medicine presuppose that there will be violations of the laws of health, or that there will be evils springing from the loss of health to be remedied. We can conceive of a world where no such arrangements would exist; and, indeed, we must suppose that there are no such arrangements in unfallen worlds, and will be none in heaven. We cannot suppose that in an unfallen world there can be anything that corresponds in this respect with the *materia medica* of our globe, or with the things that seem to have been created only on the supposition that there will be fevers and pleurisies and consumptions; but on earth the preparations of that kind abound everywhere. There are numberless things in the mineral and vegetable worlds that have the properties of *healing* as an essential part of their nature, numberless things which have, in fact, no other use than that which is derived from healing, and which seem to have been made for that, with as distinct and original a reference as the eye has been for light, or food for the nourishment of the body. If it had not been supposed in the original creation that there would be diseases to be remedied, it is impossible to believe that these things would have been made with such properties as they now have; for it remains to be demonstrated that *any* thing was made without a distinct design; and as a general law, in finding out what purpose anything is *fitted* to accomplish, we at the same time find out the purpose for which it was originally *designed*.

"The things which constitute the *materia medica* of the world, or which come properly under the name of *medicine*, are arranged for the purpose of healing. Many of these seem to have no other end, and no other use can be made of them. Whatever they have in their nature to distinguish them from other substances is adapted only to the purpose of healing; and, though it may be true that some of them may have a compound adaptedness, and may be fitted also to subserve other ends than healing, yet it is also true that so far as the *medical* property in any of these is concerned, and in many cases so far as *any* distinguishing property is concerned, that property pertains only to the healing of diseases, and can be applied to no other use. Mercury, or quicksilver, *has*, indeed, a compound adaptedness; for it may be used in the arts as well as in medicine; but this is not true of numberless other things used in the healing art. Senna, rhubarb, Peruvian bark, and numerous other similar things, have no other use than healing, and can be converted to no other purpose. They cannot be placed on the same level, or made to subserve the same ends, as rice, maize, wheat, lentils; for they have properties distinct from them, and they cannot be made to subserve the ends which those things are designed to secure. A druggist would starve to death in his shop, though there might be medicines enough there to heal all the diseases in the world. A company of men on a barren island would soon die if there should be nothing else sent to them than a cargo of medicines; they would die if their island produced nothing but quicksilver, rhubarb, and Peruvian bark. The fair conclusion from this fact is, that these things were *designed* for the purpose of *healing;* that is, that it was contemplated that there would be diseases demanding a remedy.

"These remedies lie outside of the evil to be remedied. They differ from the arrangement which will be noticed next in order, in the fact that they are no part of the original organization of that which it was contemplated would need a remedy. It is an independent arrangement, — a separate system, — which could not be itself originated by the disease to be cured; for whatever may be said about the adaptedness of a broken bone to heal itself, it cannot be said that intermittent or bilious fevers have any tendency to produce the tree on which the bark that is adapted to heal those diseases is found. They constitute an independent arrangement by themselves, and would have an existence, though as far as appears a useless existence, even if there were no fevers to be cured.

"In a great measure these remedies are effectual. It is true that all diseases are not healed, and that there are diseases which ultimately baffle the skill of medicine. It is true also that there are diseases for which as yet no specific remedy has been found. But it is also true that it may ultimately be ascertained that there is no form of disease to which the human frame is subject for which a remedy has not been provided, — a remedy which might either weaken the force of the disease or wholly remove it. The remedies for disease are sometimes undiscovered for ages, and, though existing, they are useless; as the tree producing the Peruvian bark continued to grow from age to age, wholly useless to the world until a happy discovery disclosed its value to mankind. In like manner it may be possible that arrangements exist for healing all the diseases to which the human frame is subject, and that happy discoveries may yet so greatly enlarge the knowledge of these remedies as greatly to alleviate all the

maladies to which the race is subject, and perhaps to remove many of them altogether.

"This arrangement in regard to physical maladies might suggest the possibility, and perhaps the probability, that some correspondent arrangement would be made to meet the moral evils of the world and to check the progress of those evils. It is certainly a very curious fact in itself that an arrangement of the kind just referred to should be found in the world; that it should be contemplated apparently in the original structure of things that there would be disease, and that there should be found a separate and wholly independent arrangement for checking, relieving, and removing it. It is an arrangement which could not have been anticipated; for if we should conceive it to be possible that we could have been consulted beforehand on that point, we should have said that it would be wholly impossible that such an arrangement could be found. We should have said at once that the presumption would be that evil would be prevented altogether; that disease would not be suffered to come into the system; that it seems to be so clumsy a device, that we cannot suppose that a perfectly wise being would have adopted it; that no wise man would originate such a system; that it is difficult to reconcile the idea of permitting pleurisies and consumptions to come upon men with any proper notions of benevolence, whatever may be said of the benevolence of the remedy; that the whole scheme is similar to what would occur in the construction of a machine, if the inventor should purposely make it so that it would get out of order, with a view to show his skill by an independent arrangement in repairing the irregularity and in restoring its regular motions. It must be conceded that we cannot explain the reason why this

apparently strange procedure has been suffered to occur; and we may admit that as yet we are not able to see that it is the most benevolent arrangement that could have been adopted. But still the fact remains as a part of a great system found everywhere in nature, and whatever may have been the reason of it, it is there. Whether the explanation is to be found in the fact that the human frame could not have been made so as not to be liable to decay and disease; or whether, on the whole, higher benevolence is evinced by allowing disease to come in, and showing the high skill evinced as an independent arrangement in the provision for healing disease; or whether the whole arrangement is one that lies beyond our power of comprehension, having some ends to accomplish which we cannot as yet understand, yet the arrangement exists. It pervades the world. It is a part of the system. We see nothing on earth that is exempt from it; and this might lead men to suppose that it would be found to be a universal arrangement, and would be as applicable to moral as to physical maladies; that there would be found somewhere, to be disclosed in its own time, some independent arrangement for checking or removing the moral maladies, the sins, of the world. An atonement, if it answered this end, would obviously fall in with this anticipation, and would be in accordance with the general system which has allowed disease to come into the world, and which by a separate and independent arrangement has sought to check and remove it."[1]

[1] Barnes on the Atonement.

CHAPTER XI.

QUANTITY OF FOOD — SIMPLICITY OF DIET — ECONOMY OF VEGETABLE FOOD — OVER-EATING.

§ I. QUANTITY OF FOOD.

The digestive power of the stomach may be cultivated to some extent. Gormandizers sometimes live for years free from dyspepsia, able to dispose of a large dinner daily, but there is less power left for the voluntary muscles, as they are comparatively sluggish, and less also for intellectual operations. For a period, sometimes of several years, the stomach bears this exertion, receiving an undue share of nervous influence, while the whole system, kept in a state of perpetual plethora, is exposed to apoplexy, or some form of acute disease, and is wearing out with a rapidity proportioned to the excess of stimulation and overcharging the organs. In some cases of this sort, distant parts may suffer by sympathy, and sometimes give way before the stomach.

A gentleman in one of the learned professions consulted me on account of his corpulency, contracted by large eating and want of exercise. I prescribed for him a change of diet, less food and more exercise daily in the open air, at the same time remarking to him that this course would benefit his general health. "Health," said he; "my health is very good. I digest my food well and have generally

a fair appetite. I suppose I might alter my diet somewhat, but as to the walking you mention, that is altogether out of the question." "Why so, sir?" "Why, for several years my feet have been so numb and sore and lame that I cannot walk more than a quarter of a mile before they give out, and I can go no further." "But I understood you to say, just now, that your health was good." "So it is," was the testy reply; "but it is my *feet*, I tell you, my *feet* that trouble me; they are numb and sore, and sometimes I can walk only a few rods without the most intolerable pain!"

At the expense then of other organs, the stomach may be compelled to do extra labor, but the whole machinery is put in jeopardy of violent forms of disease, and is sooner exhausted and worn out. In such cases, when this overtasked organ gives way, as it sometimes does suddenly, it is seldom capable of being restored to a tolerable rate of power. I once prescribed for a lady who labored under a very debilitating complaint. She was corpulent, and a large eater. "I have reason to be thankful," said she, "that I have a good appetite, and can digest my food. Were it not for my appetite, I should have been dead long ago!"

The stomach becomes easily habituated to a certain amount of distention at meals, short of which it is uneasy.

Sir E. Home states that the Scotch recruits, accustomed to the use of oatmeal porridge, do not find their stomachs sufficiently distended by the army rations, and are obliged to make up the deficiency with water.

"The slaves at Surinam," says Dr. Cragin, "stuff a child two or three months old with pap, made from the banana, to the amount of a quart, and sometimes more!" The

child frequently dies under the operation; and it is said that the stomach is so much distended and distorted in this manner, that if the child lives he is always hungry.

A babe accustomed to be nursed at short intervals will grow uneasy and restless, after waking from sleep. This restlessness is caused partly by the plethora of the system, and partly by the want of the customary distention of the stomach. It is, of course, temporarily quieted by giving it food.

I have seen a child, a year and a half old, who was fed habitually six or seven times a day. When the uneasiness of the stomach, under a diminished quantity of food, is great, relief may be had from the use of water, to accomplish the ordinary distention. This is the most harmless article that can be employed for this purpose; and it may be continued, diminishing the quantity employed, till the stomach quietly comes to a proper degree of distention. The quantity of food usually taken is considerably greater than is necessary to support life and maintain a uniform standard of flesh, and the highest possible degree of health.

"The Bedouins," says Ritson,[1] "are a most alert and military race, and yet it is an undoubted fact that the quantity of food usually consumed by the greatest part of them does not exceed six ounces a day. Six or seven dates soaked in melted butter serve a man a whole day, and he esteems himself happy when he can add a small quantity of coarse flour or a little ball of rice."

In contrast to this is a case mentioned by my friend Prof. H——, who spent a winter in one of the West India islands. While dining out, he saw on one table thirty

[1] Ritson on Animal Food, p. 74, quoted from Volney's Travels.

dishes of meats and six varieties of wine! At church he noticed five men in a row, the smallest of whom must have weighed two hundred pounds, and one of them, a man about forty years old, weighed two hundred and eighty pounds. This last was one of the most religious men in the island, and was very punctual in his attendance at church *in the forenoon!*

Col. Long assured me that once, when his men had nothing to do, they would eat a full meal of venison every three hours, and sleep "between meals."

One of my patients from Texas told me that he had frequently sat down with men when they had only buffalo meat to eat, and that they had taken each from three to five pounds of meat at a meal!

§ II. SIMPLICITY OF DIET.

No assumption in dietetics is more gratuitous than this, viz. that *variety* of food is *essential* to human health. I am acquainted with a young gentleman who lived twelve weeks on Indian corn bread and water solely, had a high state of health, and was in full flesh at the end of that time. The case of Capt. Twitchell, who lived ten years on bread and water and a little cheese, is somewhat in point. "I once indulged," says Marmontel, "in living for six weeks on milk at Campiegne, when in full health. Never was my soul more calm, more peaceful, than during this regimen. My days flowed along in study with an unalterable equality; my nights were but one gentle sleep. Discord might have overturned the world; it would not have shaken me.

In Scott's Tales of a Grandfather there is mentioned the case of an old woman and her daughter who were tried

as witches and condemned, because, though miserably poor, they had contrived to look "fresh and fair" through a terrible famine. The king's advocate, not believing so thoroughly as some others in satanic influence, managed to get their secret from them, and found that they had supported themselves on the strange diet of salted snails, *solely*.

Hart, in his "Diet of the Diseased," gives several instances of individuals who lived for many years wholly on cow's milk.

Caillié states that an African tribe live on milk, some making it their sole fare.[1]

Some of the Arabs who range the great desert of Sahara are said to live altogether on milk, and to attain a great age.

Sidi Hamet gave Capt. Riley the following account: —

"The Arabs who live in the desert subsist wholly on the milk of their camels. It is the milk of an animal that we call sacred, and it causes long life. Those who live on nothing else have no sickness nor disorders, and are particularly favored by Heaven; but only carry the same people off from the desert and let them live on bread, meat, and fruits, they then become subject to every kind of pain and sickness when they are young, and only live to the age of two zille[2] and a half at the most, while a great many die very young, and not one tenth part of the men or women live to the age of one zille."

Hamet assured Capt. Riley that it was very common to find Arabs, on different parts of the desert, five zille (or nearly two hundred years) old, retaining all their faculties.[3]

[1] African Repository for July, 1835.

[2] A zille is forty years of lunar months, twelve months in the year.

[3] To this great age, if Capt. Riley's statement be authentic, the simplicity of diet contributes; but this is not all. Their lives are regular; their climate is

Is it not remarkable that the most magnificent dietetic experiment ever made upon the human family should have produced little or no impression upon the minds of those who profess to regard variety among eatables as *essential* to high and enduring health? The children of Israel, generally estimated at not less than two and a half to three millions, subsisted during forty years upon one kind of bread, which, from the description given of it, was like what may be made of flour and oil, with a little sugar. With this simple food, and nothing but water for drink, their health was preserved. If variety of eatables had been necessary for their health, would it not have been provided for them? More than once they became clamorous for a change. To meet this, flesh was allowed. They were promised flesh to eat, not merely for a day, "but for a whole month." But it bred a pestilence among them, and "the Lord smote the people with a very great plague." At one time the spirit of insubordination and revolt became so general that it was proposed to kill two of the twelve spies (Caleb and Joshua), who reported favorably to an immediate entrance upon Canaan, and to appoint a captain who should conduct the multitude back to Egypt. At once the glory of the Lord appeared before the whole congregation, and it was the earnest entreaty of Moses which prevailed to save the whole multitude from sweeping destruction. On a later occasion, the multitude grew querulous at their simple fare, uttering this comment: "Our soul loatheth this light bread." "Whereupon the Lord sent fiery serpents among them, and they bit the peo-

dry; the air is pure, and they live in it constantly; they are never subjected to very hard labor, though they have sufficient exercise to keep up the activity of the circulation and of all the bodily organs, and they never taste alcoholic liquors.

ple, and much people of Israel died." This brought them to terms, and as a remedy Moses was directed to elevate an artificial serpent upon a pole, that those who were bitten might look upon it and live. The figure of a serpent upon a pole is emblematical of the profession of healing unto this day.

It is natural to conclude that the simple mode of living of the Israelites in the wilderness was designed to give them a uniform health and vigor, so important for them in their contests with the nations whom they were commissioned to drive out of Canaan.[1] Daniel, and his three fellow-captives, ate pulse exclusively for three years, and lost nothing of their health.

Dr. J. R. Farre, in the evidence on intemperance, submitted by him to a select committee of the British parliament, in June, 1834, says: "I recollect being consulted by a master and commander of a British merchantman, who was carried into Algiers before the Algerines were chastised by Lord Exmouth. The Dey of Algiers immediately stripped him naked and chained him to another British prisoner; he placed him on the public works from four in the morning till four in the evening; he then turned him into a cell with his naked companion, till four in the morning, and there was placed by his side a pitcher of water and a loaf of black bread. I asked him if he could eat it? 'Oh yes, it was very sweet indeed!' 'What did it consist of?' 'It was made of the black wheat of Africa, with the vegetable locust, but it was appetite that gave it sweetness.' Now it is remarkable that this man was a prisoner nine months, while he was fed upon one pound of bread and a pitcher of water a day, and had to perform

[1] Numbers xi. 5; xxxi. 5, 6.

hard labor, with such a supply of food, and to my question, 'Did you enjoy health?' he replied, 'Perfect health. I had not a day's illness. I was as lean as I could be, but I was perfectly well.' When he was set at liberty and returned to British fare, then he had to consult me as a physician."

Xenophon, in his famous "Retreat," says that he found a tribe near the Euxine who lived on boiled chestnuts. The children, he remarked, were so fat and chubby that they were "nearly as thick as they were long."

In 1840, some of the prisoners in the Glasgow bridewell were confined to a strict diet of potatoes; two pounds at breakfast, three pounds at dinner, one pound at supper, all *boiled*. "At the beginning of the experiment, eight were in good health, and two in indifferent health; at the end, the eight continued in good health, and the two who had been in indifferent health had improved. There was on an average a gain of nearly three pounds and a half in the weight of the prisoners. All expressed themselves quite satisfied with this diet, and regretted the change back again to the ordinary diet."

Many of the ancient Christians, driven by persecution from the ordinary dwelling-places of man, to retired cells and caverns, are said to have lived on bread and water only, and many of them attained a great age, — some of them one hundred and twenty years.

The principle in this matter seems to be, that while simplicity of diet is consistent with the highest and most uninterrupted health, some variety is not hostile to health, provided the proper quantity be taken. The tendency of variety is to spur the palate and increase the quantity beyond the wants of the organs. Sometimes men eat to the amount of a meal of each kind placed before them.

§ III. ECONOMY OF VEGETABLE FOOD.

Nothing can be plainer than that vegetable food is more economical than animal food, or the mixed diet which is recommended by certain physiologists, in all climates where the esculent roots, pulpy fruits, and the grains can be cultivated.

The direct products of the soil will, if man is able to live upon vegetables, support a much larger population than can subsist on the flesh of animals fed and fattened upon the products of the same amount of land. Even in the far north of Europe, the small grains afford a cheaper food than the flesh of animals. Thus, the "black bread" forms the chief article of diet for the peasantry of Russia.

In what flesh could the myriads of India and China find a substitute for rice, equally cheap and nutritious?

In tropical climates, the maize, the yam, the sweet potato, and the banana, are much cheaper food than any kind of flesh meat.

Mr. Granger, of Canandaigua, N. Y., told me that while he resided at Geneseo, some years since, he was in the habit of putting up pork for the Montreal market. His hogs got their living in fields and woodlands as they could in summer, from grass, roots, and nuts, until within a few weeks of killing time, when they were driven up into a large inclosure and fed exclusively on Indian corn and water. They consumed in fattening, on an average, fifteen bushels each. When butchered, their average weight was two hundred pounds. At three pounds of meat per day for a man, it would require sixty-six days for him to consume the whole. Whereas, in fattening, the hog consumed four hundred and eighty quarts of corn, and one

quart is regarded as a fair daily allowance for a man. The difference is between seven and eight times in favor of the corn. Indeed, it can hardly be supposed that three pounds, from which some deduction should be made for the bones, is a full allowance, when a man will eat six pounds of venison a day, and regard himself as but scantily supplied.

Capt. Wiley Martin's men at the cantonment, in 1818, on Cow Island, near the mouth of Kansas river, complained that they had not enough food, while they were eating their six pounds of venison a day. But it is not at cantonments or among buffalo hunters merely (page 214) that large eaters of flesh are to be met with. Now and then a literary gentleman comes in for a place among the gourmands. I knew a learned one who, I was assured, ate a quarter of lamb clean to the bone at a single meal.

Messrs. Smith and Colby, medical students of mine, lived during the months of March, April, and May, at the following expense: —

3½	bushels wheat-meal, at $1.50,	$5.25.
	Baking,	2.62.
9	gallons milk, at 3 and 4 cents per quart,	1.16.
2	bushels potatoes, at 25 cents,	50.
1	gallon molasses,	42.
		$9.95.

This total, divided by the number of weeks, gives seventy-six cents. The cost to each one, therefore, was about thirty-eight cents a week.

Mr. Read, another medical student of mine, lived for eleven and a half cents per week, exclusive of the making of his bread. He lived just four weeks on half a bushel of Indian corn meal, and paid forty-six cents for it. Never in his life had he enjoyed finer health.

Those who have read that summer work of Thoreau's, Walden, will not soon forget the table in the chapter on

"Economy," where Thoreau shows how he lived on eight dollars and eighty cents for eight months, nor will his readers judge that his mental power was lessened by the experiment.

If a simple vegetable diet could prevail in our literary institutions, more than twice the present number of young men could receive the benefits of a liberal education, and much more mental power be brought to bear upon our communities.

It is stated that in England farmers find it pays better to use their land for raising vegetables than for fattening cattle, and those who are familiar with the large amount of land it requires to support "stock" cannot fail to see that there is an advantage in raising a crop of sixty bushels of corn, at one dollar a bushel, on an acre, than to raise grass on the same to feed cattle upon.

Nor will any one fail to see that if a pound of corn is as good for a man as a pound of beef, it is for his advantage to buy the corn for two cents, rather than the beef at fifteen or twenty cents.

Of common butcher's meat, it has been ascertained, seventy-five parts out of every one hundred are water; and as the "nourishment" comes from the dry matter, the difference in favor of the corn must readily appear.

The banana, which flourishes up to the point where the mean temperature is seventy-five degrees Fahrenheit, produces more nutritious substance in a less space than any other plant. Humboldt estimates that an acre of ground, planted with bananas, is sufficient to support fifty men, while the same extent of land, in wheat, would barely supply the wants of three.[1]

[1] Encyclopædia Britannica, 8th ed., Article "Mexico," Vol. xiv. p. 716.

At Surinam, enough bananas may be bought for two or three cents to support a negro for a week.

If the climate of the valley of the Mississippi would admit of the cultivation of the banana at the above rate, as there is said to be land enough for eight millions of farms of one hundred and sixty acres each, one half, or four millions, would sustain a population of thirty-two thousand millions, which is more than thirty times the present population of our globe.

§ IV. POWERS OF NUTRITION DIMINISHED BY OVER-EATING.

Mr. S. tells me that when he visits Saratoga Springs for relaxation, and allows himself to eat more than usual, his face has a higher color, and he invariably loses flesh. Thus the functions of nutrition and waste lose their equilibrium.

Dr. D. S., of Northampton, gives me the case of a child that, from the age of two and a half to three years, was a member of his family. Her appetite was never satisfied; she cried for food a great part of the day, and often left the breakfast-table crying for more, after eating four good-sized potatoes, and a dish of bread and milk. She ate a meat dinner, and bread and milk for supper. She had seven alvine evacuations a day, and the cutaneous and pulmonary exhalations were so offensive as greatly to annoy the whole family, the girl who slept with her making especial complaint.

She was removed from Dr. S.'s to the interior of New York in the month of May; was extremely emaciated, and the lady who had the care of her says "that in the September following she weighed only fifteen pounds; in the meantime she had become encrusted with sores, from

the crown of the head to the sole of the foot." After this she was fed *exclusively* upon baked apples; the humor subsided, the skin became smooth and fair, and early in December she weighed twenty-three pounds. She became quiet, good-natured, and intelligent.

CHAPTER XII.

VEGETABLE FOOD SUFFICIENT FOR MAN — FAVORABLE TO HEALTH — MORAL AND INTELLECTUAL EFFECTS OF A VEGETABLE DIET — THE PROPHET DANIEL.

§ I. VEGETABLE FOOD ADEQUATE TO MAN'S PHYSICAL WANTS.

VEGETABLE products contain all the materials of nutrition required by the human constitution.

Among those whose attention has not been turned to the subject of diet, it is a common opinion that animal food is essential to the health and strength of man. Such, however, is far from being the case; for, as Dr. Lambe remarks, "In every period of history it has been known that vegetables alone are sufficient for the support of life, and that the bulk of mankind live on them to this hour."

Mr. Lawrence says, "That animal food renders men strong and courageous, is fully *disproved* by the inhabitants of Northern Europe and Asia, the Laplanders, Samoides, Tungooses, Buracts, and Kamtschadales, as well as by the Esquimaux in the northern and the natives of Terra del Fuego in the southern extremity of America, who are the smallest, weakest, and least brave people of the globe, although they live almost entirely on flesh, and that often raw."

The finely-developed forms, the remarkable symmetry, and the great strength and activity of many tribes in the islands of the Southern Pacific, have engaged the atten-

tion of travellers. "The people of the Marquesas and Washington Islands," says Langsdorf, "excel in beauty and grandeur of form, in regularity of features, and in color, all the other South Sea islanders..... The men are almost all tall, robust, and well made. Few were so fat and unwieldy as the Otaheitans; none so lean and meagre as the people of Easter Island. We did not see a single cripple or deformed person, but such general beauty and regularity of forms, that it greatly excited our astonishment. Many of them might well be placed beside the most celebrated *chef d'œuvres* of antiquity, and they would lose nothing by the comparison."

At Nukahiwah, one of the Marquesas Islands, this voyager saw a youth named Mu Fau, twenty years of age, whose height was a little over six feet and seven inches (English measure), whose strength and activity were as great as his stature. "Though he had never till now been on board a European ship, he ran up the mainmast many times together, of his own accord, and threw himself into the sea, to the great astonishment of the spectators."

Pausanias declares that "the earlier athletæ, who contended in the public games of Greece, ate no animal food."

"The Saracens, under Mohammed and his immediate successors, possessed the most vigorous and hardy constitutions, which enabled them to encounter great fatigue, and rendered them the terror of their enemies. Their chief drink was water, and their food consisted, in a great measure, of milk, rice, and the fruits of the earth. The celebrated Omar, the second caliph from Mohammed, lived wholly on vegetable food, and was remarkable for the acuteness and energy of his intellect, the hardiness of his

constitution, and the entire control he possessed over his bodily appetites."

"At Jenna," say the Landers, "about fourteen degrees east of Cape Mesurado, the inhabitants have an abundance of bullocks, pigs, goats, sheep, and poultry, but they prefer vegetable food to animal. Their diet is, indeed, what we should call poor and watery, consisting chiefly of preparations of the yam and Indian corn; notwithstanding which, a stronger or more athletic race is nowhere to be found. Burdens with them, as with most of the natives of many parts of the continent, are invariably carried on the head, which it is more than likely occasions that dignified uprightness of form and stateliness of walk, so often spoken of by those acquainted with the pleasing peculiarities of African women."

In some districts in Spain, the peasantry lead a cheerful and happy life, living entirely on milk and vegetables. Swinburne says that "bread steeped in oil, and occasionally seasoned with vinegar, is the common food of the country people, from Barcelona to Malaga." The Marquis of Alcala, a Spaniard by birth, says that "the laborers on the fields live in a most extraordinary way in the eyes of the English; that is, they eat no animal food." After giving an account of a curious vegetable pottage eaten by them, he says: "Their breakfast is bread and cheese in winter, and bread and fruits in summer; their drink is water at all seasons; yet the Spanish peasants work hard, and they are undoubtedly the healthiest, liveliest, and best-formed peasantry I have ever seen, and I have travelled a great deal in Asia, Europe, Africa, and almost the whole of the West Indies."

Thousands of the Irish, at this moment, live upon potatoes and water, with a little salt. And yet the constitu-

tions of the Irish, reared upon this simple diet, are capable of enduring the greatest hardships. Very many of the Irish who come to this country die young; but this is owing to the use of alcoholic drinks.

Douglass, in his description of the eastern coast of Scotland, more than half a century ago, says that "the common food of the country people is oatmeal, milk, and vegetables, chiefly red cabbage in the winter season, and coleworts for the summer and spring. At ten or twelve miles' distance from a town, flesh is never seen in the houses of the common farmers, except at a baptism, a wedding, or at shrove-tide." The same writer gives a farmer's bill of fare for a day, which does not contain a particle of animal food: "yet," says he, "they are strong and active, sleep sound, and live to a good old age." In Scotland, at the present day, many are said to be reared from infancy to manhood chiefly on certain preparations of oatmeal; and what arm has been more dreaded in battle than that which wielded a Highland claymore?

In 1779, an Englishman describes the Russian grenadiers as follows: "They are the finest body of men I ever saw. Not a man is under six feet high. Their allowance consists of eight pounds of black bread, four pounds of oil, and one pound of salt per man for eight days; and were you to see them you would be convinced that they look as well as if they lived on roast-beef and English porter."

In 1854, when these Russians surprised the world by standing against the attack of the "Allies," on the bloody battle-field of Alma, were found dead Russians with their provisions in their knapsacks, and these provisions were "black bread crumbs in oil."

Capt. Town, of Boston, informed me that "the laborers

at Cronstadt (in 1810) ate onions with their bread and water, and yet were strong, athletic men."

The porters at Smyrna are noted for their strength, With the aid of the Turkish pack-saddle, they carry on their backs loads that to an American or European seem almost fabulous. Capt. Samuel Rea informed me that he was one of a party who detained one of these porters, as he was passing the office of Mr. Offley, formerly our consul at Smyrna, and weighed his load, which was of boards. It amounted to nine hundred and five pounds! The usual load for these men is a box of sugar, and with this on their backs they will trudge all day from the ships to the warehouses. And yet their diet is bread, water, figs, and other fruits.

Dr. Hamlin, who has resided more than twenty years in Constantinople, tells me that he is quite familiar with the habits of the Turkish porters in that city, and that they eat bread made from flour scarcely bolted, fruits, curdled milk, of which they are very fond, rice cooked with some other vegetable, and about twice a week a little meat at dinner, which they eat soon after sunset. They never drink any sort of distilled or fermented liquor. Onions and garlic are largely consumed by the Turks. Dr. Hamlin knew a man who travelled extensively, and who lived upon the black bread and raw onions. His food cost him next to nothing.[1]

The activity and hardiness of the blacks who labor on the rice plantations of the South are proverbial. In the cold season, that is, from November to March, most of the males are employed in clearing the ditches and repairing the dykes of the plantations, which must be overflown the ensuing season. In these ditches, half-leg deep in mud,

[1] Feb., 1851.

clad only in a short pair of trowsers, they labor from morning till night. Their food all this while consists of only *one kind* of vegetable food, either the sweet potato, boiled rice, or corn-meal in the shape of mush or hoe-cake. Yet they are healthy and cheerful, and often make long and merry evenings at their social visits. Mr. Cohen, of Georgetown, S. C., who for twelve years had the charge of five rice plantations, and who had carefully studied the diseases incident to the climate, declared to me, in the summer of 1832, that he had never known a colored man who wrought upon the plantations to be afflicted with the endemic fever, so destructive to the whites who come within reach of the pestilential exhalations from the flooded fields of grain. In this atmosphere, however, the negroes labor, eat, and sleep in perfect security. These same blacks, when removed from these fields and employed as house-servants for some time in the uplands, if they should return to the rice ground, are as liable to be attacked by the fever as the whites. This fact clearly shows that the workers on the plantations do not escape from any prophylactic power inherent in the African constitution, but that their immunity from disease is due to their mode of living.

Jason Pattee, of Hanover, N. H., at the age of twenty, had both carotid arteries tied for a large bleeding nævas upon the top of the head. Shortly after the healing of the wounds, he came to live with me, and for *seven* years continued in my family as a hired man. For the last six of these seven years he lived by choice on a strictly vegetarian diet with milk, and abstained wholly from the use of fermented and distilled liquors. He was the strongest man I ever had with me, and did more labor and received higher wages than any man in the neighborhood.

The Hon. Mr. Buckingham assured me that he saw at Calcutta men from the Himalaya Mountains, who made exhibitions as athletæ, whose strength was nearly equal to that of *three* of the strongest Europeans picked from the regiments and ships then there. They could grasp a man with one hand on his breast and the other on his back, and hold him in the air at "arm's-length" so tightly that he could not escape. Yet these men never had used any drink stronger than water, nor did they eat animal food.

§ II. VEGETABLE FOOD LESS LIABLE THAN ANIMAL TO GENERATE DISEASE.

Sir J. Sinclair says that "the late Sir Edward Barry prevailed on a man to live on partridges without vegetables, but after eight days' trial he was obliged to desist, on account of strong symptoms of putrefaction."

It is well known that a diet exclusively animal, on board ship for several months in succession, is capable of inducing scurvy. This is in part attributable to the flesh-meat being salted, and coming from domestic animals; it is less wholesome than that which comes from the forest.

"It is a remarkable fact," says Dr. Lambe," that at Heimaey, the only one of the Westmann Islands which is inhabited, scarcely a single instance has been known, during the last twenty years, of a child surviving the period of infancy. In consequence, the population, which does not exceed two hundred souls, is entirely kept up by emigration from the main-land of Iceland. The food of this people consists chiefly of sea-birds, fulmars and puffins. The fulmars they procure in vast abundance, and they use the eggs and flesh of the birds, and salt the latter

for their winter food. There are a few cows and sheep on the island, but the inhabitants are said to have no vegetable food."[1]

Col. Long, whose expedition to the Rocky Mountains, in 1819, is well known, assured me that among the Indian tribes which he met with on his tour, and many of which live almost wholly on animal food, he observed but a very small proportion of children. The same thing was observed by Mr. Arms among the eastern Patagonians; and he had a good opportunity of making observations, as he passed upwards of two months in that community. Contrasted with the swarms of children met with in Ireland, and other places, where vegetable products are the principal or sole articles of food, this fact, so constantly observed in flesh-eating communities, is sufficiently significant.

These Patagonians are subject to disorders of the digestive viscera; they eat and sleep a great deal, are very licentious, and do not arrive at a great age. The oldest man Mr. Arms saw there he judged to be not above seventy-five; no other one over sixty-five, as he should judge. The stunted, pusillanimous races of the North have already been alluded to, in comparing the bodily strength and activity of different tribes. The eastern Patagonians are a taller race than the Samoiedes, Ostiacks, and Buracts, but they feed exclusively on the flesh of the guanako, a wild and wholesome meat, something like venison, which must be far superior to fish, blubber, and half-putrid walruses. The Patagonians, too, enjoy a better climate. Still, with these advantages, they are evidently in a state of deterioration, if the accounts of former travellers are to

[1] Lambe, p. 197.

be relied on, respecting their uncommon stature. The tallest man Dr. Arms found was six feet two inches in height.

§ III. MORAL AND MENTAL EFFECTS OF A VEGETABLE DIET.

Sir John Sinclair remarks that "an entire diet of vegetable matter gives to the disposition a gentleness, softness, and mildness of feeling, directly the reverse of that ferocity of mind and fierceness of character which form the leading feature of all carnivorous animals; it has also a particular influence on the powers of the mind, producing liveliness of imagination and acuteness of judgment in an eminent degree."

Many persons with whom I have conversed, who have made a fair trial of a vegetable and a mixed diet, assert that they possess a more perfect control over their feelings of resentment to injury, and, indeed, over all their passions, upon a vegetable than upon a mixed diet.

This is what might be expected from a diet sufficiently nutritious for all the healthy objects of the animal economy, and at the same time the least exciting to the brain, nerves, and blood-vessels. Every degree of unnecessary excitation of the organic actions must be regarded as a departure from the highest health, and the increased irritability of the nerves dependent on disease will give rise to peevishness, despondency, and selfishness.

The gentler passions, such as pity, love, benevolence, etc., are admitted to be more in accordance with the teachings of the highest wisdom than those of hatred, anger, and revenge, and that the former are more developed by a vegetable, and the latter by a mixed or a carnivorous diet, no man can doubt. And if any one has not made it a

matter of his own especial observation, the testimony of others is sufficiently clear upon that point.

Montaigne says that "it is remarkably obvious that most sorts of flesh and fish act upon the body and senses not in so innocent, brisk, and lively a manner as herbs, grain, fruits, roots, or the various sorts of excellent nutritive food made of them."

There is now before me an account, given by my esteemed friend and former colleague in the medical school at Fairfield, N. Y., Dr. Westall Willoughby. The account is dated 1838. Some forty or fifty years before that time, he was acquainted with the family of a Quaker, Mr. Francis, of Goshen, Conn., which consisted of the parents and seven children. They ate no meat, drank no tea nor coffee, made their molasses and sugar from the sap of the maple and sweet apples, and were very simple in their habits of life. He was acquainted with them for about twenty years, and describes them as being "active, intelligent, and proverbially healthy. He had never heard of their employing a physician, or having any sickness, and they possessed the milk of human kindness in an eminent degree."

It is well known that nations living wholly or mostly upon flesh are cruel, inhospitable, brutal, and degraded. Even Epicurus was a strict vegetable-eater, and over the gate of his garden, where he taught philosophy, he wrote that barley cakes and water would be his fare who should enter.

A remarkable case, illustrative of the effects of vegetable and mixed diets, fell under my notice some years ago at the Auburn State Prison, New York. One of the prisoners was very violent and dangerous, while living upon a mixed diet. He would seize a knife on slight provocation,

and threaten to kill his fellow-workmen and the keeper, and, as a consequence, he received a flogging at least once a month. He was also troubled with severe headaches, and was obliged to go to the hospital, be bled, and take medicine. At length his meat was taken from him, and a double ration of bread allowed him. He became immediately peaceable and docile, his headaches ceased, and when I saw him, the superintendent told me that he had been in the hospital but once since he quitted animal food, and then it was from earache. The flogging was discontinued, and the prisoner was manageable and docile. His own explanation, of not being flogged for so long a time, was, that "the fellows had left off plaguing him."

The experience of all time shows that for students the vegetable diet is the best; and the fact is what we should expect from a knowledge of physiology. The amount of nervous power in the constitution is limited, and the larger the amount of this given to digestion, the less will there be left for the operations of the mind. Now it is notorious, that a dinner of flesh causes a greater dulness and stupidity in digestion than one of vegetable food. And the large consumers of meat dinners are not, as a general thing, noted for their intellectual activity.

A majority of the ancient philosophers, it is said, were vegetable-eaters; and when, if ever, was the human intellect more fully developed than in Plato and Pythagoras? The immortal Newton, while writing the treatise on Optics, abstained from animal food; and Des Cartes is said to have preferred to load his table with fruits and vegetables rather than the carcasses of animals.

It is related by a visitor to Santa Cruz, that the young field-negroes, who live wholly on vegetable food, are easily taught, and manifest a great love for learning, while the

house-negroes of the same age are dull, and care nothing for education.

Some of the degraded tribes of the North, who live wholly on flesh, find *ten* the summit of their powers of arithmetical calculation, and having counted as high as that, point to the hair on their head for what lies beyond.

§ IV. THE PROPHET DANIEL.

The case of the prophet Daniel and his companions illustrates some of the foregoing positions. An experiment of only ten days' duration proved that vegetable food and water promoted both health and beauty: "Their countenances appeared fairer and fatter in flesh than all the children who did eat the portion of the king's meat."

Their intellectual progress, too, was rendered altogether more rapid by the simplicity and plainness of their diet. At the end of a three years' course of this style of living, it was announced that "among them all was found none like Daniel, Hananiah, Mishael, and Azariah; therefore stood they before the king."

The high-toned moral and religious feeling for which these individuals were distinguished, and which carried them into the "burning fiery furnace" and "into the den of lions," was not attained by luxury and indulgence, but in connection with a rigid moral discipline, embracing habitual and protracted self-denial.

Daniel possessed an unexampled influence at the courts of several princes, under the Babylonian and Medo-Persian dynasties, during the long period of about seventy years. He well knew the benefits of the entire abstraction of stimulants from his diet, in reference both to the operations of the intellect and of a devotional spirit; and it

would seem that, at the age of almost ninety years, a most abstemious diet for "three full weeks" was one of the necessary preparatives for that overwhelming vision which he had "by the side of the great river Hiddekel," where "the man, clothed in linen, whose loins were girded with fine gold of Uphaz, his face as lightning, and his eyes as lamps of fire," raised up the prostrate seer, and, pointing down the lengthened vista of all coming time, "showed him what things should be in the latter days."

CHAPTER XIII.

OBJECTIONS TO VEGETARIANISM — CHEROKEE ATHLETÆ — EXPERIENCE OF SAMUEL CHINN — BEAN DIET.

§ I. OBJECTIONS TO VEGETARIANISM.

THE opinion has had its advocates, that the muscles and the intellect of those who confine themselves to farinaceous food and to a water beverage must lack the vigor which would be conferred by the eating of flesh and an alcoholic drink. The lover of Scottish scenery and Scottish history, as he looks out from Stirling Castle upon the waving fields of grain on Bannockburn, is reminded of a battle on that ground early in the fourteenth century, planned and fought by water-drinking and oatmeal-eating warriors, which gave freedom and renown to the kingdom and country of Robert Bruce.

Speaking of those times, Sir Walter Scott says: "The hardy warriors of Douglas and Randolph lived exactly as drovers and other Scots of the lower orders do at the present day, when bound on long journeys. A bag of oatmeal hung at the croup of the saddle, which also bore a plate of iron called a griddle, on which the said oatmeal was baked into cakes as occasion offered; animal food was furnished by plunder in an enemy's country; in their own they subsisted well enough without. Salt, liquor of any kind (save water), as well as any variety of food, they entirely dispensed with."

General Eliott, afterwards Lord Heathfield, defended the fortress of Gibraltar during the last eight days of a terrific siege, upon only *four ounces* of rice a day for his food, and slept only four hours in the twenty-four. His vigilance and sagacity saved the rock under the united assaults of the French and Spanish forces.

How are men to live in an Arctic climate without flesh-eating?

Ans. If they are bent on peopling the polar regions, where the sun is below the horizon more than one third of the year, viz. one hundred and twenty-four days, they must eat what they can best find to sustain life. They cannot plead the necessity of plunging into a cold so intense, while a large portion of the temperate zone remains uninhabited. Some of the small grains, as oats and barley, flourish as far north as the seventieth degree of latitude.

How is the flesh of cows, sheep, and goats to be disposed of, under the prevalence of vegetarianism?

Ans. In the same way that we dispose of horse-flesh.

To what sources shall the farmer look for manure, if barn-yard manure is diminished by a smaller number of animals than is kept at present?

Ans. Barn-yard manure does not half meet the wants of the farmer, as things are at present. A patch of ground should lie fallow every year, and a coating of clover or cow-pea be ploughed in, as is done in some parts of Virginia. This forms a rich and well-flavored manure, not objectionable like the barn and hog-pen and night-soil manure. This ploughing in of a crop of clover or cow-pea for two or three successive seasons, restores the productiveness of soils rendered entirely barren by the most exhausting of all crops, that of tobacco.

A distinguished physician remarked in a medical journal, that milk is animal food; then why object to the eating of flesh? To this it may be replied that milk and the animal that produces it are very unlike each other. If one is a good and wholesome food, it does not follow that the other is. An apple is a delicious and wholesome food for man; but the same cannot be said of an apple *tree*.

§ II. CHEROKEE ATHLETÆ.

Dr. Evans, who has been a practising physician for some years in the Cherokee nation, mentioned to me that they had an exhibition of a peculiar game at ball, at which the young men of the nation displayed their muscular powers. This spectacle drew out the whole tribe to witness the exhibition.

The young men selected for the performance were divided into two equal parties, placed at a goodly distance from each other in a large field. At the commencement a large ball was tossed up, midway between the parties, and all rushed together to seize upon it. When any one was successful, and could carry it to his goal, it counted one of the game. The one who seized the ball was liable to have it wrenched from him in a moment, by some one of large numbers who surrounded him. This kept up a running and scuffling, which was incessant for two hours and more, before the game closed. The doctor remarked that this was the most remarkable exhibition of muscular effort, continued without the least intermission through that long period, that could be conceived of. The young Indians were prepared for this by being fed in a very exact way.

Dr. E. had seen an athletic white young man who was very desirous to take part among the actors. They reluctantly admitted him. He went in, rough and tumble, with the rest, and seemed to act his part very well for about twenty minutes, when he withdrew, completely exhausted, to the great amusement of the red brethren.

NEAR TAH-LE-QUAH, Cherokee Nation,
June 18, 1860.

PROFESSOR R. D. MUSSEY:

DEAR SIR — On returning to my residence last night, from a professional ride of sixty miles or more, I had the pleasure of finding your letter, and now seat myself to reply.

I am engaged, as opportunity permits, in writing out a small history of the Cherokees, and in regard to your subject of inquiry touching *diet*, will transcribe a few paragraphs from my manuscript. It is written in the past tense, as the Cherokees have greatly changed from their pristine state, i. e. from the condition in which Europeans first found them, and, in fact, from what they were twenty-five and thirty years ago even.

"Their diet through the summer months (and with some during the greater part of all seasons) consisted principally of hominy, potatoes, and bread composed of meal, of Indian corn, and beans. The corn was pulverized in wooden mortars, with pestles of the same material. In addition to these farinaceous substances, juicy vegetables and fruits were freely used when they could be procured. Occasionally an individual was found who made a free use of animal food, and who seemed capable of exerting, for a short period, more muscular power than those who subsisted principally or entirely on a vegetable diet; but the muscular force of the latter was deemed to be more enduring, and they were considered more active, lithe, and long-winded (which latter quality is nothing more than a long endurance of muscular exertion); and so well was this difference known and appreciated, that hearty flesh-eaters were excluded from the list of ball-players.

"*The Ball Play* was a great national game, and to excel in it was, with good reason, considered a proof of vigorous manhood, and added vastly to a man's standing in society, — Cherokee society, as it was once constituted, — which partook largely of the Spartan element; probably because it demonstrated, in a considerable degree, the prowess of the veteran warrior on the battle-field, and foreshadowed that of the more youthful. To perform successfully in it required a combination of great muscular force,

agility, adroitness, and powers of endurance. In large plays, any person laboring under a defect of the muscular system, or any other physical defect interfering with power or motion, was prohibited from participating in its performance.

"During the period of *seven* days, the chosen performers were kept under the strictest discipline in regard to general conduct and diet. They were not permitted to have any kind of intercourse with any persons whomsoever, except those who were selected to superintend their training and prepare their food; these consisted of *seven* men, one from each of the seven national *clans* or tribes, and seven *chosen* women, selected in like manner. Positive temperance was enforced. Animal food was interdicted, and also all seasoning or condiments, common table-salt not even being allowed. The diet was strictly vegetable, mostly (perhaps entirely) farinaceous, and consisted principally, at least, of parched corn meal mixed in water. Every morning they were made to plunge into a cold stream of water. Aside from the performance of the *ball-play dance* every night during their seven days' probation (which was a superstitious observance), they refrained from every practice calculated to enervate or depress the muscular energies. In case of local pains, or other slight illness, an energetic application of their peculiar method of scarification — topical blood-letting — was promptly resorted to."

Most truly and respectfully yours,

J. P. EVANS.

Parched Corn.—Judge Este informs me[1] that he was told by a Delaware chief, that when any of the tribe were sent on an express which required great and enduring activity, they always fed exclusively upon parched corn. This food was found to sustain them better than anything else under the severe and protracted exercise necessary on these occasions.

§ III. EXPERIENCE OF SAMUEL CHINN.

The following was received from Dr. Dana, of Essex County, Mass., in 1859, in reply to a note by Dr. A. A. Hayes: —

"I have had an interview with the person concerning

[1] October, 1840.

whom you inquired, and from conversing with him have gained the following information, which I hope will answer Doctor Mussey's purpose.

"His name is Samuel Chinn. He is forty-seven years old, a respectable tradesman, a shoemaker, a bachelor. Many years ago, as his health was not good, he fancied to try the effect of a vegetable diet, and, from 1834 to 1847, he subsisted wholly on such diet, chiefly in the form of raw grains of wheat. From January, 1847, to January, 1855, he accustomed himself to use occasionally a small quantity of animal food, but for the last six months has returned to his former habit of entire abstinence. He usually carries loose grains in his pocket, which he consumes as is found necessary. He drinks nothing but water. He appears to be very healthy and vigorous, and is and has been a famous pedestrian. In 1844, he travelled on foot to and from Washington, with ease and without fatigue, walking on an average thirty miles a day, and the last two days ninety miles. He is quite a politician of the Jackson and Jefferson school, and has been a member of our State Legislature."

In December, 1861, he was still well, a strict vegetarian.

§ IV. BEAN DIET.

Frederick Field, Esq., in a lecture "On the Mineral Treasures of the Andes,"[1] gives the following statement: "It may be well here to speak of the Chili miner. He is capable of undergoing an immense amount of fatigue. The ascent and descent of mines, where there are few or no appliances of machinery, is never an easy task, but with

[1] Royal Institution, London, Feb. 3, 1860.

two or three hundred weight of stone or metal it is peculiarly trying; and yet the miner, day after day, goes on with his employment, digging at his work, and carrying up the rock to the surface.

"In the year 1851, I begged Senor Ermeneta, the proprietor of some of the richest mines in Chili, to send some specimens for the great exhibition, as samples of Chili wealth. He forwarded two large stones, one weighing three hundred and fifty-six pounds, the other three hundred and forty-nine pounds, and told me that perhaps the strength of the miner who excavated these masses, and brought them from the mine, was as striking as the richness of the specimens themselves. Both stones had been taken from a depth of more than three hundred feet, and had separately been borne on the shoulders of a man, he having to ascend, not by ladders or other aid, but by climbing up the nearly perpendicular slope of the mine; and the food the miner lives upon is an interesting subject for physiologists. He seldom takes meat, and when he has that luxury, it is simply served out in long thin strips, which have been dried in the sun. His chief diet is the *haricot bean*,[1] and without this nutritious vegetable he could never get through the work required of him. The beans are boiled until they are quite soft, and are eaten with a little bread."

[1] Kidney bean.

CHAPTER XIV.

VEGETABLE DIET — ILLUSTRATIVE CASES.

Ancient Persian Schools. — Xenophon, in his Cyropedia, says that at the public schools the Persian boys are taught to be temperate in eating and drinking; and what contributes not a little to this, is the example of those who are older, or of an advanced standing, who are never seen to go to their meals without permission from their overseers; and besides, boys are not permitted to take their food with their mothers, but with their schoolmaster, at such times as are permitted or bidden by their overseers. They carry from home with them bread for solid food, and cresses for condiment, and a cup to draw their water from the river when thirsty.

They are always taught to shoot the arrow and throw the javelin. Until the age of sixteen or seventeen years, they practise these exercises, and then are initiated into the rank of youth. The youth are permitted to hunt with the king, and carry with them the same food, viz. bread and cresses. While upon the chase they eat but once a day, to inure themselves to hardships. If they take anything in the chase, they are permitted to use it as a condiment with their bread; if not, they must eat their cresses.

If any one supposes that they do not eat with a good relish when they have only their cresses with their bread,

let him recollect how sweet is a coarse cake to a hungry man, and how delicious is water to one truly thirsty. (From this remark, it may be inferred that the Greeks were less simple in their diet). Only half the youth go out to the chase at a time; the others, who remain, practise the exercises they learned while boys, as shooting the arrow and throwing the javelin. They have public contests, and prizes are awarded to the winners. The magistrates employ them, when necessary, to guard anything, or to search out or to detect criminals, or apprehend thieves, or for any other feat which requires strength or agility.

From about twenty-five to fifty, they are soldiers. At twenty-five they pass from the rank of youth to that of "perfect men" (full manhood).

From the age of sixteen or seventeen, they serve ten years, and then enter the rank of "perfect men;" and after twenty-five years from entering the list of soldiers, that is, at fifty or upwards, they enter the rank of old men. After this they remain at home, acting as judges in public and private affairs, and they choose all the public officers, and appoint the magistrates.

All classes of the community had access to the public schools. Those who could bring up their children without labor, sent them; the others did not. No class in the community was excluded by law from the road to office and honor; they must rise by the regular gradations. None could be admitted to the rank of youth without having received a course of instruction under the public schoolmasters, nor to the rank of perfect men without having passed regularly through the grade of youth—(and so for the old men).

There remain among the Persians to this day eviden-

ces of their moderate diet, and of their working (or toiling) off their food; for it is disgraceful to be seen spitting or blowing the nose, or to appear flatulent.

Wightman the Hermit. — A few years since, a man was living in the town of Hancock, Berkshire Co., Mass., known by the name of Wightman the Hermit, who had lived for thirty years upon apples merely, drinking nothing during that time. He was never sick but once during that period; then he had a bad cold, and lay for three days, eating nothing. At that time he drank water, the only exception during the thirty years. This abstinence from drink was the dictate of some religious impression, and after the thirty years he again allowed himself to drink water. He lived to the age of more than eighty years.

Another Case. — "It is unsafe from isolated facts to deduce general principles; still, such facts, when well authenticated, are worth recording. For this reason, though at the risk, perhaps, of incurring the charge of egotism, I shall give our readers my *dietetic experience* for the last six months. Others, whose situation and occupation may be similar to mine, may chance to derive advantage from it.

"Last autumn and winter, I was much confined by my editorial and other sedentary duties, and I found my health beginning to suffer, although my manner of living then was what is usually called very plain. I used animal food only once a day, and then in small quantity; used coffee and bread only for breakfast, and tea and bread only for supper; drank neither spirits, wines, nor fermented liquors of any kind (which indeed I have never used at any period of my life). I was considered by my acquaintances as an abstemious liver.

"Still I found the incipient symptoms of dyspepsia coming on, in consequence, probably, of exciting the mind too much and the body too little. Had I been able to obtain a release from my desk, I doubt not this would have disappeared; for at every period of my life, when I could spend half the day in the open air, I have enjoyed good health; but this was now impossible. So I determined on this plan: I gave up at once the use of tea and coffee and animal food, used bread and butter with milk and water for breakfast, the same for supper, and either bread and boiled eggs or hard biscuit and boiled rice and milk for dinner.

"To this diet I have adhered for four months, and without any cessation of sedentary employment. I have completely regained my health. I found no diminution of strength or spirits from the change, but rather the contrary, and even though I might return to my former regimen with impunity, I have no desire to do so. I have lost all craving for animal food, and can relish my breakfast quite as well though it does not come from China or the West Indies.

"My food cost me about ten or twelve cents a day. The Roman, who dined on beans, asked the ambassador, who was sent to tamper with his patriotism, 'whether gold and silver were bribes to him who could enjoy such a meal and desire no better.'"[1]

The Trappists. — For some years there has been at Bardstown, Kentucky, a monastery of Trappists, concerning whose peculiarities of living I made some inquiries of the principal, and received from his secretary the reply translated as follows: —

[1] Journal of Health, Vol. i. p. 331.

"1. The food of the Trappists is composed solely of vegetables. Their soups are always made of water, with, however, the accompaniment of carrots, cabbages, turnips, potatoes, onions, etc.; never butter nor fat. The dish which follows the soup is composed of the same vegetables; sometimes peas, maize, or rice, is added. In these different dishes milk is mingled a good part of the year; and it happens sometimes, especially in summer, that the dish is entirely milk. In summer, the Trappist takes two meals, the first at eleven and a half o'clock, and the second at six o'clock; in winter, only one meal, at two and a half o'clock. His bread is made of wheat, sometimes mingled with maize.

"2. Their beverage is apple-cider, to three fourths water; moreover, we have succeeded in making another drink from an American fruit, which is called persimmon. In addition to these, and indeed principally (as everywhere else), clear and limpid water from an excellent fountain.

"3. In respect to the bed on which the Trappist reposes, it is framed of three planks, with a straw bed laid on them, of four fingers in thickness, with a bolster of the same material, and finally a woollen coverlet. The hour of repose is seven o'clock in winter, and six o'clock in summer; but at this season of the year, and until the 14th September, he takes an hour's rest at noon. As you readily perceive, he has time enough to refresh himself; but I must add that he lies down in his clothes, just as when he is in the choir; a habit likewise observed at meals. One of the most annoying and fatiguing positions is to repose in the clothes; but it is contended that these profuse perspirations are equivalent to numberless bleedings. He is, however, satisfied with his lot, because a Trappist can

never forget that he is a monastic, penitent for others and for himself. In winter, he sleeps from seven o'clock till two o'clock, and in summer from eight o'clock to the same hour; on Sundays, and ordinary festival days, till one o'clock; and fourteen or fifteen times a year, till midnight, in order to chant the offices till four o'clock. This exercise is repeated as many as six times, also, during the day, exclusive of the holy mass; but is, however, much shorter.

"4. As you see, the day of the Trappist is ordinarily of seventeen hours; it is composed of reading, meditation, mass, etc.; and of labor, which is regularly of twelve hours' duration for those who are not occupied with the holy offices, and of from six to seven hours for others, who, for the most part, never handled a shovel or spade before entering the establishment.

"The object of the Trappist's labor is particularly the cultivation of land, and whatsoever is usually done on farms. In the interior of the monastery, moreover, are to be found all the trades which are necessary to the support of the community; such as smiths, forgers, locksmiths, carpenters, joiners, shoemakers, turners, tinkers, bookbinders, etc.

"That which awakens the admiration of the stranger, and creates the prosperity of these religious establishments, is the fact that not a step is taken, not a hammer lifted, nor a pair of scissors used, without the order of the superior; and that, although the sound of implements may be distinguished upon the lands, and in the work-rooms of the monastery, no human voice is ever heard, unless it be that of the superior. But what is yet more admirable and worthy of praise, is the reflection that all this long and wearisome toil is executed with the intention of procur-

ing glory to God and salvation to souls. May Heaven grant that you may have a good share thereof, worthy sir.

"I might, it may appear, here close; for you must have already remarked that frugality and exercise form the chief rule of the Trappist religion. I will add, what I was about to forget, that one of the greatest advantages to the Trappist, in a sanitary point of view, and that which contributes most efficaciously to support his health, and preserves it from the thousand miseries which afflict our poor human nature, is his clothing, which is made entirely of wool. According to our physician, our entire medicine is the so-termed '*expectant*,' — this is all I know of the matter. It is a scientific term within the realms of the faculty, and you will readily comprehend it.

"I intended to pause here; but in order to complete this article, to fulfil the intention of my reverend and respected abbot, and also to show you how much it lies at his heart to indemnify you for the involuntary delay occasioned by his absence, and, finally, to leaving nothing to desire on your part for the advantage of your patients or that of society, I hasten to accomplish the orders which have been given me, in offering you the reflections of a distinguished French physician relative to my subject: 'My experience,' says this distinguished doctor, 'an experience of twenty-nine years of the practice of medicine, in the establishment of La Trappe, among the males as well as the females, has taught us that it is necessary to treat both in an especial manner, and substantially quite independently of the methods in use in society. The great principle of all monastic practice is to prevent diseases, or to curtail their development and progress; at least, as much as is possible in a medical and humane point of view. Try, then, to strengthen these infants in their cradle, and

you will scarcely ever see them grow up among the monastics, especially if you use few remedies and much sanitary care. We believe that the small number of invalids, and the slight mortality among the Trappists, is attributable, in a great degree, to this prophylactic practice; for it is certain, evident, and satisfactorily demonstrable, that persons are less diseased among them and die sensibly less than in society, or even in other religious houses. It must here be loudly proclaimed, in order that philosophy, polity, and medicine may hear and comprehend it. It is a fact, a result of observation, which appears to us singularly remarkable, that the regimen of La Trappe, which is generally and very falsely believed to shorten life, and to destroy the firmest constitution, is, on the contrary, a veritable means of health and longevity, and a sure preservative against the most grievous ills which afflict humanity.'

"The following are facts, sir, which I can corroborate: an abbot of Mellerny, France, died at seventy-five years of age; two simple monastics in the same establishment died, the one at seventy-nine, the other at eighty-two years of age. I know many others who are still living there, one having been in profession thirty-six and another thirty-eight years. At the Trappist establishment of Aiguebelle, France, an abbot died at ninety-six years of age, a few years since. I have known many members of different Trappist establishments, with health broken and stomachs destroyed on their arrival, grow strong by degrees, and become able to fill the most fatiguing posts of the community. I now resume the doctor's observations.

"'We do not find among the Trappists the numerous class of fevers and fearful maladies which are the inheri-

tance of people of the world, addicted to high living, and immersed in sensual enjoyments; these serious diseases are apoplexy, aneurism of the heart, dropsy, gout, gravel, stone, cancer, scurvy, etc. Now, for twenty-nine years we can certify that we have not met a single case of these various diseases among the Trappists; not even — a thing which will appear incredible to our preconceived notions and prejudices — not even, we say, a single instance of scurvy, although we have very often observed it on persons in the world at large. It must be added to this, that the terrible cholera of 1832 invaded no establishment of Trappists.'

"And I, the present writer, will here add, with all truth, that there were several cases among our nearest neighbors, and that we were exempt from it. Typhus fever raged even at Nazareth, Bardstown, and Loretto, but no case presented itself at Gethsemane.

"'This scourge,' continues the doctor, 'made great ravages in the environs of Grand Trappe, in the neighboring parishes, but never crossed the cloister of the monastery. Moreover, a virulent epidemic, the *diphtherite*, appeared several times, fifteen years ago, in the district where La Trappe is situated, but expired at the foot of the abbey wall, where it never penetrated. It is not long since (1849) a malignant dysentery, almost as dangerous as Asiatic cholera, desolated the country. This new scourge raged especially among the poorer classes, and chose its victims among persons the worst or most frugally fed; in this respect, had not the Trappists apparently everything to fear from the deleterious influence of the epidemic, especially when they saw an entire family, composed of six persons, attacked by it almost at their gates? In fact, a blind beggar was seized by it in the monastery itself.

The attack, though serious, was promptly overcome. Like the others, it stopped there, and broke its force, so to speak, against the cloister wall. It seems as though these scourges had been told, 'Thus far shall ye go, and no farther.'

"But I must stop, dear Sir; I fear I may weary you by a too long repetition; for the author is never ready to close, and this is enough, it would seem, to satisfy all your inquiries. You now know what is the life of the Trappist, the condition of his health, and that which constitutes in his case that genial and unvarying well-being which in the world would be gladly purchased by gold. This is what gives him contentment amid the severest of his privations, and to his exterior, almost barbarous and repulsive, that air of gayety and inexpressible satisfaction. He is happy, and feels it; God is all his joy and all his riches here below; and one day, the most desired of his life, He will become his eternal recompense. Such, perhaps, is the veritable, the unique, the excellent regimen of the Trappist; the sentiment of his present happiness, and the firm hope of a happiness without end."

It is not to be credited that wearing the same clothes, day and night, lying on a plank, being called up at two o'clock in the morning, when everybody had better sleep until three or four, and eating but once a day in winter, can be as favorable to long life as other conditions which might easily be pointed out.

Capt. John Matthews, of Bath, in March, 1796, when the Constitution was building in Baltimore, went to Norfolk and found the town full of small-pox. Neither he nor his crew, in all six persons on board the schooner, had had the disease, except the mate. The crew kept out evenings, as is common, but Capt. Matthews kept aboard ship

and dieted, eating nothing but mush and rice and molasses. He stayed the first night in a house where they had had the small-pox, and one had died out of the house. None of the crew dieted.

On their arrival at Baltimore, with spars and material for the Constitution, about fourteen days after their arrival at Norfolk, three of the men broke out with the disease. Capt. Matthews and the boy, which last had not been on shore at Norfolk, were inoculated. In eleven days, no small-pox, and he was then inoculated again; in sixteen days was again inoculated; that did not take; he living all the while on the very simple diet. He was then directed by his physician to take two glasses of wine a day, and in four or five days a light small-pox appeared, and the wine was omitted. He had the disease very lightly; it did not confine him; he attended to his business all the while, and although the doctor left him medicine, he did not take it. One of the men died; the other two had it very severely — both delirious. All lived freely during exposure, eating and drinking as usual, without restraint.

The boy dieted, and had it lightly, by inoculation, and dieted after being inoculated. He continued his cooking all the time he had it.

Capt. M. never used tobacco, and rum he never drank; he very rarely took any kind of spirit. He was thirty-one years old, and generally enjoyed very good health; sometimes had pain of the chest, the effect of a former blow.

In 1800, Capt. Matthews sailed for Bermuda, with a deck load of oxen, cows, horses, and a mule. But very little hay was put aboard; no screened hay; only loose hay on deck. The ninth day they made the island, took a

pilot aboard, and that night a gale of wind came on, blowing them off, and they were out fourteen days longer. They had no hay, they soon used up their corn; had some potatoes. They gave the cattle all the straw in their beds. Capt. M. then gave the animals the bark and shavings from the spars which they had on board. These and the potatoes sustained them. The old cow would not eat them, Capt. M. thinks from their bad teeth; they died. The young cattle and the mule lived, and were in good health, as well as two or three young horses. The other horses, which did not eat the shavings, died.

Capt. Jacob Pearson. — Capt. Pearson sailed for ten or twelve years, in the employ of a rich merchant of Salem, and often visited some of the sickliest climates in the world, without being sick.

"What did you do to prevent sickness?" said a gentleman to him. "I left off doing," was his answer. "I ate no flesh-meat, and drank nothing stronger than water."

Dr. Robert Jackson. — "I have wandered a good deal about the world," says this distinguished physician of the British army, "and never followed any prescribed rule in anything; my health has been tried in all ways; and by the aid of temperance and hard work I have worn out two armies in two wars, and could probably wear out another, before my period of old age arrives. I eat no animal food, drink no wine or malt liquor, or spirits of any kind; I wear no flannel, and regard neither wind nor rain, heat nor cold, when business is in the way."

CHAPTER XV.

VEGETABLE DIET — ILLUSTRATIVE CASES.

Bread and Water Diet. — Capt. Peter Twitchel, of Maine, having failed in business some years ago, and finding himself considerably in debt, betook himself to a bread and water diet, in conformity with an opinion he had often expressed, that a man ought to live on bread and water, if he had no other way to pay his debts. On this diet he did a man's work in making rakes. "Before I lived," says he, "on bread and water, the cold would benumb me; the blood would leave my fingers, and I could not walk after riding a little way in the cold. Since the bread and water diet, I have been free from benumbing effects of the cold."

He sleeps seven or eight hours in the night; sometimes an hour in the day, — never in the day till last winter.

Capt. T., finding his family short of breadstuff, at a period when all communication was cut off by an impassable depth of snow, betook himself to the eating of milk, of which they had only enough to supply each member of the family with a pint a day. He found he could subsist very comfortably upon that quantity, eating it very slowly, sipping it in teaspoonfuls at three meals. At the end of a week, relief came in breadstuff.

Case of Col. Hasket. — Col. Hasket, in his journey in

the summer of 1833, in which he walked on foot two thousand miles in seventy days, on bread and water, ate fifteen, eighteen and twenty ounces of bread, and drank from one to two quarts of water a day. The latter part of his journey he was very active and strong, and ate eighteen ounces of leavened fine flour bread a day. The Salem Gazette states that he greatly exceeded the distance assigned him, and gained in weight two pounds and a quarter. "He is in perfect health and in good spirits, and presents a living example of temperance."

In Salem, Mass., he addressed a large audience on the subject of temperance, and gave an account of his journey.

Robert Hume. — Mr. R. W. Hume, in 1835, informed me that his grandfather, Robert Hume, who was born in Scotland, on the banks of the Tweed, and had come to this country when he was fifty years old, was then living in Bovina, Delaware county, N. Y., at the age of ninety-five. "He has never made use of butter or meat; drank no tea nor coffee till quite advanced in life, and then very little, and he has no love for either. If he has used ardent spirits at all, it was only for a short period. He eats bread and water, hasty-pudding and milk, and those vegetables which are in common use. His health has been uniformly good, so that he has taken but little if any medicine in his life. He has never used spectacles, and can yet read during nearly the whole day in a book with middling-sized print, without apparent inconvenience. Reading is now his principal employment. He has never lost any of his teeth, and I think they are entirely sound. He is still quite lively and cheerful, able to walk about and take care of himself. He takes exercise by walking in the fields in summer, has been an active farmer, has still a good degree

of intelligence, is rather hard of hearing, is not bald, and the hair is not entirely white."

Avarice and Vegetable Living. — In 1835, a man between eighty and ninety years of age, named Joseph S., was living in Berkshire Co., Mass. Always miserly in his feelings, he kept aloof from matrimony till he was between forty and fifty years of age, when he was married to a rich widow, upwards of sixty years old. She had always been fed at a rich table, had become gross, had been greatly afflicted with gout, and at the time of her marriage with S. was much broken down as to the energies of her constitution, which was naturally very good.

She found her husband perpetual dictator through the whole domestic establishment; and instead of sumptuous dishes such as she had been accustomed to, she was compelled to live chiefly upon potatoes, coarse bread, and hasty-pudding. The flesh-meats, together with coffee and tea and pastry, were all withdrawn. This course of abstemious diet was prompted partly by his extreme penuriousness, and partly, as some of his townsmen supposed, by the expectation that such reduced living would promote a speedy exit from time of his beloved spouse, who had been accustomed to *strong diet* for a number of years. He joined her in the plain diet.

The effect upon her health was surprising. The gout left her, the corpulency gradually subsided, the powers of the stomach were recruited, and the vigor and activity of days long gone by returned; and her love for extravagance was exchanged at length for a disposition as penurious as that of her husband. About fifteen years after they were married, her husband, finding her healthy and active, prevailed on her to take a short ride on horseback, and provided her with a young and not altogether manageable

horse. In this excursion the horse took to flight, threw her off, and broke one of her limbs. So healthful were all the vital functions in this old lady, that the injury was repaired almost as expeditiously as it would have been in youth. She was in good health for a long time, and died about fifteen years after, having lived with her affectionate husband about thirty years. He survived her, hugging the property she brought him as the best boon of his earthly pilgrimage.

During S.'s courtship of the widow, his protestations of love were so strong that she ventured to express a doubt of his sincerity; to relieve which, he protested in reply that "he loved the very *ground* she walked upon." She was a large landholder.

In addition to the plain diet she was compelled to follow after marriage, the exercise she took contributed greatly to her health. This she was obliged to take, since her husband, a short time after they were united, dismissed her domestic help, and she did her work alone.

This account is from Dr. C., Prof. Theor. and Pract. Med., B. Med. Inst. He attended upon Mrs. S. during her confinement with the fractured limb.

Gaboon River. — Mr. Albert Bushnell, from Ohio, missionary at the Gaboon station (Africa) for nine years, says that the natives at that place live to a greater average age than in our communities. It is not uncommon to see a person a hundred years old. Their staple articles of food are rice, corn, cassada, yams (the best substitute for potatoes), plantains, and bananas. Their fruits are limes, lemons, oranges, pine-apples, guava, and mangoes; their drink is water; sometimes they acidulate the water; sugar-cane is chewed as a dessert. They use no warm drinks.

The missionaries cultivate tomatoes and sweet potatoes.

Flesh wounds of the natives heal much more rapidly than those of the people of this country.

Dr. Ford, a good physician (at about 1832–3), had been there between two and three years; has had a considerable practice among the natives. His practice was much more successful than that of the native medicine-men, or Fetish doctors. This is a generally admitted fact. Whenever regular physicians have had the opportunity of treating difficult cases, they have often succeeded with patients who had been given up. The Fetish doctors employ incantations, mummeries, and various manipulations and antics over the sick; sometimes they give medicines internally, and sometimes make external applications, but do not make much account of medication. Their movements inspire faith.

The natives do not exclude flesh, but eat little of it. Their mutton is good; they have poultry, but river fish forms the principal animal substance which they eat. The fish are mostly small, something like herring; they are sometimes eaten fresh, but are usually preserved by being dried in the sun. The fish is very commonly made into a soup, with vegetables, or, in other words, is a condiment for their other articles of food.

Dr. Scudder. — Dr. Scudder was a missionary physician at Madras for more than seventeen years, and during that period, although physician to a population of more than two hundred thousand, he never saw among the natives a single case of consumption, of apoplexy, of palsy, or of stone in the bladder; and but one case of enlarged liver, and that patient was in the habit of drinking a quart of arrack a day. The natives have fevers, bowel com-

plaints, malarious diseases. The surgical diseases are tumors, diseases of the eye, etc.

Dr. S. had travelled considerably in palanquins; being usually carried thirty miles a day, in one instance forty-seven miles. Twelve bearers are employed, besides one to carry a torch and one to carry cooking materials. Four at a time carry the palanquin, containing one man, or a woman and child. One cent per mile is the charge for each cooley, viz., fourteen cents.

Mr. Benjamin Howland. — In May, 1834, I received a letter from Mr. Benjamin Howland, aged eighty-two, of the society of Friends at East Greenwich, Rhode Island, in reply to some inquiries I had made. He says: "It is forty-two years since I abstained from eating any kind of animal food, not even soup made of chicken. I left off eating flesh on account of my being often afflicted with sick headache. Previously to that time, I had fed freely on meats. Since that time, my food in the morning is generally barley coffee. My dinner I make of peas and beans, or other vegetables. Generally I make my dinner from sweetened water, or the above-mentioned coffee, with biscuit or brown bread crumbed into it. My supper is generally tea with bread or biscuit, but little or no butter. I rarely eat oftener than three times a day. I go to bed generally about nine, P. M., and rise at sunrise the next morning." He further states that he has enjoyed, under this regimen, a great degree of health and activity. He has strength for any kind of labor upon his farm. He takes the lead of his mowers in haying time, and can bear cold as well as most men.

Case of Mr. D——, of Ohio. — This gentleman from the country, aged seventy-seven, weight two hundred and twelve pounds, called on me for a prescription for a pain

and sense of fulness at the stomach, with shortness of breath on taking exercise, relieved only by throwing off large quantities of air from the stomach. This complaint he attributed to his having eaten two or three small slices of musk-melon a year and a half before, which at the time gave him some uneasiness, and which was thrown up twenty-seven hours after it was taken!

On inquiry, it appeared that he had been in the habit, for years, of drinking strong coffee in the morning, and tea at evening; of eating flesh three times a day, and taking his bitters in the morning and before each meal, besides an occasional sip in the interim. Remarking upon the articles indulged in, as flesh-meat, butter, liquors, coffee, tea and tobacco, he says: "Yes, thanks to God, we have all these good things!"

He informed me that his mother and a brother had died of apoplexy, and, said he, "There is a little bit of that working in me, too, for I have had two small fits of it; but Dr. M. says I am too old to die of it." I advised a cathartic, no spirits, less tobacco, lean flesh, only once a day, weak coffee and tea, no melted butter, fresh bread, pie, nor cake, but little acid and sweet. All this could only delay a little the finishing up of the case; the great work upon his constitution had been done.

CHAPTER XVI.

INJUDICIOUS DIET AND DISEASE — ILLUSTRATIVE CASES.

Headache. — Mr. N., aged twenty-eight, says that for many years he has been subject to severe headaches, sometimes once a week, sometimes oftener; not unfrequently amounting to sick-headache. A year ago he abandoned the use of tea, coffee, and flesh-meat, and after three weeks he had no headache for six months; that is, so long as he avoided those articles of food, with the exception of a single attack of headache, on receiving a bad jar by being thrown from a carriage.

After six months' disuse of meat and coffee and tea, he returned to the moderate use of meat, and since that time his headaches have returned, though not as frequently, nor have they been as severe as before, when he used coffee and tea. His living in other respects, before and after abandoning these articles, was the same. He never used tobacco.

This case of Mr. N. shows very distinctly how much indisposition was chargeable to the eatables and drinkables taken separately and in conjunction.

Error in Diet. — A lady, a vegetable-eater, exerted herself for two or three days beyond her strength; then ate a boiled egg and salt fish with melted butter for dinner, and at evening of the same day ate a piece of gingerbread,

some preserved raspberries, and drank a cup of tea, having drank nothing but cold water for a long time previous. The sequel of this was, sick-headache, and vomiting throughout the next day. The day after the sickness she was feeble; took only bread and water; the two ensuing days she was much better, living wholly on simple farinaceous food and water. The fourth day she walked out, attended somewhat to domestic concerns, had a good appetite, and made her supper of dipped toast, in which was a small quantity of butter. The ensuing morning she was not as well.

How unfortunate that the stomach, when enfeebled and least able to digest stimulant food to which it had been for some time unaccustomed, should be compelled to grapple with egg, fish, melted butter, preserves, gingerbread, and tea. What delicate stomach would not resent such treatment, and call upon the head to sympathize? The lady remarked, in explanation of her headache, that she had taken cold two or three days before. This, if it was the fact, was surely an additional reason why stimulant food should have been avoided.

Mrs. W.'s Case. — "My age is forty-seven. Until I was thirty-five I was troubled with sick-headache, varying from once a fortnight to once in four or five weeks, generally commencing in the morning, continuing until noon, when, after vomiting freely four or five hours, it would pass off with sleep. At thirty-five, I commenced taking snuff. The sick-headache was succeeded by the 'nervous-headache,' which was more frequent and more severe, and for the last few years I have seldom been free from it. During this time I was in the habit of eating meat or fish twice a day (when able to eat at all), together with tea, coffee, hot bread, pies, cakes, butter, cheese, etc. Could

not take wine, or any fermented liquors, without producing unpleasant sensations, and seldom used any; was always troubled with constipation.

"Between the ages of twenty-six and thirty-seven, I had five children; their constitution feeble.

"For the last ten years I have been troubled with severe pain in the left side; also liver complaint.

"About one year since I commenced a course of diet, which has been as follows: coarse bread, made of wheat-meal, baked potatoes, with salt and cream; sometimes gingerbread, and pies made without butter; fruit, vegetables of almost all kinds, and cold water for drink. I left off snuff.

"I have not had one severe attack of the headache since I commenced dieting. Once in three or four weeks I generally have some headache, which lasts about two days.

"Pain in the side and liver complaint both much better."

Probably Mrs. W. takes more food than needful for the best health, and has no very definite notion of her "liver complaint."

A sick Student's Dinner. — A student, who for a few days had been a vegetable-eater, being too sick to leave his room, had some food sent to him at noon to sustain him. Of this he partook as follows, viz.: two large slices of bread and butter, a piece of mince pie, another of pumpkin pie, a piece of pound cake well charged with currants, and several cups of tea. At evening he said that he did not feel as well, and should presently need to take a little *nourishment* of some kind!

Nettle-Rash. — A lady called with her child, sixteen months old, covered with nettle-rash.

"Madam, what do you give this child for food?" "I nurse it altogether." "Do you give it nothing else but

your own milk?" "No; nothing." "Now, madam, I am confident there must be some mistake. What else has the child taken within the last two days?" "Why, I gave her a little bread and butter yesterday." "Very well; do you think of anything else?" "Why, yes, Mrs. M. gave her a tomato. I did not think she would eat any of it, but she ate it all up, so I thought I would try her with another, and she ate that up too."

I prescribed four grains of calomel, and requested the mother to inform me, in forty-eight hours, if the complaint should not then be subdued. I have not heard from her since, and conclude that she got better immediately.

Case of Mrs. B.'s little Girl, four years old. — Mrs. B. says she has been feeble for three weeks. "Has she eaten mince pie during Thanksgiving?" "No; she has been quite ill; I have kept her very light; her food has been as simple as possible. I gave her only the breast of a chicken, some apple pie, and a little cake." "What does she drink," "She drinks tea only; no coffee. She loves tea dearly, and I can scarcely make it hot enough for her. I do not think coffee is good for her; I have taken care that she should have nothing but what is good for her." "Do you give her any medicine, madam?" "I give her elixir pro., rhubarb, and such little simple things."

The child has now pain of the stomach, is restless at night, is sickly-looking, sweats easily, and has an irregular appetite.

Cake for Breakfast. — I called one morning to see a little girl who had been some days under my care, for disordered stomach and bowels. The account I received was that she had a good deal of fever through the night, and could take no food in the morning. I asked if I should see her. The reply was, that she had gone to the confec-

tioner's to buy some cake for her breakfast, inasmuch as she could eat nothing else.

A Dyspeptic and Chlorotic. — My friend Dr. Carr had attended Miss —— at intervals, since she was twelve years old. She was dyspeptic (chlorotic); had inherited a delicate constitution, had her periodical illness only about once in three months since the age of seventeen years, except for a short time after its first appearance. At nineteen years old her health was entirely restored, by plain food, cold bath every morning, riding daily on horseback, averaging fifteen miles a day, without medicine, except artificial mineral water, composed of about five grains carb. ferri with ten grains rochelle salt, taken in a glass of soda water every morning for two months.

The periodical illness was regular for about four months, but after Miss —— spent six months at Albany, her health was impaired and irregular as before. Dr. C. had tried in vain to induce perseverance in the course of diet and exercise, her strong objection being the full flesh and rosy face it gave her. After her return from Albany, Dr. C. was again applied to, and prescribing the same regimen which built her up before, was met by the same refusal, the patient alleging that she would rather be as she then was than be troubled by the flesh and color she had before. Both she and her mother wished the doctor to give her some *medicine* which would cure her, leaving her still pale, delicate, and thin. This Dr. C. declined, telling her she needed no medicine.

Upon this another physician was called, who found her "*very sick*," gave an emetic, — cal. vol. tinct. guaiac. elix. vitriol, muriated tinct. iron, aloetic pills, etc. She continued under this kind of treatment for about two months, when her mother became alarmed; the young

lady was feverish, weak, tremulous, and emaciated. The mother wished Dr. C. again to visit her daughter, but he declined, advising the mother to satisfy herself fully as to the course she was pursuing, and until she would consent to follow undeviatingly his directions.

She at length consented. Dr. C. found her with a slight paroxysm of fever in the afternoon, parched lips, dry tongue, slight yellowness of the eye.

The first prescription was the nit. muriatic acid, bath in the morning, and three grains blue pill every other night, continued about eight days.

She was then ordered a strict regimen, — put upon rice and milk, porridge and gruel, with cool shower bath every morning, followed by dry friction, — ordered exercise by carriage riding. This was continued a fortnight, when she was able to resume the horseback exercise. In the course of two months she recovered so as to be mortified again by her face being so full and fresh, so much like a country girl's. Periodical illness returned, and she was perfectly well, and all without the aid of medicine.

Asthma. — A gentleman writes me as follows: — "I am happy to add my testimony in favor of your prescriptions for the asthma. When you saw Mrs. Buswell in January, she was recovering from the seventh attack during the six months preceding. Twelve times per year has been about the average for the last ten or fifteen years. Soon after you left us, we commenced living as you directed, and Mrs. B. using the sponge bath, etc.; and we were astonished at the result; for six months have elapsed and nothing like the asthma has appeared, and her general health has very much improved. She has not been able to do as much work for ten years past, in the same length of time;

and we all enjoy better health; have not had occasion to call a physician during the time."

From a subsequent letter, it appears that Mrs. B., in fifteen months after she commenced the new method of living, had had but one attack of asthma.

Dyspepsia, Cholic, etc. — April 16, 1835. Miss M. T., aged seventeen, has been dyspeptic for three years; worse in the winter season; pain in the stomach, obstinate costiveness, great irregularity in the periodical illness, medicines from different physicians without benefit. Prescription: Morning ablution, coarse wheat unleavened bread, gill of milk at a meal, three meals a day.

June 25. Just ten weeks since she began the course, and is now perfectly well; has had two periodicals, has an alvine motion daily, is in bed eight hours at night, and sleeps soundly. For the last four weeks has taken a little over a gill of milk, and three ounces of bread only, at a meal. Before she took the milk, she ate from twelve to fourteen ounces of bread a day. Has gained much flesh and strength. Years afterwards she had good health.

Rev. Mr. D., Missionary. — "It is nearly two years since I relinquished *entirely* the use of animal food. For several months previous to my giving it up altogether, I used it only occasionally, and was better in health and more vigorous in mind. On my voyage from America, which was six months in length, I adhered strictly to the plan, although there was little on board that was considered eatable, except animal food. Some of the time I had nothing but bread and water, and those, of course, not of the best quality. Still my health was better than that of most on board, whether passengers or sailors, and as good as that of those who had the best health.

"Since my arrival in a tropical climate my health has

been as good, to say the least, as it was in America. I have no doubt that the person who avoids animal food is less liable to fevers, which are so much dreaded in this climate.

"My food has been rice, bread, plantains, sweet potatoes, yams, milk, sugar, and eggs. You may get some idea of the proportion I have used of the several kinds of food, from the order in which they are mentioned, rice standing at the head. Butter, vegetable oil, and cheese, though they fall within my limits, I have not eaten. From ardent spirits, opium, tobacco, wine, beer, and all kinds of fermented liquors, I have abstained entirely. Tea and coffee I have taken only occasionally."

CHAPTER XVII.

VEGETABLE DIET IN CERTAIN CASES A REMEDY FOR DISEASE — ILLUSTRATIVE CASES.

Dyspepsia, etc. — Mr. E. Levassor, merchant, a most interesting and worthy gentleman, aged forty-eight, had been subject for some years to dyspepsia, connected with occasional attacks of severe pain in the abdomen, which generally lasted from two to six days. These occurred more frequently than before in the six months previous to the time he consulted me. He had usually been treated with large doses of cathartic medicine and opiates; and after getting relieved from pain, and being much reduced in strength, was built up on beef-steak, brandy, and Bordeaux wine. I prescribed a diet of unbolted flour bread, rice, potatoes, and water. To this he adhered most scrupulously, gained flesh and strength, was able to attend to his business regularly, and I believe now (1855), after the lapse of fifteen years, lives on a vegetable diet, though with a greater variety than at first, water for his only drink. I think he has not had a severe attack of the same kind since the commencement of his dietetic course, and that he is now in the enjoyment of good health.

Difficulty of Breathing and Swallowing. — Major W., aged thirty-six, found that he could not swallow his food well. He had a spasmodic action of the œsophagus,

which felt like air meeting his food. He had to give up his meal for the time. He found that his meat, which was generally beef or bacon, was more difficult to swallow than other kinds of meat, or than bread and potatoes. For five or six years he could seldom swallow any kind of baked meat, nor could he swallow pudding. He found it difficult also to swallow warm bread or nut-cakes.

One day, at the dinner-table (had hashed meat), he was choked, could not swallow, and left the table. At tea-time, a piece of bread and nut-cake caused choking; could not eat; sent for the doctor. Took some medicine, which produced some effect, and gave him a little relief; still had more or less every day of spasmodic difficulty of swallowing and breathing. These symptoms continued for ten days. A consulting physician was called; he made various prescriptions. About this time, by advice, he gave up tobacco-chewing; has used it several times since, but it invariably brings on the spasms; has smoked a little since, but if the smoke remains in the mouth long it has the same effect as the chewing. He says it is a great aggravation to have the tobacco taste so good without being able to keep it in the mouth; has chewed tobacco ten years; thinks he has used half a pound a week; has smoked twelve years, usually three large pipes of fig tobacco a day.

His breakfast for years has been quite strong coffee, meat, potatoes, dipped toast, and nut-cakes; dinner, meat, vegetables, pie, a great deal of cheese, bread, and butter; supper, tea, pretty strong, bread and butter, pie, nut-cakes, and, very commonly, custards. Has eaten a great deal of salt codfish and mackerel. For years has been in the habit of taking a cold cut of meat or fish just before going to bed. In summer, he made his largest meal of

flesh at night. For years could not take milk without pain in the bowels; could seldom eat an apple without pain, and never one after dinner; very seldom took food between meals; drank spirit and wine moderately, till seven years ago; since then, neither spirit nor wine, nor a gallon of cider a year. June 29, 1835, I visited him.

Prescription: Abandon tobacco, — never take it again, — and all kinds of flesh. Occasionally five grains of blue pill over night.

Food: Bread of unbolted wheat flour (unleavened the best), baked potatoes, hominy, mush, boiled rice, roasted or baked apples when they agree, various kinds of berries, always as a part of the regular meal. Eat slowly. Take three meals at regular times; nothing between meals; drink water only. Take three hours' exercise daily in the open air. Retire at a uniform hour; sleep on a mattress or some other hard bed; sleep seven hours in the twenty-four. Sponge bath in the morning, in warm or cold water.

After seven and a half weeks, Major W. called on me, was quite well, has followed the prescription rigidly; sleeps seven hours in the night; does n't want more, and is not sleepy in the day. Takes several hours' exercise daily; can walk several miles without fatigue; whereas before, walking from his house to his store, not more than twenty rods, often fatigued him. Seldom has a vestige of the spasm. Thinks he probably eats too much, his appetite being very good. Says he can think more now in one day than he could in three days before changing his diet; says he has now no hankering for tobacco, but thinks he should have if he had not given up tea and coffee; seldom drinks now between meals; used to drink several pints of water a day between meals. Says he

could never be insulted without resenting it verbally, or in some other way equally distinct, but he can now command his temper so as to conceal his feelings when insulted. His weight, a little before his sickness, was two hundred and twelve pounds; he is now at one hundred and eighty. When twenty-two years old he weighed one hundred and ten, and began to grow fat soon after.

In a letter afterwards, he gives a fine account of his health and vigor, and of his perseverance in the course above pointed out. He says:—

"In no period of my life have I enjoyed so good health as I have for the last four months. I have had no sick turns, as formerly, no colds, except a very slight one twice, whereas formerly I had one full half the time. I have, for the last four months, been able to do more business than I could have done in eight months before I adopted my present mode of living.

"My style of living is as follows: for breakfast, baked potatoes and salt, unbolted wheat bread, preserved fruit of some kind, and sometimes boiled onions or turnips; for dinner the same, with the addition of more vegetables, such as cabbage, and sometimes stewed beans; for supper, bread and water, for at least half the time; the other half not differing from the other meals, except more light food. My drink has been cold water. I have taken no tobacco since I quitted it, and I am quite certain I never shall use it again. My time of going to bed has been nine, P. M.; my hour of rising, four, A. M. Since the first of December, I have not risen until five. I have not failed to bathe myself with cold water every morning, and am confident that I receive great benefit from it."

Skin Disease cured by Vegetable Diet.—Prof. D. Crosby mentions the case of a girl of red hair and florid complex-

ion, living in New Hampshire, who had a scabby eruption upon the face which had existed five years. It has been cured by vegetable diet. She has followed it for two years, and has been well ever since.

Ulcerated Face. — Dr. Stratton, of Massachusetts, gave me the following case: The patient was a farmer about fifty-eight years old, and had enjoyed good health till his face had become covered with a pustular eruption, which had lasted about ten years. He had been a free liver, and drank ardent spirits and cider. The ulcers were from one fourth to one half an inch broad, and one fourth of an inch deep, and numerous, covering his whole face. They discharged a vitiated pus. These ulcers had shown no disposition to heal under the diversity of treatment to which he had been subjected, the particulars of which treatment I could not obtain. I prescribed bread and milk for food, water for drink, and nothing else. He adhered undeviatingly to the course, and in four months the ulcers were completely healed. I saw him ten months after he began this course of living. He had adhered strictly to his diet and was still perfectly well.

Another case of Ulcer. — Alecta M——, a girl of eleven years, had a fetid ulcer of a year's standing on the scalp, of the size of a dollar, with an elevated margin half an inch thick. It came about a month after convalescence from scarlet fever. The discharge was so offensive as greatly to annoy those about her. For some months she had taken but little flesh, but took butter freely. I prescribed unbolted flour bread, half a pint of milk for breakfast and dinner, and bread with a little molasses, and water to drink, for supper, and the washing of the ulcer with soap and water twice a day. It rapidly improved, in two months was entirely healed, and at the

end of thirteen months she was entirely well, without the use of medicine, and the site of the ulcer was thinly covered with hair. I saw Miss M. twenty years later, in good health, an intelligent, well-educated lady; the place of the ulcer was still covered with hair of the natural color.

Neuralgia. — My friend Dr. Shedd, of Vermont, writes that his brother, aged fifty, was attacked three years ago with neuralgia of the face, extending from the ramus and angle of the lower jaw over the right side of the face. It came in paroxysms, which were very severe. Mastication, or a slight motion of the jaw, even speaking a word or two, would sometimes bring on a paroxysm. The complaint was worse in winter than in summer. Various plans of treatment, as cathartics, carbonate of iron, blistering, proved ineffectual. Previously to the appearance of this complaint he had lived rather freely as to his meats, coffee, tea, etc., and had been troubled with habitual costiveness. Dr. S. prescribed a dietetic course, to be pursued at least one year. He was to take oatmeal mush with a little molasses or milk. His drink was water. This produced a regular state of the bowels, and relieved him entirely of the pain. He lost no strength nor flesh by this change of diet. He continued this course a year, after which he returned gradually to his former diet, and up to the present time, four months, there has been no return of the disease. It is proper, however, to say, that when exposed to severe cold he feels twinges in the part formerly affected.

CHAPTER XVIII.

OPHTHALMIA — DEATHS FROM EATING — DISTILLERY-FED PORK — NEW ZEALANDERS — INTEMPERANCE IN EATING AND DRINKING.

§ I. OPHTHALMIA

Chronic Ophthalmia. — Dr. S. B. Miller was cured of chronic ophthalmia and weakness of vision by a farinaceous and water diet. Two years after I prescribed for him, he wrote me that his eyes had been improving during the whole period. The disease was of many years' standing, and was subject to various treatment, without effect, till the diet was changed.

Scrofulous Ophthalmia. — H. L. H., a boy of two years, has scrofulous ophthalmia; eyelids, cheeks, and upper lip swollen; has turns of painful vision for half a day or a day at a time. "Has bread and milk for breakfast and supper, when he will eat it; sometimes refuses it; drinks tea and coffee; 'is a great friend to tea;' 'loves cider;' eats fried cakes; 'is very fond of gingerbread and confectionery,' says his father. 'He is a great hand to sit up evenings,' says his mother. 'Loves raisins,' says his father; 'but they almost always come through him whole;' 'he sits up sometimes till ten in the evening, and because his eyes are weak, he lies late in the morning, sometimes till eight o'clock.' His food, as an apple for instance, often comes through him undigested. 'He cries a good deal;'

'loves spirit.' 'In what way does he prefer it?' 'He likes it very well any way; does not care much which; sometimes takes it with sugar, or molasses and water, or he will drink it raw as well as any other way.' 'Often takes a pinch of snuff; our women folks use it; and he likes a pinch now and then.' 'He naturally never appeared to sleep so well as other children; often cries in the night; often has five or six discharges from the bowels in twenty-four hours.' 'Goes to sleep once in the day, towards night, and sleeps from one to two hours.' 'He was near a year old before he had a tooth.' 'Was a year and a half old when he was weaned.' 'While nursing did not care about eating anything.' 'I always try my children early with such things as I eat myself, because I think it is better for them. I begin at three or four months.' 'Had two other children; both died; one at a week, the other twenty months old.' 'Anything of what we eat or drink ourselves, that suits his appetite best, we allow him to have.'

"We have blistered this child's arms, and given him sulphur and cream of tartar."

"Had weak eyes when a fortnight old." His mother (about thirty years old) is in the habit of eating without restraint anything she craves while nursing.

Could any course of physical training of a child indicate greater ignorance than the parents exhibited? I prescribed a course of plain feeding, which I had very little expectation would be followed. They lived at a considerable distance. No report has come to me of the sequel. I have almost invariably found that a milk and vegetable diet was sufficient for the cure of the scrofulous ophthalmia of children.

§ II. DEATHS FROM EATING.

A child was attended through scarlet fever by Dr. B. He was particular as to its diet; but as it continued feeble for a long time, Dr. S. was consulted in the case, and directed that the child should eat anything it wished for. Soon after, it expressed a desire for baked beans, was indulged in them, fell into a fit, and died in that fit.

My friend Dr. J. had a patient, a little girl, who was quite sick with scarlet fever, but became so far convalescent as to leave him at liberty to discontinue his visits, leaving strict injunctions as to its diet. Four or five days after, he was called to the house, and found his patient in profound apoplexy. On inquiry, he found that everything proceeded favorably, and that on that day, about five o'clock in the morning, she asked for food, and a portion of cooked beef was given her. In an hour and a half she asked again for food, and received a slice of sweet cake, which she ate also. About nine, A. M., she asked again for food, and ate a large apple which was given her. About half-past ten, A. M., she complained of headache and giddiness, fell back upon the pillow, and the doctor found her as described. She died the same day.

A student of an academy in New Hampshire died from eating fifteen poached eggs in an evening, three evenings in succession. They caused a permanent obstruction in the bowels. He died in a few days. Two other students ate with him, but could not eat as many as he. Both were sick.

"In the winter of 1824–5, four students in one of the colleges in New England," says Mr. M., "became sick in consequence of eating a supper of oysters. One of them

lost his senses, and continued to be violently deranged for several weeks. Another was seized with a fever which reduced him very low. For a day or two, serious fears were entertained that he might not recover. A third fell down the next day, in a fit, while standing at his desk, and in consequence was obliged to leave college for several months, and when he returned, to enter the class next below. A fourth was extremely unwell, but by applying for medical advice in season, was probably saved from a long illness. They ate," says Mr. M., "a very large quantity of oysters."

§ III. DISTILLERY-FED HOGS.

I not long since visited the whiskey manufactory of Mr. R., who was kind enough to show me the establishment. There is the large apartment for containing the corn in the ear. Into this a farmer was depositing his wagon-load of corn. There is the shelling machine, the grinding mill, the mash tubs, the yeast-making tubs, the still and refrigerator, or condensing tub of one hundred hogsheads, and the river of death running from a large copper tube. Eight hundred bushels of corn are consumed daily, and eighteen hundred gallons of whiskey made from it to poison men. There is a flouring mill in the same building; the bran and shorts from which the wheat flour is bolted are worked into the mash tub to aid in the production of whiskey.

The hog establishment contains about five hundred hogs, when the material for making whiskey is duly supplied. There are two long hog houses set on piles upon the margin of the Little Miami, with plank floors raised

above high-water mark; each contains two ranges of hog-pens, with an alley of three feet in width between them, running the whole length of the building. Each hog-pen is about twelve feet square, and contains eighteen or twenty hogs. All the filth from these animals is scraped off into the river, and descends to mix and become somewhat diluted with the waters of the Ohio, before it is pumped up into the city reservoir to be drank by the citizens of Cincinnati.

The animals are fed exclusively upon the mash, which is kept in large vats of perhaps six or seven hundred hogsheads each, which is set flowing into their eating troughs when they become hungry. Most of the animals were lying huddled together, probably not having finished the digestion of their breakfast. They were large-bellied, owing doubtless to their having no exercise, and eating their thin food to gluttony, in order to obtain sufficient nourishment from it.

Mr. R. says that when one of them gets sickly, a circumstance which not unfrequently happens, on account of their food becoming acid from fermentation, he is turned out into the long alley, called the hospital, to recruit, where he gets the benefit of a slightly improved ventilation. If not thus turned out soon after the appearance of symptoms of indisposition, his comrades in the pen fall to and kill him, as if under the instinctive impression that they had stench and foul air enough without the additional exhalation from a sick hog.

These hogs, thus kept and fed from pighood up to the age of twelve or eighteen months, are sent from time to time to the Cincinnati market, as the butchers need them. The fat is made into lard and lard oil; the hams and shoulders are smoked and dried, and the "sides" are

worked up into sausages, to supply the daily markets of the city with that savory article.

Mr. Loveland says that in Clermont county, Ohio, there are five hundred and fifty thousand bushels of corn distilled in one year into whiskey. This would sustain fifty-five thousand persons for a year. In the London Teetotal Times it is stated that there are sixty-four millions of bushels of barley brewed in Great Britain in a year, besides the raw grains that are distilled into gin, whiskey, etc. This would sustain six million four hundred thousand, or about one third of the whole population — nearly all the Irish population.

Mr. Granger, of Canandaigua, for four years resided at Geneseo, and put up from fifty to a hundred hogs a year. He does not recollect to have killed one, during the four years, without a tuberculated liver.

The mortality among the hogs in Ohio, Indiana, and Kentucky, was very great a few years since. Dr. Sutton, a highly intelligent physician of Aurora, Indiana, who made numerous post-mortem examinations of hogs dead of the epidemic, came to the conclusion that this disease is not communicable by inoculation to the human constitution, inasmuch as he repeatedly wounded his fingers in those explorations. Can it be inferred from this that the flesh of those sickly animals may be eaten with safety by man, when it kills dogs that eat of it?

§ IV. NEW ZEALANDERS.

Mr. Sturgeon, an English miniature-painter, who passed six months in New Zealand, gives a striking account of the voracity he witnessed in a company of natives of that

island. They killed a pig by striking him on the head; then, without bleeding him, they put him, bristles on, into a hole in the earth, made warm by hot stones. Before he was half cooked through they withdrew him, cut him open with clam-shells, and fell on him, tooth and nail. He counted eleven persons on their hands and knees, feeding upon the different parts of the animal, all of which they most greedily devoured, and left no part remaining but the bristles and the bones! Mr. Sturgeon says that they do not often kill a hog, but when they do they make thorough work with him. He further says: "From children to the age of fifteen or sixteen, they do not partake of animal food, i. e. the animal *man*. Their diet, until that age, is chiefly potatoes, yams, and Indian corn; sometimes fish dried in the sun. They never use salt with any article of food, or in *any* way; they have a great dislike to salt. I have asked them which they prefer, the flesh of a white man, or that of their own tribes. The answer was, 'White man's flesh too salt; not good.' *They use no bread.* From children to the age named, they exhibit few or no symptoms of their savage nature; but after joining their tribes in war, and partaking of the flesh of their enemies slain in battle, they almost immediately show their natural character, and they are, without exception, the most wild and savage of the whole colored race." . . . . . "They are remarkably clear-skinned, even after partaking of human flesh; but the color of their eyes alters, i. e., the white of the eye, or what was white previous to their cannibal practice, changes to red, which gives them a frightful appearance."

§ V. INTEMPERANCE IN EATING AND DRINKING.

I visited Mr. ——, a lawyer, aged sixty-two. For the last six months he has been in a state of deep hypochondrism, or mental alienation, attended with the most obstinate constipation. His face, once fat, is now lean, and the skin hangs in wrinkles and pouches. The whole skin is dry, and covered with small scales; the limbs lank, and the abdomen, once exhibiting the ne plus ultra of the *embonpoint*, now loose and bagging. The expression of the countenance is fixed; not a ray of its former good cheer, nor even of hope. He had a blister between his shoulders two months ago; he says that it poisoned him through and through; by scratching it and other parts, he inoculated himself with its poison. Spiders have followed upon the scent of it, and they descend upon him in the night, fill the hair of the head, crawl into his mouth and stomach, and crawl over and through his whole skin. Cats and rats scratch at his door in the night and find the way into his room, and fill his mouth. Indeed, he has been obliged to swallow a great many live rats; and they and the spiders, filling up his stomach, prevent him from digesting food, or taking it, except in very small quantities. Agreeably to this impression, he cannot be prevailed on to take much food. On its being suggested that sponging his body and limbs two or three times a week in weak warm soap-suds, and following it with dry friction with warm cloths, would render the skin less attractive to the vermin and animals, he showed symptoms of great alarm, and said that this would extinguish life immediately; that he could not bear a drop of cold water without its striking a chill through him, and

that warm water would do the same. He is equally afraid of a breath of fresh air, and is in constant terror at the thought of death. Wretched man! He has eaten freely, and for many years drank stimulant drinks freely, though it is said he did not use tobacco.

He was educated at one of the New England colleges, was regularly bred to the law, was for many years in full business as a lawyer, was respectable for talents, accumulated considerable property, and by foolish speculations lost most of it; has been proverbially irritable in his temper, and often fell into disputes and wranglings.

Now the sequel. He has lived for many years in the gross violation of the laws of his constitution, and now he eats imaginary spiders and rats, — the fruit of his own doings.

Intoxication. — A fit of downright drunkenness, in which the sufferer lies for hours in a state of apoplectic insensibility, everybody believes to be injurious to the constitution. There are few, however, who are not of the opinion that daily dram-drinking, even though the immediate effects are not marked by distinct intoxication, is altogether more pernicious to the constitution than a thoroughgoing drunken fit once in six months or a year.

Now, does not every one see that each dose taken by the dram-drinker contributes its share to the irreparable mischief done to his constitution? Yet how small, and how entirely imperceptible, the amount of injury belonging to each individual dram. Drinkers of spirit pursuing each of these methods have been known, and the different effects have been repeatedly observed.

CHAPTER XIX.

SEVERE FORMS OF NERVOUS DISEASE — APOPLEXY — PALSY — EPILEPSY.

THE value of a rigid and persevering vegetable diet, in promoting a cure of some of the severe forms of nervous disease, may be inferred from the following cases, as well as from others scattered in the records of the profession.

§ I. APOPLEXY.

Dr. Watson, in his thirtieth lecture, says of apoplexy: "Among the premonitory symptoms, headache is of frequent occurrence; but the same symptom is abundantly common in persons who are in no danger of apoplexy; it derives its minatory character from the concurrent circumstances. Headaches awaken our fears when they begin to be troublesome in advanced life. They are then still more formidable if they are accompanied by vertigo, or, without any other evidence of gastric derangement, by nausea and retching. Sometimes severe headache ushers in, and almost forms a part of, the apoplectic attack.

"*Vertigo* itself, even without headache, is a very common precursor or warning of an approaching seizure. It is sometimes slight and transient; sometimes almost

habitual. Although vertigo may depend upon other causes than mischief within the head, we cannot regard it without apprehension when it often occurs in old persons. It should teach us to obviate, as entirely as we can, all the known exciting causes of apoplexy.

"Transient deafness or transient blindness, blindness or deafness for a few seconds or minutes, is another of these warning symptoms. The late Dr. Gregory, of Edinburgh, used always to mention in his lectures the case of Dr. Adam Ferguson, the celebrated historian, as affording one of the strongest illustrations he ever met with of the benefit that may be derived from timely attention to the avoidance of those circumstances which tend to produce plethora and apoplexy. It is, perhaps, the most striking case of the kind on record. Dr. Ferguson experienced several attacks of temporary blindness, some time before he had a stroke of palsy; and he did not take these hints so readily as he should have done. He observed that while he was delivering a lecture, his class, and the papers before him, would disappear, vanish from his sight, and reappear again in a few seconds. He was a man of full habit; at one time corpulent, and very ruddy; and though by no means intemperate, he lived freely. He did not attend to these admonitions; and at length, in the sixtieth year of his age, he suffered a decided shock of paralysis. He recovered, however, and from that period, under the advice of his friend Dr. Black, became a strict Pythagorean in his diet, eating nothing but vegetables, and drinking only water or milk. He got rid of every paralytic symptom, became even robust and muscular for a man of his time of life, and died in full possession of his mental faculties, at the advanced age of ninety-three — upwards of thirty years after his first attack.

"Sir Walter Scott describes him as having been, 'long after his eightieth year, one of the most striking old men it was possible to look at. His firm step and ruddy cheek contrasted agreeably and unexpectedly with his silver locks, and the dress which he usually wore, much resembling that of the Flemish peasant, gave an air of peculiarity to his whole figure. In his conversation, the mixture of original thinking with high moral feeling and extensive learning, his love of country, contempt of luxury, and especially the strong subjection of his passions and feelings to the dominion of his reason, made him perhaps the most striking example of the stoic philosopher which could be seen in modern days.'"

§ II. PALSY.

In April, 1845, Dr. A. L. Pierson, a highly intelligent and distinguished physician, at the age of fifty-one had a paralytic attack upon the muscles of the right side. His friend, that eminent physician, Dr. James Jackson, of Boston, was consulted, and advised a diet exclusively vegetable, and water for his drink. He was soon so much improved as to be able to visit the sick professionally. In a few months he relapsed into his former habit of living, viz. on a mixed diet. In a little less than a year from the commencement of his illness, viz. in March, 1846, he had a second paralytic seizure. This was upon his left side. He was induced to return to the vegetable diet, which he strictly followed through the remainder of his life. He was soon able to resume professional labor.

The following is from his son, Dr. Edward B. Pierson, under date of March 18, 1861: "At the time of his death six years later, all trace of his former malady had disap-

peared, and he seemed as well and was as well able to labor as ever he had been. In fact, so good did he consider his chance of continued life, that he gave up a policy of life insurance, on which he had paid several premiums, only a few months before the fatal accident."

It is still a matter of painful recollection, that on the morning of the 6th of May, 1853, a passenger train running east from New York, lost, in Connecticut, a part of the cars, which fell through a draw-bridge into deep water, drowning or otherwise causing the death of numbers, among whom were several physicians on their way homeward from an annual meeting of the American Medical Association; one of which was our much valued friend Dr. Pierson.

§ III. EPILEPSY.

Professor Robinson, then of the Theological Seminary at Andover, Mass., one of the most distinguished scholars in our country, after a residence of four years in Germany, entered with zeal upon his college labors in October, 1830, apparently in as fine health as he had ever enjoyed. He took regular exercise daily by walking or sawing wood, ate flesh once a day, and took French coffee with milk in the morning, and black tea at evening. He continued well, as he supposed, until February 1, 1831, when he had symptoms of disordered stomach. Besides the regular morning evacuation, he had diarrhœa after dinner, but, as he had often had the same experience, he thought no more of it.

At the age of thirty-seven, on the 5th of February, 1831, as he was sitting reading a newspaper, about an hour after dinner, he was attacked, without premonition, by an epi-

leptic shock of considerable violence. It lasted an hour or more, ere consciousness returned. His physician bled him and gave an emetic, and had but just left when the shock was renewed, and continued about as long as the first. The emetic disclosed a foul stomach, with much bile. In two or three days he was about again, but attended to no business. He thinks he resumed his labors too soon. In about ten days the shock was repeated, although much slighter. It occurred about one o'oclock in the morning, during sleep. A consultation of physicians recommended abstinence from all occupation for a time, and low diet. This continued for three months, when Professor R. regarded himself as well; and during the whole summer (1831) he was able to pursue his studies much as usual, though they were of a different kind, and required a less sedentary life.

The next attack occurred in October, 1831, after an interval of eight months. Professor R.'s wife was ill, and as her nurse was incompetent, he spent nine nights in her room, lying down in his clothes, and having otherwise but little rest. The fit occurred about midnight, during sleep. His doctor came and gave an emetic and a strong cathartic. The first operated slightly, the latter freely, and brought away several yards of *tape-worm*, the first intimation of his being troubled in that way. This attack in other respects was light, and he was soon able to resume his usual duties.

On the 21st of December, a very cold day, he visited Boston, made several calls, and got chilled, and went to the house of a friend to dine. He was not comfortably warm until he had remained some time by a coal fire, in a very warm room. He dined heartily on roast goose, ate afterwards a piece of mince pie, and sat for two

hours more in the same warm room. He then went to the Missionary Rooms, and while there had a violent epileptic attack. The usual remedies were employed, and he was able to return home on the second day after.

It was now the advice of the physicians to make an attack on the tape-worm; at least, to see if any part of it remained. Accordingly, under the direction of Dr. Jackson of Boston, he took spirits of turpentine, which brought away the neck and apparently the head of the worm. The dose was afterwards repeated, without any further appearance of a worm; nor has there been any such appearance since. During the month of February, 1832, there was, as is supposed, a very slight shock one night; though the physician was induced to attribute it rather to incubus, as Prof. R. felt no further ill effects from it.

There was nothing further till June 21, 1832, when the bowels became constipated, after a severe cold, and he had taken a Rochelle powder to relieve them. But before this operated, while taking a nap after dinner, he had another attack, not very violent. This, also, left no great debility behind it. "I should say, perhaps, here," continues Prof. R., "that, by the advice of the physicians, I was now pursuing a diet simple and moderate, but not abstemious; though probably I could not always estimate exactly the proper limits of *moderation*.

"I continued well and in improved health during the summer and autumn; indeed, I do not know when I have been better than during the months of October and November. In December I felt less well, but apprehended no special evil. On the 18th of December, at evening, some friends took tea with us, and I ate a preserved peach, as I had done at various times before without injury. About two o'clock in the night I was attacked again dur-

ing sleep, more violently than ever before. There are said to have been three successive shocks, with slight intervals of partial consciousness between; but it was more than twelve hours before consciousness was fully restored. The physician states that the chief thing that produced immediate relief was a very copious bleeding. The emetic brought away the peach undigested, together with much bile."

This history of Prof. R.'s case, very slightly abridged from his own phraseology, is thus presented in order that an estimate may be made of the influences which led to so fearful an epileptic seizure. The question may arise, whether the tape-worm had anything to do in causing it. In a letter from Prof. R., dated September 18, 1855, he writes: "My present belief is, that the *tape-worm* existed as early as before 1820. Something occurred about that time, of which I then thought nothing, and which I referred to another species of worm; but I presume it was *tænia*. There were no later symptoms of it;" that is, until October, 1831, as before stated. It will be recollected that the worm was brought away in December, 1831, and that in February, 1832, there was a slight fit, and the following June another; and after the middle of December, 1832, viz., a year after the removal of the worm, he had by far the most severe and terrific attack of all, which lasted twelve hours. All the attacks seemed to have been occasioned by undigested or oppressive articles of food; the last three when there was no worm either in the stomach or bowels.

In December, 1832, a few days after his protracted fit, by which he was much enfeebled, I was requested to prescribe for Prof. R. The course I advised him to pursue, was to take farinaceous food, plainly cooked, such as *rice*,

rye-mush, unleavened bread of unbolted wheat flour, with *water for his only drink.* In about six weeks he wrote me as follows: "My breakfast has usually been rye-mush, with a little molasses, and a common half-pint tumbler of cold water. Dinner of boiled rice, and at first cold water with it. Of late I have substituted a little scalded milk, mixed with water, so that the whole does not exceed half a pint. Supper, for several weeks, rye-mush, but latterly I have substituted two dyspepsia crackers (made of unleavened, unbolted wheat meal), which I relish much, and which seem to produce a good effect, together with two small baked apples. The effect is, thus far, decidedly good. Instead of heaviness after dinner, I am as clear and bright as in any part of the day. My bowels have become entirely regular."

In a letter of February 18, 1833: "I have now followed very strictly your prescriptions as to diet for two months, and have the highest reason to be convinced that it is, in every respect, the best regimen for me, with one exception; this is, that my strength does not yet return. I cannot say that I am any stronger than I was four weeks ago."

Some time after this, through the influence of friends, two distinguished physicians in one of our Southern cities were consulted, the foregoing statement of the case being forwarded to them. Their joint opinion was, that the Professor ought to take carbonate of iron, and for dinner eat boiled mutton, fowls, or roast beef if not fat. "Mutton," they say, "is better than any other meat;" and they add: "If under this course he should experience a sense of fulness or confusion in his head, it must be met by blood-letting." Before making any change, Prof. R. wrote me, expressing his unwillingness to alter his course with-

out my concurrence. I concurred in the use of the iron, but not in the flesh dinners, as I could see no good reason for his incurring a liability to the confusion of the head or to be bled. He used the carbonate of iron, continuing his former diet, took a long journey, and regained his strength.

In a letter dated September 27, 1833, he writes in fine spirits, giving a good account of his health. In another letter, Oct. 9, 1834, almost two years from the commencement of the course, he says: "I follow in the same track as for the last twenty months, and feel no disposition to change. My health and strength continue very equable, not in high tone, but with fewer sinkings than formerly. I have spent the whole summer in the city (Boston), and feel as well prepared for the coming winter as I did for the last, perhaps better. The only suspicious symptom which I have felt was in April last,— a rushing of blood to the head on rising from bed, so as to produce dizziness and nausea.[1] A good dose of physic and a thorough cleaning out removed the evil, and I have not felt it since." It does not appear that during the whole period, or since, there has been a return of the fits.

In a communication dated Sept. 18, 1855, he says that he never had anything like epilepsy before the attack at the age of thirty-seven, already described, that none of the family to which he belonged had suffered from it, except that a sister nine years younger than himself had three or four fits while a child, but never afterward, "now more than twenty years."

Prof. R. continued to abstain from flesh-eating "until the autumn of 1838, nearly six years, and that too," he

[1] Evidently from irritation in the alimentive organs.

says, "during my first journey in Palestine. But I was compelled to use soups, from the difficulty of obtaining a merely vegetable diet in journeying in Europe and Asia." On his return, in Sept., 1838, he had at Vienna a violent attack of malarious fever, "caught among the marshes of the Danube." "I have since used meat moderately." Since his recovery from that fever up to the date of his letter in 1855, his health has been good.

March 11, 1861. To-day I have received a letter from Prof. R., dated March 9, 1861, in which he states that in the autumn of 1855 he had "gastric fever, by which, though it was soon subdued, he lost much in health and vigor." He was feeble during the summer of 1856, and late in the autumn of that year he was again seized with gastric fever, which, like the attack in 1855, disabled him for the duties of his professorship for two months. He remained in a degree prostrate through 1857 and '58, and he says "it was only in May, 1859, that I began to recover my working power. Since then I have labored moderately, say generally from nine to twelve A. M. At present my general health is tolerable for a person sixty-seven years of age."

Prof. R. has done a large amount of mental labor for many years; and yet it is natural to ask whether he might not have done even more, and worked longer, if, like Prof. Ferguson, he had maintained uninterruptedly his course of vegetable living. He repeats the assurance that there has been no indication of any kind of worm since the operation of the spirits of turpentine in Dec. 1831, and no epileptic seizure since Dec. 1832.

Upon his present condition this excellent man further remarks as follows: "My knees and feet trouble me most; the former are weak and the latter tender. No physician

has yet been able to afford me any relief; can you? It must, however, be taken into account, perhaps, that I now have to carry about a weight of forty pounds more than when you knew me. I then weighed one hundred and sixty, now two hundred pounds."

In reply I remarked that I could never see the necessity or the use of a man's carrying about with him fifty or one hundred pounds of fat packed between the skin and the muscles. I referred him to Dr. Cheyne's case (see page 195), and suggested "that it was probably too late in the day for such an experiment, and that his profession was too sedentary to give him the auxiliary and important benefit of daily exercise in the open air."

CHAPTER XX.

EPILEPSY — DYSPEPSIA.

§ I. EPILEPSY.

Mr. Charles Robbins, formerly of Plymouth, New Hampshire, had epilepsy, which commenced when about the age of sixteen, excited by great exertion at a fire, in a very cold winter's night. The fits lasted fourteen years.

He took a great variety of medicaments; among these was arsenic, which he took in progressively increasing doses, until the dose was seven-eighths of a grain four times a day. This dose was continued for *six weeks;* it was taken for three months in all, viz., six weeks until the full dose was arrived at, and six weeks after.

It made no sensible impression on the fits. A garlicky atmosphere constantly attended him, so as to be very offensive; his shirts were colored yellow, and new shirts, after being worn a short time, fell to pieces.

When at the worst, the fits returned once in about two weeks; sometimes two or three fits were had at a time. Among all his fits he had three in which he was conscious through the whole of the convulsion.

He was very subject to cold feet and legs, relieved by the mustard bath. The first medicament that appeared to make an impression on the fits was the *kali purum* (or

caustic vegetable alkali), with elixir proprietatis three times a day, i. e. before eating.

Under a diet of milk and Boston crackers (biscuit), his fits were milder and ultimately subdued; water the only drink. The habits were at last regular, viz. as to the times of eating, going to bed, and rising. When the bowels were a little sluggish, a table-spoonful of the white mustard seed, three times a day, answered the purpose exceedingly well.

Mr. R. says that he has seen forty cases of epilepsy; of that number, six have been cured, ten have died idiots, three by accident; the rest have not been followed out.

Mrs. Adams, a young married woman from Morristown, New Jersey, was one of the six cured. She lived on simple food, drank water, took compound tincture of valerian, the kali purum, with elixir pro.; the flesh-brush and mustard tea were applied externally, and she was required to dispense with the reading of novels and romances. The whole six (Robbins being one) were treated in the same way.

Mr. Robbins was son of a country physician, possessed good talents, was fond of books, and read every medical book he could lay his hands upon. The arsenic and several other medicaments were his own prescriptions. He urgently besought me to tie his carotid arteries. This I promptly and perseveringly declined doing. He was at length cured under a diet which excluded flesh.

Dr. George Cheyne records the following case: "Dr. Taylor, of Croydon, cured himself entirely and absolutely of the most violent, constant and habitual epilepsy that perhaps was ever known, after having in vain tried all the methods and medicines advised by the most eminent physicians of his time, by a *total diet of milk*, without bread

or any other vegetable, or anything, besides a spoonful of compound peony water sometimes, to prevent its curdling, confining himself to a *pint* in the morning, a *quart* at noon, and a *pint* at night, of the milk of grass-fed cows in the summer, and of those fed with hay in the winter; the milk of cows fed with grains always inflating him and lying uneasy on his stomach. He had continued in perfect health and vigor (having had seven children) seventeen years, when I saw him and received this account from him, insomuch that he could have played four or five hours at cricket on Banstead Downs without uneasiness or profuse sweating, and probably might have continued much longer in perfect health (as he did seven or eight years more), had he not entered upon a different regimen of diet, — as I am informed since I first wrote this history in my treatise on the gout, by a person of great credit, — and come to eat animal food, by which in a short time he was destroyed."[1]

Dr. McKeen says that a boy of two years, by the name of Upham, nephew of Professor Upham, was brought to him for epilepsy, which he had had for a year, as often as, and sometimes oftener than once a week. He had been fed upon confectionery and cake, and everything he craved.

Dr. McK. prescribed coarse wheat bread, i. e. finely grained and passed through a very coarse sieve, made up with water, and fermented with sweet yeast; water as the only drink. The child has not had a fit since.

Dr. A. Twitchell, one of the most sagacious and distinguished physicians ever reared in New Hampshire, early lost confidence in the treatment of epilepsy by medicine. Several years before his death, he assured me that he relied

[1] English Malady, 5th edition, London, 1735, p. 253.

on bread and water as the best articles he had ever tried. He allowed his adult patients from twelve to fifteen ounces each of bread, not more, in a day, and water as much as they pleased. He said that he had seen "about twelve" cases cured in this way. It is exceedingly difficult to secure a faithful and prolonged perseverance in a course of diet so rigid. Large eating may be reckoned as one of the predisposing causes of epilepsy; and the prostration of the nervous system either by incontinence or the solitary vice is an important source of this malady. There is much evidence on this subject.

§ II. DYSPEPSIA.

The elements of nutrition are contained, though in unequal proportions, in each of the small grains, as wheat, rye, barley, oats, maize, or Indian corn, and rice. One dyspeptic, perhaps, finds his irritable stomach best appeased by wheat, another by rye, a third by Indian corn, a fourth by oatmeal, and so on. There is something, too, in the mode of preparing the food; it may be in the form of gruel, or thin mush, or of thin dry cake, like that of the Highlands, from the kiln-dried oatmeal, or the Indian hoecake of Kentucky, made thin, like the Jews' passover-bread, requiring a good deal of mastication. Some invalids will recruit upon rice soft boiled, dusted over with sugar, or moistened with milk. The *quantity* of the forenamed articles is of prime importance. It may be so great as to frustrate the object altogether. Some invalids appear to thrive best by eating twice only in twenty-four hours; others do better upon three times; and some few, when the stomach is peculiarly irritable, do best upon a still more frequent taking of food. Wheat, raw, boiled,

cracked, suit some stomachs. It is probable that some kind of unleavened bread will ultimately prevail. The fermenting material disagrees with many stomachs; and in a large proportion of leavened bread the fermentation is carried so far as to generate an unpleasant acidity. A spongy or vesicular bread, lately introduced into London, made by wetting up flour into a dough with water, strongly charged with carbonic acid gas, and baked immediately, seems at present to promise better than any of the leavened forms hitherto employed. In some instances milk alone has had the effect of repairing the exhausted powers of the stomach.

In his sixty-eighth lecture, Dr. Watson has given in detail a very interesting case from Dr. William Hunter. The patient, a boy eight or nine years of age, "had great pain of his stomach, frequent and violent vomitings, great weakness, and wasting of flesh." All sorts of food and medicine, soon after being swallowed, were thrown off by vomiting. "He was stripped and examined in various postures, but no fulness, hardness, or tumor whatever, could be discovered; on the contrary, he appeared everywhere like a skeleton, covered with a mere skin, and the abdomen was as flat, or rather as much drawn inwards, as if it had not contained half the usual quantity of bowels." No satisfactory explanation could be gained of the cause and the precise nature of the complaint, so entirely unappeasable had it proved under every variety of treatment, by several physicians.

After much reflection upon the case, Dr. H. says to the father, "Take your son home, and as soon as he has rested a little, give him *one* spoonful of milk. If he keeps it some time without sickness or vomiting, repeat the meal, and so on. If he vomits it, after a little rest, try him with

a smaller quantity, viz. with a dessert or even a teaspoonful. If he can but bear the smallest quantity, you will be sure of being able to give him nourishment. Let it be the sole business of one person to feed him. If you succeed in the beginning, persevere with great caution, and proceed very gradually to a greater quantity, and to *other* fluid food, especially to what his own fancy may invite him; such as smooth gruel or panada, milk boiled with a little flour of wheat or rice, thin chocolate and milk, any broth without fat, or with a little jelly of rice or barley in it, etc. etc.

"I heard nothing of the case till, I believe, between two and three months after. His father came to me with a most joyful countenance, and with kind expressions of gratitude told me that the plan had been pursued with the most scrupulous exactness, and with astonishing success; that his son had never vomited since I had seen him; that he was daily gaining flesh and strength, color and spirits, and now grown very importunate to have more substantial food. I recommended a change to be made by degrees; he recovered completely; and many years ago he was a healthy and a very strong young man."

The remarks of Dr. Watson in his seventieth lecture, on chronic vomiting, are well worthy the attention of the student in medicine.

Mr. Abernethy says: "I could relate many instances of persons who were much emaciated, some of whom were of considerable stature, becoming muscular and fat upon four ounces of the most nourishing and easily-digestible food, taken three times a day. A patient lately gave me the following account of his own proceedings with respect to diet. He said: 'When you told me to weigh my food, I did not tell you that I was in the habit of weighing

myself, and that I had lost *fourteen pounds weight per month* for many months before I saw you. By following your advice I have got rid of what you considered a very formidable local malady; and upon your allowance of food I have regained my flesh, and feel as competent to exertion as formerly, though I am not indeed so fat as I used to be. I own to you that, as I got better, I thought your allowance was very scanty, and being strongly tempted to take more food, I did so; but I continued in the practice of weighing myself, and found that I regularly lost weight upon an increased quantity of food, wherefore I returned to that which was prescribed to me.'"[1]

Mr. Abernethy very judiciously advised his patients to allow the stomach full time for digestion; six or eight hours between meals, five hours for digestion, the remaining time for the stomach to rest.

In a short time after a person adopts a spare diet, although the quantity of food is less than half the amount he had been accustomed to, the sensation of hunger is as fully allayed at each meal as it had been before the change. This would seem to be due to the secretion of the gastric juice being conformed to the quantity of food taken. After a surgical operation in the case of a woman aged fifty, I kept her eleven days upon a little less than four ounces a day of fine flour biscuit (crackers), on account of the necessity of preventing motion of the bowels. The appetite was satisfied with this quantity of food. In another case, the patient, aged twenty-eight, was kept *eighteen days* upon less than *five ounces* a day of the same kind of bread, after an operation for recto. vag. fistul.

[1] Abernethy's Works, Vol. i. p. 49. Amer. edit. Hartford, 1825.

In no part of that time did the appetite call for more. In both cases the drink was water. The sleep was quiet and refreshing, without anodynes.

Dr. James Jackson, for many years Prof. of Medicine in the Boston School of Medicine, and one of the physicians of the Mass. General Hospital, assured me that a female patient of his, in convalescence from lung fever, *gained flesh* upon two crackers a day. He did not mention the weight of them, probably not more than one ounce to one and a half each.

It should seem that the powers of the stomach may, to some extent, be cultivated as to quantity of food. In gluttonous feeding there is probably, at the expense of nervous power drawn from the necessities of other organs, more gastric juice furnished than is requisite for the healthy wants of the whole economy, although the digestion is too imperfect to make a healthy blood. In some constitutions a part of the excess is turned off into fat, to be deposited beneath the skin and among the muscles; and in rare instances, some part of the excess is disposed of by a perpetual diarrhœa. In a case I knew of this sort, much of the food went to fat, besides the diarrhœa, on account of which last physicians were always importuned for a remedy.

The symptoms of dyspepsia are so elaborately detailed in medical books, it is hardly necessary to repeat them here; it is sufficient to remark that chronic disorder of the stomach is usually accompanied by functional derangement of other parts of the alimentary canal, especially of the large intestines, as costiveness, sometimes piles, stricture and fissure of the anus, etc.; and not unfrequently the liver participates in the morbid condition.

Not one person in a hundred seems to appreciate the

hazard of compelling the stomach to receive ever so great a variety of eatables at a single meal, if by the arts of cookery they can be made savory or agreeable to the palate; and the physician who has the skill and the honesty to prescribe the best course for a dyspeptic, regardless of the edicts of wealth and fashion, the chief end of which is to prolong the pleasure of eating, is liable to be abandoned for some pill-monger, whose promises meet all the demands of the invalid. Dietetic prescriptions are among the most important for chronic diseases of the stomach and bowels. Sometimes a case occurs in which some little medication may act as an auxiliary; but in a large proportion of instances, a suitable diet, with the aid of other sanitary measures, will accomplish the end in view. "I commend," says Lord Bacon, "rather some diet for certain seasons, than frequent use of physic, except it be grown into a custom; for these diets alter the body more, and trouble it less."

Dr. James Johnson, an eminent London physician, who wrote many valuable medical works, having had ample personal experience of dyspepsia, says, "I have known dyspeptic patients to gain flesh and strength on half a pint of good gruel thrice in twenty-four hours."

One of the most interesting cases recorded of aggravated dyspepsia successfully treated by a farinaceous and water diet, is given by Dr. William A. Alcott, in his posthumous work, entitled, "Forty Years in the Wilderness of Pills and Powders."[1] The patient was Jervis Robinson, ship-builder, of Nantucket. He was born in 1800, and at the age of thirty-two was a wretched dyspeptic. Among the methods of treatment, he tried beef-steak

[1] Boston, J. P. Jewett & Co., 1859.

three times a day, without improvement. In 1836, a friend advised him to try bread from the unbolted wheat flour, with water as the only drink. His allowance for each day was three ounces of the bread after it had been cut in thin slices and dried, and a gill of water. He took his meals at six, twelve, and six, an ounce at each meal; spent half an hour in eating it, and just two hours after eating drank one third of his gill of water. He took a cold shower-bath on rising in the morning, and walked a mile before breakfast. On this course he lost flesh and strength; at the end of two months, he had lost twenty pounds' weight. In three weeks from the commencement of the course, the bowels, which had rarely moved, became regular, both as to *time* and *quantity*.

At the end of two months he ceased to lose flesh, remained about stationary four weeks, and then began to gain, at first slowly, soon more rapidly, and in two months he had gained in flesh nearly what he had lost. A part of this time the gain was half a pound a day, "nearly three times as much," says he, "as the weight of my food, and more than the whole weight of my food and drink together." A part of the time he ate the brown wheat, or "Graham crackers," from Boston. Of these he often "omitted half a cracker at evening. The water also, one third of a gill, was generally omitted at evening."

His appetite was always good, and always satisfied with his meals when finished, nor does he remember having desired to eat between meals.

This case of Mr. Robinson comes so well attested that it seems to be fully reliable; and the physiological inferences involved, as to the functions of absorption from the atmosphere, and of intestinal and renal secretions, which last two were proved to exceed in weight the amount of food

and drink taken by the mouth, are very striking. Those who feel an interest in dietetic medicine will do well to consult Dr. Alcott's book, particularly the details of this case of Mr. Robinson, pp. 335–39.

The sympathetic relation existing between different parts of the alimentary canal has already been alluded to; but in the large intestine, viz. in the cæcum and colon, the physiology of which is not fully understood, a function exists in which the formation of fecal matter is carried on as a secretion, probably to relieve the blood of some of its impurity. The foregoing case of Jervis Robinson sustains this view. In dyspepsia this function of secretion is often diminished. Costiveness is a common complaint with those who eat too much or take too great variety of food, and resort to little or no exercise. A majority of patients who apply for aid in dyspepsia and constipation seem to think it the duty of medical men to cure their ailments, and at the same time allow them to pursue the course of living which caused their disorder. This the intelligent and honest physician professes himself unable to do; hence the resort of thousands to quacks, who always promise a cure. I knew a quack-physician in the interior of New England who, in dealing out doses from his saddle-bags to an enfeebled woman, spinning at her foot-wheel, remarked to her that he understood the machinery of the human body as perfectly as she understood that of her foot-wheel. This statement, which she could not gainsay, gave her unbounded confidence in his skill.

Dr. Cheyne quotes the following passage from Dr. Barwick in the Life of his brother, who had for many years been confined in a low room in the Tower during the usurpation: that at the time of his going in he was

under a phthisis, atrophy, and dyscrasy, and lived on bread and water only for several years there, and yet came out, at the restoration, "sleek, plump, and gay." "Many such instances," says Dr. Cheyne, "I could produce, but it would be lost labor." [1]

[1] Cheyne's Natural Method of Curing the Diseases of the Body and the Disorders of the Mind. London, 1753. Fifth ed., pp. 210, 211.

CHAPTER XXI.

CONSTIPATION — COLDS.

§ I. CONSTIPATION.

It need not excite surprise that the masses of men who are ignorant of the part taken by the vital economy in the amelioration or cure of certain diseases (and in this number must be included many whose minds are highly cultivated on other subjects), should place their whole reliance on drugs, especially when they come put up in parcels prepared for easy swallowing, with printed directions and the most positive assurances of lasting benefit, and when, having tried them, they have had their faith confirmed by a temporary relief of derangements, as headache, giddiness, dimness of vision, dulness of thought, etc. The invalid takes no account of the wear and tear of the delicate machinery upon which the medicine has acted, but repeats the dose again and again, upon the return of the symptoms.

Pill-drugging, in our country, was carried to a great extent twenty-five to fifty years ago. A young man from Vermont consulted me on account of debility which he had a long time labored under. He said that he had taken *six hundred of Brandreth's pills within a few weeks.* I asked him if he thought he had derived benefit from them. He replied that he thought not, on the whole, but

suspected he had been injured, as he had lost much strength. "Why then do you continue to take them?" "Because," said he, "my way is to give everything a fair trial." I stopped his pills and tried to enlighten him into a safer way of treating himself. Another case fell under my observation, between twenty and thirty years since. While at the Medical College of the State of Maine, I received a call from a man under thirty years of age, pale, sallow, emaciated, and so feeble that it was an extra effort for him to ride two miles in a carriage, as he had done that day in order to consult me. There was no difficulty in accounting for his prostration and pains, when he informed me that he had taken *thirteen hundred of Morrison's pills within the last six months.* I gave him the best advice my experience had taught me, but, as I left that part of the country in a short time, I never heard from him afterwards.

A melancholy feature of the human mind is its liability to oscillate from one extreme to its opposite, in defiance of reason and common sense, and under no other impulse than the bare assertion of some unknown individual. A man comes forward and boldly asserts that medicines increase in potency in proportion as they are attenuated; in other words, the more they are diluted, or the farther their particles are separated from each other, the stronger they are as medicines; and when subdivided above the thirtieth degree of attenuation, their power becomes fearful. A single sniff at a vial said to contain the medicine, although wholly invisible, is liable to prove fatal! Multitudes of educated minds embrace this as a glorious truth. The same medical authority is hostile to cathartic medicines. It is not many years since I was requested by a widow at Cincinnati to visit her daughter, who was "suffering with

sore eyes." A moment's inspection was sufficient. The cornea in each eye had sloughed, and the contents of the eyes were falling out. Both eyes were lost. As they reported the case, it was between two and three weeks since the eyes became sore, apparently from exposure to cold. The dispenser of the new medicine came; used no evacuant means, gave little pellets dissolved in water, and kept the bowels wholly unmoved for the last two weeks. All this at the cost of both eyes.

The habit, if undeviatingly followed, of giving the bowels an opportunity for an evacuation soon after the morning meal, is important, and with some persons is an adequate preventive of constipation. Ordinary cases of dyspepsia, indeed most forms of chronic disease, as distinguished from those accompanied with inflammation or fever, may be favorably treated with little or no medication, if suitable dietetic and other hygienic measures are followed and faithfully persevered in; but the grace of persevering self-denial for a remote object is so sparingly cultivated as to leave a large majority of invalids of this class to adopt some other course for relief. I have heard a dyspeptic patient remark, "I could never relish slop diet; rye or oatmeal mush lies like lead in my stomach; wheat-meal mush and cracked wheat I do not relish, and the dry Scotch cakes and Indian bannock are not savory enough for my palate." Well, eat fruits; such as baked apples, sweet, pleasant, or sour; cherries, gooseberries, currants, grapes, stewed prunes, dates, figs, the footstalk of the leaf of the pie-plant, or rhubarb-plant. The root of this vegetable is laxative; I have found it to possess something less than half the strength of the Turkey rhubarb. The fruits just named should be ripe, and for their laxative effect should be eaten before anything else,

at the breakfast and dinner. In this way constipation may with many individuals be obviated, especially when the quantity of other articles at the meal is within reasonable limits.

The eating of fruit at the commencement of a meal, while it presents a bland or congenial material to the delicate lining membrane of the alimentary organs, forming a welcome precursor to the more substantial articles, many of which require protracted energy for their elaboration into nutriment, at the same time is to some extent a safeguard against the overfeeding which comes from reserving the fruits till the stomach is already loaded with enough, perhaps too much, of other food. The same remark is applicable to the time of eating pudding, pies, and cake, if they must be eaten at all. But this procedure would interfere with the chief end of a custom established for the purpose of protracting the pleasures of the palate, without regard to the convenience, the health, or the safety of the stomach and intestines. The third meal, if a third be taken, should be very light, and eaten some hours before bed-time. A large class of valetudinarians, those especially who lead a sedentary and inactive life, find themselves laboring under a sluggishness of the bowels, which the fruits they can command do not obviate, and pills or powders, or decoctions or mineral waters, are summoned to their aid. A professional friend was in the habit for many years of resorting to the following pills when costive, viz. compound extract of colocynth, *two grains*, blue mass and extract of henbane of each *one grain*, — mix into a pill to be taken at bed-time. He remarked to me that it had not failed to answer his purpose for ten years. A pill which a gentleman approaching the age of seventy valued above everything else he had ever

tried, was made of the watery extract of aloes, two drachms; soap, one drachm; extract of hyosciamus, eighteen grains; make thirty-six pills. One or two to be taken at bed-time. The impression was so mild upon the organs as not to prevent quiet sleep. It moved in the morning after breakfast. Dr. James Jackson, of Boston, when he wishes to quicken the action of the muscular coat of the cæcum and colon, gives a pill of two or three grains of compound extract of colocynth, one grain of quinine, and half a grain of the alcoholic extract of nux vomica. Half a grain to a grain of extract of henbane might well be added for those patients who are subject to much pain under cathartic operations. A pill of two grains of the compound extract of colocynth with one grain of powdered nux vomica with some patients has a decided cathartic effect. Mr. Abernethy recommended to many of his constipated patients to take five grains of powdered rhubarb just before dinner. Decoction or infusion of senna, with the addition of orange peel or Peruvian or cascarilla bark, is suited to those cases where there is general debility. The fluid extract of senna of the shops is a valuable aperient medicine; two to four teaspoonfuls an ordinary dose. The old-fashioned lenitive electuary, or electuary of senna, is not a bad aperient, less eligible however than the fluid extract. It should not be forgotten that vegetable or mineral tonics are often valuable, combined with laxatives. Mineral waters are among the providential arrangements for the relief of man's self-made aberrations. The Congress-water of Saratoga contains several saline aperients besides iron and iodine, which, although in small proportions, are no doubt combined for an important end. The artificial Kissingen water is a useful aperient.

When the impediment to a movement of the bowels

lies chiefly within a few inches of the outlet, an injection of a gill of cold water soon after breakfast is sufficient for some persons.

Dr. John Ware, formerly Professor of Medicine in Harvard University, and one of the most sagacious physicians of our country, says: "No method I have ever employed for the use of persons so persistently costive as to be obliged to depend upon medicine for its relief, has been so satisfactory as the combination of a large number of cathartic substances in small quantities in a single prescription," as follows: "℞: Aloes, a scruple; jalap, rhubarb, scammony, of each sixteen grains; gamboge, five grains; tartrite of antimony, one grain; croton oil, one drop. Mix in sixty-four pills. Of these pills, *one* taken during or directly after a meal, once, twice, or three times a day, will rarely operate medicinally, and will usually produce a natural fecal discharge. This combination I have now used for nearly forty years, and in a very large number of cases, and have rarely found occasion to be dissatisfied with its effect."[1]

Dr. Ware makes a remark well fitted for the consideration of those who object to the taking of any kind of medicine, and at the same time are not very particular as to the quality or quantity of their food. "When we consider the constant errors of diet, as to quantity and quality, of which most persons are daily guilty, and also their constant offences against the laws of health in other respects, it is not too much to say, that very few of us pass a day of our lives without some indulgence which is far more injurious than taking into the stomach a small quantity of medicine. I believe that the daily eating of newly-

[1] In defence of the composite character of his pill, Dr. W. cites the complex solutions in medicinal springs.

baked bread and butter, hot buttered toast, pastry and confectionery, short cakes, rich soups and gravies, and puddings, might, with very many individuals, be advantageously exchanged for a few grains of aloes or rhubarb."[1]

The cæcum and colon may become sparing in their secretion of fecal matter, or their contents may so accumulate from deficient activity of the muscular coat as to give evidence of morbid condition, in which other organs, especially the kidneys, are liable to participate. In these cases an active cathartic is one of the most appropriate and effectual resorts. The hypochondriac is sometimes seen to emerge from gloom and solitude into mental sunshine and society from the effect of a single cathartic, which augments the secretions of the large intestines, carrying out from the blood some of the poison which makes a lowering brain and a spirit overcome with premonitions of insanity.

Sir Henry Holland, one of the ablest thinkers in the medical profession of our time, in a chapter "On some points in the Pathology of the Colon," says: "We may always expediently begin the treatment of apparent disorder of the kidneys by full evacuation of the larger intestines; secure that, we shall obtain alleviation in this way, if not entire relief. Few of the means especially directed to the urinary organs are so effectual as those which operate upon them through this part of the intestinal canal." In the sixty-first volume of the Boston Medical and Surgical Journal, number seven, for September, 1859, Professor Walter Channing, of Boston, records a very interesting case of incontinence of urine, accompanied

[1] Lectures on General Therapeutics. Boston Medical and Surgical Journal, Sept. 1861, p. 151.

with "costiveness in the extremest degree." The patient, Miss ——, a seamstress, who for a long time was occupied in an establishment destitute of the necessary accommodations, lost entirely the voluntary control of the bladder, and was compelled to keep her bed, in a most pitiable condition. Professor Channing was consulted, and gave twice or thrice a week ʒij. sulphat. magnes. with ʒss of magnes. calcinat. in a cup of gruel in the morning, with benefit in restraining the purulent and bloody discharges of considerable standing, but without abatement of the incontinence. On consulting Dr. Morland's excellent work on the urinary organs, and finding active cathartics there recommended by an English physician, he determined on the trial of them. He mixed ten grains of jalap with ten of calomel, into pills, with gum acacia, all to be taken at once, and to be followed in four hours, if no purging occurred in that time, with half an ounce of castor oil and the same quantity of lemon juice. The fourth hour was not quite finished, when the cathartics commenced operating. "Seven dejections rapidly followed each other. These were of black indurated balls, sharply scraping as they came; then a short repose; and lastly, two most copious, soft-solid, and liquid stools..... She was a new creature. The bladder gradually came into correspondence with and obedience to the will. She went into the country to recruit, and returned to her old work," in an establishment with accommodations necessary for health. This case, by Professor Channing, is one of great significance, strongly illustrating a relation between the large intestine and the urinary organs.

Sir H. Holland further remarks upon the irritation and distention of the large intestine: "Many pains in the back and loins, which pass vaguely under the names of

lumbago and rheumatism, are distinctly referable to the same cause. The effect of treatment here is usually the most certain proof; purgatives and injections relieving these symptoms speedily and effectually in many cases, while failing in others..... Cramps, and other spasmodic and painful affections of the lower limbs, are a frequent effect of the mechanical distention of this bowel; perhaps, also, of disordered and acrid secretions lodged within, or passing through it. Of the latter, we obtain proof in the very common concurrence of these symptoms with dysentery, or common diarrhœa. The acid, also, which, according to recent observations, is for the most part predominant in the larger bowels, may be in such excess as to produce various disturbance by sympathetic irritation. The cæcum, for obvious reasons, is the part most liable to distention; often from solid matters accumulated there in extraordinary quantity. Its effects when thus loaded, even upon distant organs, are so various and considerable as to require discrimination in practice. I have seen more than one case where pains were produced in the right leg severe and constant enough to suggest the idea of more permanent disease in the joint or limb."

The eminent Dr. James Jackson assures me that he has met with cases corroborative of the views here presented, and I have myself seen instances where pain fixed in the right thigh, and rendering walking difficult or impracticable for days or weeks, yielded to purgatives. I have seen a child of three or four years, in whom a pain in the right thigh, immovable for a number of days, had been mistaken for an attack of inflammation, although unaccompanied by extra heat or swelling. Complete and permanent relief followed the free operation of a mercurial cathartic.

This chapter of Sir H. Holland, and the one following

it, "On the Abuse of Purgative Medicines," cannot be too carefully studied by the beginner in the medical profession.

Many persons are impressed with the belief that every adult, in order to preserve health, should have at least one evacuation of the bowels daily, and in default of this, resort is too often had to the taking of some kind of purgative medicine. Observation, however, shows that this belief is not quite correct. While two motions a day are almost constant with some persons, three a week seem to be enough for others. I am acquainted with a man now (June, 1861) in the middle of his ninety-fifth year, already referred to (p. 84) as a teetotaler for the last sixty years, who informs me that for many years he has had no more than two or three motions in a week. When this sluggishness is attended with much constipation, the use of fruit, as already pointed out, or water injections, should not be neglected.

It is not saying too much to affirm that a large proportion of grievous, painful, and often fatal disorders of the intestines, as pouches, invaginations, strangulations, accumulations of indurated material, contraction of the rectum and anus, stricture, fissure and fistula of the anus, hemorrhoidal tumors, as also cancer of the rectum, the cæcum and the sigmoid flexure of the colon, might be avoided by most persons under a possible dietetic training from infancy to old age. For the symptoms and treatment of these, reference may be made to the books on these subjects. When a cathartic operation is sought for by medicine, the delicate structure of the organs concerned should be treated with consideration by the use of bland unirritating nutriment for a day or two, as gruel, mush, tapioca, syrup of gum. I knew an invalid who took a cathartic in the morning, and worked it off at noon upon roast veal and

horse-radish! For the itching of the anus and perinæum, in some instances most distressingly annoying, I will mention an application from which I have observed more speedy relief than from any other local remedy. It is the unguentum hydrarg nitrat. fort. After each evacuation from the bowels, the parts should be washed clean with simple water, mopped dry with a clean bit of linen or muslin, and then besmeared with the ointment, also passed into the anus as far as the itching extends.

Glycerine with sugar-of-lead water, in these irritations and those in the neighborhood, have been highly recommended.

§ II. COLDS.

Who in our climate has not had a cold? Sometimes we hear the opinion expressed that colds never need be had by those who have the means of comfortable living. This is putting the case too strongly. Extreme and sometimes unavoidable exposures to cold and wet are liable to result in some sort of derangement of health, in the form of cold, or inflammation, or spasm. But colds may be lessened, both in frequency and force, under the best diet as to quantity and quality of food and drinks, and due attention to clothing, with an edequate amount of sleep, and a pure air for respiration night and day.

It should never be forgotten that an inflammation, at first limited to the lining membrane of the nostrils, is liable to extend into the throat, the organ of voice, the air tubes and cells of the lungs; passing under the different names of cold in the head, sore throat, quinsy, croup, diphtheria, bronchitis, pneumonia or lung fever.

It is an old maxim among the common people, "Feed a

cold and starve a fever;" it would have been nearer the truth in this form: "Feed a cold and *have* a fever." In the treatment of a cold, instead of exposure to wind and weather, instead of high feeding and the use of stimulating drinks, the patient should be kept in a mild temperature, live on "slop diet," as gruel, mush, etc.; the bowels, if costive, should be opened by injections or a purgative; and if the stomach has been in any degree disordered, an emetic of mustard, or ipecac, or tartrite of antimony, given early. Many persons say that they have repeatedly recovered from a cold without taking medicine, or altering their course in any way. This may be true, but it does not follow that this procedure is in all cases the safest and best for the whole living machinery, especially after its powers of resistance to morbid impressions have been enfeebled by mental depression or by advance in years.

The case of General Washington is impressive. "On the 12th of December, 1799, he was abroad on his farms on horseback from ten o'clock, A. M., to three, P. M., and soon after he went out, the weather became very bad; rain, hail, and snow falling alternately, with a cold wind." To the watchful eyes of his family there were no appearances of disease (though they looked for them) until the next day. He then complained of a sore throat, and it became evident that he had taken cold; "he had a hoarseness, which increased in the evening, but he made light of it." So far from feeling anything like serious illness on this 13th of December, he seems to have been kept from "riding out as usual" only by a severe storm. In the afternoon, he went out of the house to look after some work, which was not of an urgent character. He passed his evening as usual, and did not seem to be aware that his cold was uncommonly severe. When Colonel Lear

proposed at bed-time that he should take something to remove his cold, he answered, "No, you know I never take anything for a cold; let it go as it came." It was in this night that the sickness became more marked. He was taken with an ague, and between two and three o'clock on Saturday morning, the 14th, he awoke Mrs. Washington, and told her that he was very unwell. He then had great *difficulty in breathing, speaking, and swallowing.* These symptoms are the essential characteristics of his disease, viz. acute laryngitis, or inflammation of the larynx. They continued till death, which took place between ten and eleven o'clock the following night.[1]

Had he the first evening restricted himself to mild, warm, diluent drinks, confined himself to a warm room for two or three days, possibly he might have needed nothing more; or if his stomach or bowels were in any measure disordered, or his system was plethoric, an emetic or cathartic, joined perhaps with blood-letting, might have saved life. But the golden moments had run out; professional aid was called too late, and the nation must be clad in mourning.

When observation teaches that one fourth of all the deaths from disease in our climate are brought about by disease of the respiratory organs, and that inflammation commencing in any part of the air-passages may extend to the finer air-tubes or air-cells, how strong is the caution to give it early attention. In a large proportion of cases of acute catarrh, or what is called cold in the head, a suitable diet and avoidance of exposure will be followed by recovery, without medication; but in sore throat, with a hoarse or croupy cough, in addition to a mild temperature

[1] Dr. James Jackson's second Letter to a Young Physician: Boston, 1861. (From Sparks's Life of Washington.)

and farinaceous diet, an antimonial emetic, often combined with or followed by enough calomel to cause three or four motions of the bowels, especially if, as is often the case, the patient is plethoric, may be resorted to with the effect of arresting the progress of inflammation, and promoting speedy convalescence.

More than half a century ago, Dr. Wilson, of Kelso, in Scotland, in his letters on morbid sympathies, recommended in croup the early use of emetico-cathartics; and from what I have witnessed, I have confidence in their efficiency, joined with warm stimulant or emollient applications, a warm room and a bland diet. The same gentleman, in severe attacks of pain in the side, like incipient pleurisy, or of oppressed respiration like a threatened pneumonia, often saw all the symptoms arrested by thoroughly clearing the first passages. An early emetic of sulphate of zinc in diphtheria has been much relied on by some physicians.

The foregoing has reference to simple colds. Influenza and hay cold, or hay asthma, are dependent on peculiar atmospheric conditions, probably not fully understood.[1]

The eruptive fevers, as measles, scarlet fever, and smallpox, which ordinarily exhibit their phenomena in a succession of changes, both as to sequence and duration, have been denominated by the philosophic Dr. Jacob Bigelow "self-limited diseases," viz. not influenced in their course or duration by medicine; and if the severity of these forms of disease has been diminished by treatment, their several stages of eruption, subsidence, and scabbing or scaling, are perseveringly exhibited in defiance of medication. How a single development of these diseases con-

[1] Sir H. Holland, and Dr. Watson's Lectures.

fers, in most cases, an immunity against a future attack, has not been explained.

Typhoid fever is by some regarded as a self-limited disease, and has some features analogous to those of the eruptive group. It is sometimes communicated by contagion; there is an eruption upon the abdomen; although the periods of its appearance and persistence are less definite, and the individual who has once had it has seldom a second attack; as seldom, probably, as with measles or small-pox.

Dr. James Jackson is of opinion that this fever may have its period somewhat shortened by the early use of antimonial emetics; and he has given the results of a long series of careful observations in the Massachusetts General Hospital, in confirmation of this view, in his Letters to a Young Physician, page 327.

In accordance with this opinion is the practice of Dr. Thomas K. Chambers, physician to St. Mary's Hospital, London. He gives an emetic early, with the effect, as he declares, of diminishing the force of the fever, and evidently shortening its duration; and in some instances of extinguishing it altogether, and establishing convalescence at once.[1]

[1] Dr. T. K. Chambers's Lecture, Med. Times and Gazette, Nov. 23, 1861.

CHAPTER XXII.

BLOOD-VESSELS AND BLOOD-POISONING — PARASITES.

§ I. BLOOD-VESSELS AND BLOOD-POISONING.

In the relation between the blood-vessels and their contained fluid, several forms of disease originate. There may be general plethora, or too much blood for the strength of the vessels and the complete and healthy action of the nerves; hence the liability to rupture of vessels in one part or another, and to bleeding, which, if internal, may prove fatal. This may occur from overfeeding, joined with too small an amount of exercise.

Local plethora arises from an unequal distribution of blood in different parts. It is called *active congestion* when the arteries bring into a part an undue proportion of blood, and *passive congestion* when the veins, from inactivity or compression, fail to carry off the blood as fast as it accumulates. Active congestion may give rise to preternatural growths, or to inflammation. In passive congestion, the serosity of the blood may be strained through the walls of the minute vessels, causing dropsy, or if the venous obstruction be very great, the vessels may be burst through, causing local bleeding or hemorrhage.

The blood itself, that mysterious fluid, which no skill nor power short of creative can imitate, gifted with life,

and destined for perpetual motion and the nutrition of the solid organs, is capable of being deteriorated and poisoned in a thousand ways. Its elements may vary in their proportions. The red corpuscles and other materials, from their abundance or deficiency, may give rise to diseased states of widely different aspect. When the waste materials, after deposits of nutriment from the blood, instead of being cast out by the appropriate organs, are allowed to float in the circulation, the blood becomes speedily narcotized or poisoned. Carbonic acid is one of the refuse products of the vital changes going on in the organs, and unless it is promptly thrown out by the lungs and skin, is speedily fatal. Another refuse product is urea, which, if the kidneys are incapable of dislodging it, accumulates in the blood, and narcotizes the brain, causing coma and death.

Impurities of animal, vegetable, or telluric origin, imbibed in respiration or transferred by being brought in contact with the living fibre, pass into the blood, generating a host of prostrating, painful, loathsome, and destructive diseases; as intermittent, remittent or congestive fever, yellow fever, typhoid and typhus fever, and scarlet fever, diphtheria, measles, plague, small-pox, syphilis, glanders, canine madness, influenza, and cholera.

There is the legion of *skin diseases*, some of which seem to originate in sympathetic irritations in internal organs; some of them come from invasions of animal and vegetable parasites, or minute animals and plants, as scabies, porrigo, and favus, mentagra. The salt rheum and leprosy of our climate seem to come from blood-poisoning; so also that intractable leprosy of Syria and Palestine, transmitted from parent to offspring.

Of the materials which corrupt the human blood, prob-

ably none is more tenacious than the poison of syphilis. When once entered into the system, and its primary form subdued, it is liable to crop out in the large scabby cones of rupia, or in some other loathsome form of skin disease, or in bony prominences called nodes, accompanied by excruciating pain. This poison sometimes lies as if inactive during twenty or thirty years. Ricord, who has probably seen more of this disease than any other man, mentions having seen it spring up in the tertiary form after having lain dormant for thirty years. I had a patient, whose veracity I could fully rely upon, in whom the tertiary form of the disease appeared after the lapse of twenty years.

Ricord believes that this poison may be so modified as to give origin to scrofula in succeeding generations. Dr. Erasmus Wilson, who has long been conversant with the worst forms of skin disease, expresses himself as follows: "The tenacity of the syphilitic poison to the human organism cannot but lead to the conclusion that, once admitted into the blood and tissues of the body, it remains there for life. It may not manifest its presence by any outward sign, but this cannot be received as an argument against its existence; for at the most distant period it may suddenly become developed as a cutaneous eruption, an intense pain in a nerve, the inflammation of a bone of the periosteum, of a gland, or, indeed, of any one of the organs of the body. Should the individual escape, his children may suffer sooner or later; and I am firmly of opinion, that the power of the poison may be manifested after several generations."[1]

Some poisons act by giving instant pain, and embarrass-

[1] Erasmus Wilson on Syphilis, Preface, p. 9.

ment to the capillary circulation, as the stings and the bites of venomous insects and serpents; the prussic acid, the aconitine, the nicotine, and the strychnine, extinguish life with scarcely less promptness than a stroke of lightning. Some of the narcotics in their ordinary use, as opium, Indian hemp, tobacco, intoxicating drinks, though slower in their operation, do not fail to encroach upon health and life. The poison of a mad dog lies apparently harmless for weeks or months, although when it takes effect it causes symptoms hitherto uncontrollable.

Inflammations exist in no small variety, resulting in adhesions of parts naturally distinct from each other, or in suppuration and abscess; sometimes in the mixture of pus with the blood in the veins, causing a prostrating and fatal form of fever; sometimes followed by gangrene or mortification with its loathsome accompaniments, repulsive deformities, and frequent fatal termination. Scrofula, an enemy of stealthy approach, scatters quietly the seeds of decay in organs essential to life, till the victim is handed over to the destroyer.

A sombre group of ailments is presented in what are called *nervous* diseases, as neuralgia, spasm, convulsion, tetanus or locked jaw, chorea or St. Vitus's dance, paralysis, apoplexy, paralysis agitans or shaking palsy, hardening and tumors in the brain and spinal cord; softening of these organs, sometimes with inflammation and abscess, sometimes without; and, as if this were not enough, there is the dethronement of reason, with wild and hideous mental aberrations and delusions, prolific of the filthy and profane jargon and gibberish of the madhouse.

In the large cities of our country from one third to one half, and in New York more than one half the deaths are among children under five years of age.

Is there any mystery in this? Bad nursing, improper food, irregular supply of food, deficiency in clothing and cleanliness, dark underground dens to dwell in, a vitiated and corrupt atmosphere for respiration, and an early development of inherited forms of disease, give the explanation.

The following extracts show the effects of the violation of physical and moral laws upon life and health.

"Polygamy in the harem form is peculiarly unfavorable to the healthy development of its progeny. 'Achmed Pacha Tahir, one of the governors of Cairo under Mehemet Ali, had two hundred and eighty children; only six survived him. Mehemet Ali himself had eighty-seven; only ten were living at his death.' The children are kept within doors, badly supplied with light and air, while the children of the poor, constantly abroad in the open fields, with the benefit of exercise, exposed to wind and weather, are active and healthy. But this cannot be all. Elements farther back may be taken into the account for the explanation. The harem children have a set of idle, weak, sensitive, peevish mothers, and it might not be unsafe to add, an enfeebled paternity."[1]

The following extract from a sanitary report of assistant-surgeon Bartholow, attached to the army corps which passed the winter of 1857–58 in Utah, represents the Mormon harem in a light not much more favorable. Brigham Young has at least forty wives. "A large number of children have been born to him, a majority of whom died in infancy, leaving twenty-four, according to the most reliable accounts. These forty women, in monogamous society, married, would have, probably, one hundred and sixty

[1] N. Brit. Rev. of Bacon's Essays, Aug. 1857.

children, two thirds of whom, under hygienic circumstances equally favorable, would have been reared. In Brigham Young and his wives, we have presented the most favorable conditions for successful polygamy possible in Mormon society. Yet in this instance the violation of a natural law has been speedily evinced. One of the most deplorable effects of polygamy is shown in the general weakness of the boys and young men, the progeny of the peculiar institution. . . . . .

"There is an expression of countenance and style of feature which may be styled the Mormon expression and style; an expression compounded of sensuality, cunning, suspicion, and a smirking self-conceit. The yellow, sunken, cadaverous visage, the greenish-colored eyes, the thick protuberant lips, the low forehead, the light yellowish hair, and the lank, angular person, constitute an appearance so characteristic of the new race, the production of polygamy, as to distinguish them at a glance. The older men and women present all the physical peculiarities of the nationalities to which they belong; but these peculiarities are not propagated or continued in the new race; they are lost in the prevailing Mormon type."

In whose veins flows a blood entirely unpoisoned? If, in small cities and villages, one half or two thirds of those born escape infantile mortality, there is still, apart from casualties, a lessening of their numbers through the several periods of childhood, youth, manhood, and decline, only a limited proportion arriving at what is denominated old age.

§ II. PARASITES.

Animals and vegetables, many of them too minute for inspection by the naked eye, perform a part by no means

insignificant in originating disease. This is true with reference both to man and the lower animals. Those small animals which prey upon the skin are denominated, from their superficial situation, *Epizoa ;* and those which inhabit internal cavities and organs are named *Entozoa.* The minute vegetable growths upon the skins of animals are named *Epiphytes*, and those internally situated, *Entophytes.*

A vegetable parasite is considered to be concerned in the production of *scald-head*, *mentagra*, or the *barber's itch*, and *ring-worm.* Dr. Anderson regards these three forms as essentially the same disease, and terms them *ring-worm of the scalp, ring-worm of the beard*, and *ring-worm of the body.*[1]

The oïdium albicans is thought to be one of the most important vegetable parasites in man. "It forms the white pasty patches on the tongue of infants. It is sometimes seated in the nose, windpipe, stomach,and intestines. It occurs in old people as well as children. It often occurs in the last stage of many prostrating diseases, and never fails to show itself in diphtheria. It is regarded as contagious, spreading rapidly in foundling establishments."

Nearly allied to this oïdium, is the *torula cerevisiæ*, or yeast plant, "found occasionally in all the fluid excretions of the body." Another plant is the *merismopædia* or (sarcina) *ventriculi.* It has been found also in the urine, in the intestinal canal, and in the lungs. Vegetable parasites are found upon some birds in their respiratory organs, upon the bodies of some kinds of fish, upon the gills of others, in large quantities, and varieties of insects are loaded with them.

[1] Parasitic Affections of the Skin, by S. McCall Anderson, M. D., London, 1861, p. 46. Remedial means: Extraction of the hairs from their follicles, and applying a wash of corros. subl. 2grs. to the oz.

The disease called *muscardine*, so terribly destructive to the silk-worm, is produced by the *botritis bassiana*.

Epizoa and *entozoa*, or animal parasites, in great variety and abundance, practise their depredations upon man and other animal tribes. The *pediculus hominis*, man-louse, has received different epithets, according to the part he inhabits, as head-louse, body-louse, etc. *Remedies:* Short hair, a fine-tooth comb, cleanliness, blue ointment. For the flea, an active thumb and finger to catch him and rub him to pieces. For the musquito,[1] camphorated oil, a mosquito net. For the bed-bug, the solution of corrosive sublimate.

The natural history of the *acarus scabiei*, or itch insect, is now pretty well understood. It burrows under the scarf-skin, depositing eggs in its progress. In some few instances the itch has proved fatal under a form of the disease aggravated by great filthiness and neglect on the part of the patient.

The pimple mite, or *demordex folliculorum*, inhabits the hair-follicles of the human nose, particularly of thick-skinned or fat individuals; called, by the common people, *nose-worm*. Its mechanism and economy are not fully understood.

Among the domestic animals the disease called *mange*, and the *scratches* in horses, are due to different parasitic mites. The *ixodes*, or *ticks*, are a great annoyance to grazing cattle. They bore into the skin, and cause bad sores. In the sheep they are sometimes treated with Scotch snuff dusted upon them. Birds are much infested with varieties of lice. The large and small gad-fly of shady places is a great torment to the horse and horned

[1] To repel the musquito, the Chinese fumigate their rooms with the smoke from the dried Artemisia, a species of wormwood.

cattle. The bot-fly, another species of gad-fly, alarms the horse in his approaches, not to bite, but to glue his eggs upon the knees of that animal, as the first step toward a brood of bots for the next season. In a particular district in Africa, Dr. Livingstone encountered a small fly, the *tsetse*, not much larger than the common house-fly, whose bite is certain death to the ox, the horse, and the dog. "A remarkable feature in the bite of the *tsetse*, is its perfect harmlessness in man and wild animals, and even calves, so long as they continue to suck the cows."

An entozoon, the *trichina spiralis*, a very minute worm, is sometimes found in countless multitudes coiled up in the muscles of man. Mr. Turner, senior demonstrator of anatomy, Edinburgh, says that "he has found from one to two per cent. of the subjects he has dissected within the last five years had their muscles filled with the *trichina spiralis*."[1]

One species of worm, the *strongle*, "selects the heart for its domicil, another the arteries, a third the kidney." The *tænia*, or tape-worm, the *ascaris lumbricades*, or round-worm, the *ascaris vermicularis*, or pin-worm, and the *tricocephalus dispar*, or thread-worm, all reside in the alimentary canal. The tape-worm in man is found in two forms,—the narrow, or German tape-worm, and the broad, or Swiss tape-worm. In either of these forms it is generally solitary, but in some instances two or more have been met with in the same person. Its greatest length has been estimated at one hundred and fifty to three hundred feet; either number is probably a great exaggeration. Specimens are preserved of twenty feet or more. This worm, in a well-authenticated case, extended from the

[1] Sept. No. Edin Med. Jour. 1860.

pylorus to within seven inches of the anus, adherent to the intestine all the way.

Remedies for *tænia:* Kousso; two ounces spirits turpentine. I gave this dose to a lady patient. It intoxicated her, and killed the worm. Half a pint of the hulled "meats" of pumpkin seeds; I have known it bring away the entire worm from a middle-aged woman. Large doses of grain tin, — 3i or more, three or four times a day. Another, the bark of the pomegranate root. Another, the root of the male shield fern.

The round-worm measures from four or five to twelve inches in length, and in number sometimes amounts to hundreds. "A girl eight years old voided upwards of two hundred in the course of one week. An instance is recorded of a soldier who passed three hundred and sixty-seven in six days. Another patient got rid of four hundred and sixty in a fortnight."[1]

The pin-worm inhabits the rectum; has been called the spring-worm by the Germans, from its activity when discharged; is half an inch long, exists sometimes in vast numbers. The long thread-worm, *tricophalus dispar*, from an inch and a half to two inches in length, inhabits the large intestine; the cæcum is its favorite seat.

A small white sac (*cysticercus*) is sometimes met with in great numbers, scattered through the flesh of the hog, constituting what is called measly pork. This sac is now understood to be the larva of tape-worm; for, when transferred to the alimentary canal, it is developed into a tape-worm. The experiments of Küchenmeister satisfactorily demonstrated this change. "A cysticercus has been met with in the human eye, the brain, in the heart, and some

[1] Watson, Lect. 73.

other muscular parts." Dr. E. Williams, a highly educated oculist, showed me a specimen in the eye of a patient of his, a man under middle age. The cyst was white, gourd-shaped, about three or three and a half lines long, and two lines thick at its broadest part; and it lay in the vitreous humor, so near the axis of vision as materially to obstruct the sight. It showed considerable motion, which seemed to be independent of that of the globe of the eye. The oculist expressed his purpose to remove it by extraction through the cornea.

It is said that more than twelve varieties of tape-worm have been discovered; the *tænia solium* belongs to the hog and man; while the dog, cat, fox, and the ruminant animals, are infested by other varieties. Prof. Siebold fed a number of lambs, with the joints full of ripe ova, from the tape-worm of a dog; in a fortnight these lambs and no others were affected with the "staggers," and when they were killed, cystworms in various stages of growth were found in their brains and other parts of their bodies.

"Our red grouse," says Dr. Watson, "a bird peculiar, I believe, to the British Islands, are very subject to tape-worm. In some years, thousands of them die of this distemper." Hydatids, or acephalocysts or sacs, are found in clusters of various sizes, each distended with their fluid containing small, round, seedlike bodies, called echinococci (hedgehog mites). These large sacs or hydatids, called by Prof. Owen echinococco-cysts, are found in the liver and various other parts of the body. The small grains they contain are regarded as the spawn of some parasite; Dr. Watson thinks some variety of *tænia*. Of the two species of echinococcus which infest the human subject, the soliciparíens has been traced by Von Siebold and

Küchermeister to a tænia that inhabits the intestines of the dog. "The echinococcus in Iceland constitutes a dangerous endemic disease. Schleipner estimates that it formed one eighth of the total cases of disease. Thorstensen calculated that it affected one seventh of the whole population.

"The tenacity of life in some minute animals is wonderful. Spallanzani kept certain infusorial animalcules four years in a state of complete desiccation and apparent death; but they presently recovered life and motion on being moistened. He dried and moistened alternately the same animalcules twelve times, with similar results; except that the number of the revivers was each time less and less, and after the sixteenth moistening there was no resurrection. The *vibrio tritici* (a minute worm, which is a parasite of wheat), having been dried by Mr. Bauer, resumed its activity when remoistened, after the lapse of from four to seven years. Another small parasitic worm has been seen to exhibit strong contortions, evident vital movements, after having been subjected for above an hour, together with the codfish which it inhabited, to the temperature of boiling water. On the other hand, it is stated by Rudolfi that entozoa which infest the herrings annually sent to Berlin, hard frozen and packed in ice, do, when thawed, manifest unequivocal signs of renewed vitality."[1]

I have a medical friend, a close observer and careful student in natural history, who assures me that he has observed small animals alive and active upon fresh halibut, just boiled and brought upon the dinner-table. In September, 1849, when cholera was fearfully mortal in the city of Cincinnati, I collected a quantity of animalcules from

[1] Dr. Watson, from Prof. Owen.

the atmosphere of cholera patients, for inspection with the microscope. I filled a glass jar, of the capacity of three to four quarts, with ice, set it in a large, clean, dry porcelain bowl, and placed it near the head of the bed of a patient sick with cholera. In the first trial, the quantity of vapor condensed upon the jar and caught in the bowl was about half an ounce. A great number of animalcules were immediately discovered in this fluid by a very good microscope obtained from Powell, London. This fluid, occasionally inspected during the autumnal months, was kept in a vial stoppered with a common cork, and placed in a closet of a chamber of the office through the winter. The water was frozen, and when thawed in the spring exhibited the animalcules as numerous and active as ever. Whether these little animals had any agency in the propagation of cholera, I do not pretend to determine; they were evidently hardy, like the parasites of herring sent in ice to Berlin.

I have found monads in plenty, one thirty-thousandth of an inch in diameter, in water from melted ice, cut from Lake Erie the winter before. Sir Henry Holland, in the last chapter of his "Notes and Reflections," has presented a very able, candid, and logical view on the question of "animalcule life as a cause of disease," and shows, I think satisfactorily, that the affirmative view better comports with the anomalous and capricious movements of cholera than any other. If thus occupied, they expose the impotence of man in resisting their high commission among the nations.

"An Entozoon of importance is the *distoma hepaticum*, or *liver fluke*. It inhabits the gall bladder, the portal vein, the liver, the duodenum. In sheep it causes the disease called *rot*.

"Reference has already been made to parasites upon fish. Attached to large fishes they are sometimes found in great numbers, six or eight inches long. They occasionally excite even the largest swordfish or sunfish to such desperation, by the torments they inflict, that they dash themselves upon the beach. . . . . .

"The cyamus has sometimes been found in such numbers upon the whales of the Southern Ocean, as to entirely strip them of their epidermis, and to produce a white color recognized at a considerable distance."[1]

[1] New Amer. Cycloped., article Epizoa and Entozoa.

CHAPTER XXIII.

MY OWN EXPERIENCE.

As curiosity among some of my friends may prompt the inquiry respecting my own experience in dietetics, I am induced to make a brief statement. I was born the 23d of June, 1780, in Rockingham county, New Hampshire. From my father, a country physician of respectable standing for his time, I inherited a dyspeptic stomach. He had a small farm, and the family were trained upon a mixed diet, such as was common among the cultivators of the soil in that neighborhood. Our bread was made chiefly of a mixture of rye flour and Indian corn meal, and fermented. Wheaten bread was a rare article with us, as the soil of our region was less adapted to the culture of wheat than the other grains. When milk was scarce, we often had bean porridge for breakfast and supper, and sometimes the rare treat of chocolate for breakfast. All along in my boyhood, I was subject to headache, with a sensation of burning at the pit of the stomach. The headache and burning were aggravated after meals. When I was in college, and afterward, during my course of professional study, being provided at the boarding-houses with wheaten bread (and coffee and tea not strong enough to do much harm), I found my stomach and head were less

troublesome, although by no means exempt from the occasional recurrence of the symptoms mentioned.

When I commenced the practice of physic, my patrons were very hospitable, many of them seeming to think me unfit to prescribe for a patient before taking some sort of strong drink. The article presented was usually rum or brandy, with sugar and water to temper it. In three weeks I found my stomach all out of gear, and I abandoned the liquor-tasting altogether.

Within four years, I removed to a more populous locality, where it was an established custom to offer cake and wine at eleven o'clock in the forenoon. It was not long before I found that this was a poor preparative of the stomach for dinner, and I laid the practice entirely aside.

On taking the place of teacher in a country medical school, I provided myself with a fifteen-gallon cask of strong beer, recommended to me by friends whom I then regarded as quite judicious: their opinion was that I should need something extra to confer strength for the labor of preparing lectures, and of a professional practice in a sparse population. I tried half a pint a day, and on the third day my stomach was so acid that it was several days in regaining its tone. I made another trial of it with a similar result; after which I had the cask brought out of the cellar and emptied upon the ground.

At this time, although hostile to distilled liquor, I considered wine, from the combination of its elements, a very different thing, a healthful beverage. Sherry and madeira I kept bottled in my cellar, and occasionally took a glass when a friend dined with me; and at length my relish for wine was such that, had I thought myself able to meet the expense of its daily use, there is great reason to fear

that I might have had an appetite confirmed which would have proved my ruin.

For several years after I commenced lecturing to medical classes, I drank strong coffee and tea. My nerves became unsteady, and I laid aside tea. In three months, finding the state of my nerves but little improved, and the habit of frequently throwing up the liquid part of my breakfast, which had existed for some time, not abating, I abandoned coffee, and instead of it took a cup of hot milk and water sweetened. The ejection of the breakfast subsided at once.

In the year 1830 I passed a number of months in Paris. While there, I ate but twice a day. Warm milk or chocolate, with bread and butter, was my breakfast, and some kind of animal food, with bread and vegetables, and one third of a bottle of claret wine, constituted my dinner.

Very soon after my return from Europe I abandoned totally the use of wine as a beverage, both as injurious and unsafe, and inconsistent with the spirit of the temperance reform, in which I then felt a deep interest. About this time, my attention was turned to the subject of food; and having been convinced by the remarks of Cuvier, and those of Mr. Lawrence, that man is marked by nature a vegetable-eater, I was induced to prescribe abstinence from flesh to many of my invalid patients. The result was such, in many cases, as to satisfy me of the value and importance of this procedure.

In 1832, I deemed it necessary to prescribe for myself, on account of increasing excitability of my nerves, which was no small annoyance when commencing an important surgical operation, especially in the presence of professional strangers. I gave up the eating of flesh as an experiment, without determining how long I would con-

tinue it. I was then actively engaged in professional labor, and was unable at any subsequent period to decide that I had lost anything either in strength or activity. The state of my nerves was in a few weeks so much improved, that I determined to persevere. I soon lost my relish for the flesh of land animals, but never wholly for fresh fish, although I tasted it but once for sixteen years.

At different periods I have somewhat varied my course. I have all along eaten more or less milk, with the exception of two years. During that period I abstained from milk, and its products, butter and cheese, and confined myself to farinaceous preparations, fruits, and esculent vegetables. Although my health was uniform, it was my opinion that I had not quite the amount of strength I had under the use of milk. Sometimes I have eaten butter for a considerable period, then abstained from it for months. Cheese I have not eaten, unless occasionally and in small quantity, with the exception of what is called *cottage cheese*, made from sour milk, and eaten soon after the whey is pressed out.

Early in the autumn of 1848, I had an attack of bilious remittent fever, caught, as I suppose, by sleeping upon the border of Lake Erie, in a malarious district. In my convalescence, at the solicitation of friends, I ate, in addition to other food, the shavings of cold corned beef, now and then a quail, or a mutton chop, which were easily digested, and evidently aided in nutrition. This was my first return to the flesh of land animals for food after I commenced entire abstinence from it in 1832; and my experience with it lasted not many days, perhaps two weeks; since which time I have abstained wholly, as before. During my convalescence I was advised to take brandy. I did so, beginning with *eight drops*, diluted

with water. It made a distinct impression upon the stomach. The dose was slowly increased to a teaspoonful, not over, and was taken three or four times a day, and continued about two weeks. In 1850, and after, I occasionally ate fresh fish, when it came in my way, among friends upon the sea-board or lake-shores, until July, 1859, when, under the impression that it sometimes disagreed with my stomach, I abstained from it, and have not once tasted fish, either fresh or salt, since (now May, 1862).

At no period of my vegetarian experience have I practised the eating of compound soups, made from flesh and vegetables, and I have very rarely tasted oysters or oyster soup; and I believe I am safe in saying that I have not tasted lobster more than twice since the year 1832.

In 1846, being then at the age of sixty-six, I visited Paris, most of the Italian cities, a part of Switzerland, several cities in Germany, London, Manchester, Liverpool, Edinburgh, Glasgow, and the Scottish Lakes; was absent from home between seven and eight months, and during that whole time I ate no kind of animal food, and drank neither wine nor strong drink; in fact, I took *no* drink besides milk and water. The water of Naples I was cautioned against drinking, as derived from the leachings of Mount Vesuvius, and particularly unwholesome. Although I did not much relish it, I suffered no inconvenience from it. During the entire period of my absence from home, I had, besides sea-sickness, only about one hour's indisposition; that was a neuralgia of the fibular nerve, mentioned on page 160.

Of coffee I have taken a small cup after dinner, in not more than three instances, since first quitting it,—I had almost lost my relish for it; and as for tea, I have never taken so much as half a cup, except in a single instance,

at the solicitation of friends, in convalescence from remittent fever: it was nauseous and disgusting.

A glass of cold water in hot weather, a cup of warm water, or of cocoa or chocolate, with sugar and milk, serves me morning and evening; a glass of water always with dinner. I eat all manner of fruits (except the paw-paw), all the small grains under simple forms of cookery, the esculent vegetables and roots. I am especially partial to the potato, and to beans and peas stewed soft in simple water, and seasoned with salt only. Most of my food is taken at breakfast and dinner. At evening, a cup of sweetened milk and water, with a small cracker (biscuit), suffices. I very often take no eatable thing after dinner, and drink nothing but a sip of water before going to bed; the breakfast and dinner furnishing all the nutriment the organs require. Eggs, pies, unless it be apple pie with a crust of bread-dough, puddings, cake, I rarely eat. Puddings I generally decline, because I have usually eaten enough of other things before they are brought upon the table. Gingerbread and pound cake I do not altogether exclude, although I take them but rarely. I eat cucumbers, if young, tender, and recently picked from the vines, seasoned with salt, rarely with vinegar; pickles, never; mustard, horse-radish, cayenne and black pepper, *almost* never; rarely, a weak solution of vinegar in water; spirit, beer of all kinds, and cider, *never;* a glass of soda-water, *almost never.*

The headaches of boyhood—I mean the headaches connected with oppression or irritation of the stomach or bowels—have scarcely ever troubled me since I became a vegetarian. For the last forty years I have rarely omitted the morning ablution in cold water. I have never had rheumatism, and but rarely a stitch of neuralgia.

I am certainly far from presuming that my dietetic course has been in all respects the best possible of its kind; owing in part to my being frequently so situated as not to command the articles I should have chosen, and in part to ignorance of the combination of articles best suited to my constitutional peculiarities (and there is much to be learned from experience on this topic), and in part also to taking too much in quantity; for it is not always easy to stop eating at the point of useful supply, especially under exhaustion from exercise or unusual abstinence. Yet, with all these impediments, I cannot help believing that my health has been benefited, and my life somewhat prolonged.

A rule for eating I had from a very intelligent landlady at a country hotel. To my question "how she could accomplish so much more in her establishment than others of my acquaintance," she replied, "I never eat when weary or fatigued; I lie down and take a nap or rest myself first." This course a physiologist knows how to explain. Few persons, however, are so situated as to practise it undeviatingly.

Physicians are aware that, in advanced life, a scab upon some part of the face is an occasional preliminary to epithelial cancer, which, though generally slow in its progress, is liable to run on to a fatal termination. I felt some interest in this matter, apprehending that I might possibly inherit a tendency to this form of disease, as my father died of cancer of the lower lip. During my absence in Europe, while the affection, as I suppose, was susceptible of a cure by a surgical operation, my father yielded to the urgent representations of a quack, who promised a cure from the application of caustic. This caused much pain and an eating sore, which, on my return home, had be-

come too extensive to promise benefit from the use of the knife.

About 1853 or '54, I perceived upon my face, a little above the ala of the nostril, a *scab*, not far from the sixth of an inch in diameter, which clung to the skin with great tenacity. It was neither sore nor painful, and once in three or four weeks it could be separated from the skin by slowly insinuating the finger-nail under its edge. The surface thus uncovered was never a natural skin, but was thin and purplish, and below the surface of the natural skin, but never bled. Several applications were made, without apparently affecting its progress, and its diameter was slowly increased. In July, 1859, or more than five years after it was first observed, and months after I had ceased making applications to it, I was induced to abstain entirely from the eating of fish, from the apprehension that it was less congenial with the easy action of the stomach than other food. In thus abstaining, I had no reference to the scab whatever, not even dreaming that the one could influence the other. In about three weeks, to my surprise, the scab dropped off of itself, leaving a smooth and natural skin in its place; and from that moment to the present, now almost three years, there has not been the least indication of its return. Now I am far from confident that in these changes there was the relation of cause and effect; and yet I lean so much towards the affirmative that I have not tasted fish since, and I have ventured to make this statement for the consideration of my readers. If the affirmative should be admitted, would it be more extraordinary than the cure of some other forms of skin disease we are acquainted with, under a change of diet?

I have been repeatedly asked whether I would advise

every person who eats flesh to abandon it, and to live wholly on the products of the vegetable kingdom. My answer has been that I would not. Generally, those far advanced in life do not well bear so great a change in their living. There is, however, now and then an exception to this remark. A medical friend, Dr. C., aged seventy, had been an active and distinguished physician, plethoric and fat, weighing two hundred pounds. At this age he abandoned flesh, coffee, and tea, and all drinks but water; avoided butter, and ate but little cheese. He now lives chiefly on bread, fruits, and simply cooked vegetables; eats potatoes moistened with milk twice a day, and thinks he does not take more than a gill and a half of milk daily. He has lost twenty-five to thirty pounds of flesh, is clearer-headed than before he made this change in his diet, has no hankering for meat or butter, feels as well in every respect as he did before, and has suffered nothing from the change, as he assured me. This statement was made to me in the year 1835. He died in the following year from a rupture of the common bile-duct, from an impacted gall-stone formed probably long before. He was induced to adopt a purely vegetable diet with the hope of being relieved from his plethora and dulness. I have prescribed animal food, as beef-tea, venison, mutton-chop, beefsteak, cold corned beef, and quails for adults, laboring under scrofula; with children, however, in scrofulous ophthalmia, milk, gruel, mush, rice, with a sparing supply of fruits, has been generally quite successful.

In convalescence from fever, on the return of appetite we may do well to treat with consideration the preferences of the patient, but not always to be guided by them. In the early part of his practice, a physician of my acquaintance had a patient, somewhat advanced in life, who had

been some days sick with lung fever. On abatement of the symptoms, an appetite was expressed for boiled salt pork and greens. The doctor gave his consent to the trial of it. This food, perhaps the worst that could have been thought of, might have turned the scale against recovery. The complaint was speedily aggravated, and the patient sunk in two or three days.

From suggestions already presented, it will be understood that in certain forms of chronic disease, as dyspepsia, constipation, and in some cases of local pains, a due attention to diet, air, exercise, and other hygienic influences, with little or no medication, are all that will be required; but when there is an attack of fever or inflammation, even if it be not severe, my opinion is, that without delay a physician should be consulted; a physician skilled in all the known methods of investigating disease, one who can estimate the influence of mental and physical temperament, and adopt the proper mode of arresting and dispersing an acute form of disease before it has fully seated itself in its most dangerous location.

CHAPTER XXIV.

MILK AND VEGETABLE FEEDING FOR SURGICAL OPERATIONS.

It is hoped that observation and experience will be admitted in explanation of a decided partiality I entertain for a diet of farinaceous preparations, with milk and fruits, in connection with grave operations in surgery. I have already mentioned the case of Jason Pattee, upon whom the operation of tying both carotids, for a large bleeding nævus upon the vertex of the head, was performed in 1827.[1] His food was milk and bread and mush, etc., both before and for a length of time subsequent to the operation.

Another case occurred in 1852. Early in November of that year, Luther B. Gordon, aged nineteen, came to Cincinnati from Indiana, with a large bloody compress bound upon his left ear, and was admitted into St. John's Hospital. The irregular cavities of the ear, and the space between the angle of the jaw and the mastoid process, were occupied by elastic and pulsating tumors. The enlargement was noticed about eight years before; the progress was slow, and nothing was done. A month before his arrival, one of the tumors burst, with an alarming flow of arterial blood. The removal of the compress, drawing

[1] Amer. Jour. Med. Science, Vol. v., p. 316.

along with it the crust covering the opening, was followed by a fresh jet of blood. From the time of the first bleeding he had been kept chiefly on farinaceous food. On the 18th of November, I tied the left carotid. The pulsation ceased, and the tumor very slowly diminished. In four weeks I tied the right carotid. The patient was unconscious in both operations, from the inhalation of two parts of ether to one of chloroform. One ligature came away in sixteen days, the other in twenty. On the 28th of January, seven weeks after the last operation, Mr. Gordon left for home. The last of April his physician wrote me that there were no remains of the swelling, and that he regarded the difficulty as perfectly cured. From that time till this year, 1861, I heard nothing from him. A letter of inquiry, which I wrote in the spring, followed him through several post-offices, and having found him, drew from him a reply, dated July 18th, 1861. I had always entertained fears that the aneurismal enlargement might some day return. He writes: "Previous to the past year I think there has been very little change since I left Cincinnati. Within the past year there has been a slight enlargement of the aneurism, perhaps partially in consequence of arduous labor. During last winter I walked two and a half miles each day, and had the charge of a large school. . . . . The hemorrhages have been slight, and not frequent."

In addition to a bland diet in moderating the force of the circulation after the ligation of large arteries, it has seemed to me that the horizontal position of the patient ought to be persevered in until the reparation of the lesion is considerably advanced, inasmuch as the heart is not called upon, in this position, to give the blood so great an impetus as is required when the body is erect. This

patient, Mr. Gordon, was kept in the horizontal position twelve days after the tying of each carotid artery.

A case of tumor, probably malignant, within the right angle of the lower jaw, and extending to the root of the tongue, occurred in our city hospital. As a preliminary to its removal, I tied the carotid. The patient, a young man under twenty-five years, was not scrupulous in observing directions. From the third day after the operation, he was up and walking about the surgical ward. On the fifth day I was summoned in haste on account of alarming hemorrhage at the wound. The bleeding was arrested by ice, compression, and a persevering horizontal position. The wound at length healed, and the patient, a foreigner, left for New York, with a view to return to his European friends. I did not hear from him afterwards.

Miss Sarah Jane Lenhart, an uncommonly beautiful young lady of seventeen, from Brown county, Ohio, was brought to Cincinnati with an osteo-sarcoma of the left side of the lower jaw, extending into the ramus. This was in the summer of 1845, before ether and chloroform were employed as anæsthetics.

Miss Lenhart remained four weeks for the operation, fed with milk and farinaceous preparations, submitting to the manipulations of the boastful mesmerists of the city, each of whom promised her an entire insensibility for the operation. They all failed, however, to put her into a state that bore even the semblance of sleep.

Particularly desirous to save her from that deformity of the mouth which follows the division of the facial nerve, I determined to tie the carotid and dissect out the diseased bone. All this was done. Half the entire jaw, with the condyle and coronoid, was removed, without wounding the facial nerve or the duct of Retno. Miss L. remarked, after

the operation, that "it did not hurt her much." The wounds healed readily, and there was no return of the disease afterwards. The deformity was very slight. Four years afterwards, this beautiful and amiable young lady met with her death by being thrown from a carriage.

Wilson M. Stark, aged thirty-three, came to Cincinnati from Lower Sandusky, Ohio, on the 10th of July, 1845, with a large bony tumor on the upper part of the right arm and shoulder. The swelling commenced in the upper half of the arm bone, four years before, and now involved most of the shoulder-blade and a part of the collar-bone. The last two years it had greatly increased, and was very painful. As the weather was excessively hot, I declined operating, and waited for a change. In seventeen days a copious rain fell, followed by a cool northwest wind. The next day, the 28th of July, I proceeded to the operation, and removed the arm with the entire shoulder-blade, and the outer half of the collar bone. The wound healed kindly, and in three weeks he left for home, by canal boat, in which he passed two hundred miles, and completed his journey, thirty miles more, in a stage-coach. The wound was entirely healed in three weeks after he had reached his home. There has been no indication of a return of the disease (osteo-sarcoma) since.

A letter from Mr. Stark, dated October 15, 1861, informs me that his general health has been good until within the past year, in which he has been troubled with dyspepsia. As I requested him to give a particular statement of his diet while at Cincinnati, if his recollection would enable him to do it, he replies, under date of December 9, 1861: "My memory is distinct as to the matter. After I arrived in Cincinnati, and before the operation, I lived on baked potatoes with a little salt, and a little milk toast for each

meal. The first day after the operation, I lived on a pint of water gruel; the second and third, on a quart; the fourth day on one baked potato, and one small tomato, with a little vinegar on it. And after that I lived on vegetables entirely, avoiding any grease, as long as I remained in Cincinnati."

The case of Horace Wheeler, of East Randolph, Vermont, is familiar to some of my professional friends, through the medium of the Philadelphia Journal of the Medical and Physical Sciences.[1] His arm was amputated at the shoulder-joint, for osteo-sarcoma; and six years afterwards, viz. in the autumn of 1837, the shoulder-blade and collar-bone were removed, for the same disease.[2] He was prepared for the operation by living four weeks upon bread and milk, and after the operation had the same living, until the wound was healed. The flaps of integument, seven or eight inches in length, were healed entirely by the process of adhesion, literally without the formation of a teaspoonful of pus; there were a few drops only around the ligatures which were applied to the blood-vessels. In less than three weeks all was healed, and Mr. Wheeler rode home, thirty-six miles, in a stage-coach.

In a letter from him, dated November 28. 1861, he says: "The last two years my general health has been better than the two or three years previous. I have not experienced any return of the disease which caused the loss of my arm and the subsequent operation September 28, 1837, unless two fleshy tumors, which were removed by Prof. Crosby, were of the same character. One of them was

[1] Vol. xxi. p. 390.

[2] In the operation which removed the shoulder-blade and collar-bone, while the stump of the subclavian vein was raised for the purpose of securing it by ligature, a slight hissing was heard, from air passing into the circulation, which caused a swoon that lasted, by estimation, eight or ten minutes.

on my right breast, the other on the under part of my left leg, near the body. It is about twenty years since the last one on the leg was taken out.

He acknowledges his indebtedness to a kind Providence for allowing him to enter his seventy-first year, and giving him peace of mind.

The rice-fed Hindoo devotee, who is suspended from the end of a long horizontal pole by a metallic hook thrust through the thick muscles of his back, and is swung round and round for two hours, recovers; while the porter of London, fed on beef and beer, is liable to die of erysipelas or gangrene from a scratch upon his leg.

Is it not better to feed patients after operations in the manner above stated, than to dose them with alcoholic drinks, and thus expose them to the danger of contracting the habit of intemperance, if they recover from their wounds? I could name a young man who was operated upon six or seven years ago, in a large hospital, for a deformity of the thigh-bone, the result of a badly united fracture. He remained in the hospital about eleven months. In nine months after his discharge from that institution, he was carried into the house of correction in a fit of *delirium tremens*. On recovering his reason, being asked where he had learned to drink liquor so freely, he replied, "At the hospital." It is gratifying to reflect that under the watchful care of benevolent individuals, this young man was saved from destruction, and is now, and has been for the last five years, a sober and industrious man, a total abstainer from all intoxicating drinks.

CHAPTER XXV.

LENGTH OF LIFE.

Various estimates have been made of the average length of human life. It requires but little attention, however, to establish the position that this period varies greatly in different climates, and indeed in different communities in the same climate. If the "threescore years and ten," mentioned in the ninetieth Psalm, were intended as a measure of life in a Hebrew community, at the time of Moses, the reputed author of the Psalm, it is plain that there has been a remarkable falling off from this standard. Some years since, when the average length of life in Great Britain was estimated at thirty-three years, that of a Quaker community in that country was forty-seven years, making a difference of fourteen years in every life, due to their temperate and regular habits of living.

The Laplanders, who live in a climate of intense frost, and a third part of the year without sunshine, and who feed on fish and seals and walruses, are far from attaining a high age.

Temperate and hot climates, where the inhabitants live on a mixed diet, or on one exclusively vegetable, furnish older men. Says Malte Brun,[1] "It was in the Punjaub

[1] Geog. Vol. iii., p. 26.

and other elevated districts that the ancients collected numerous examples of Indian longevity. The *Cyrni*, and the subjects of Prince Musicanus, often lived to the age of one hundred and thirty or two hundred years." "The Portuguese historian, Faria, states that an inhabitant of Diu attained the age of three hundred years; and he adds that, according to the accounts of the natives, several individuals of two hundred years were to be found in Guzerat." "Captain Riley, in the 'Journal of his Shipwreck,' mentions that he was told by Sidi Hamet of an Arab in the great African desert who was nearly three hundred years old; and he adds, 'I am fully of opinion that a great many Arabs on this great expanse of desert actually live to the age of two hundred years or more.'"

Mr. Keesbury, born of English parents, and for several years a resident in India, remarked to me that in the interior, back from the large commercial towns, it was a common thing to find a native one hundred years old and upwards.

"According to Pliny, in the year 76 of the Christian era, from a taxing by Vespasian, it was estimated that between the Apennines and the Po there were living one hundred and twenty-four persons one hundred years old or upwards; viz. fifty-four of one hundred years; fifty-seven of one hundred and ten; two of one hundred and twenty-five; four of one hundred and thirty; four of one hundred and thirty-five; and three of one hundred and forty.

"Besides these, Parma had five, whereof three had fulfilled one hundred and twenty, and two one hundred and thirty; Brussels had one of one hundred and twenty-five; Placentia one of one hundred and thirty-one; Faventia one woman of one hundred and thirty-two; a

certain town then called Velleiacium, situate in the hills about Placentia, afforded ten, whereof six fulfilled one hundred and ten years of age, four one hundred and twenty; lastly, Rimino, one of one hundred and fifty years, whose name was Marcus Apponius. Clodia, the wife of Ophilius, who lived to the age of one hundred and sixteen years, is mentioned by Pliny as the oldest female who had died in ancient Rome."

In 1825, our distinguished lexicographer, J. E. Worcester, LL. D., presented to the American Academy of Sciences a highly interesting paper on longevity, which was published in the first volume of their Memoirs, new series. He gives a list of ninety-eight persons in New Hampshire, with the date of their deaths, which occurred within the period of ninety-three years, ending in 1824, all of whom were one hundred or more years old, besides six others, the dates of whose death were unknown, the eldest of whom was one hundred and twenty.

"There were known to have been living in New Hampshire, in 1823, at least twelve persons at the age of eighty years or upwards."

Dr. W. gives a table, beginning 1808, ending 1821, exhibiting a list of one hundred and thirty-two persons in the United States who had attained the age of one hundred and ten years or upwards. Flora Thompson, a negress of Pennsylvania, heads the list, at the age of one hundred and fifty years. There were one at one hundred and forty-three; one at one hundred and forty-two; one at one hundred and thirty-seven; two at one hundred and thirty-six; one at one hundred and thirty-five; three at one hundred and thirty-four; and three at one hundred and thirty.

At the present time (1862) it is not uncommon in New

England to find a person one hundred years old or above. In the beginning of the year 1858, there were in the New England States four clergymen, all educated at Dartmouth College, each of whom was one hundred years old. They all died within the year.

John Gilley, born in the County of Cork, Ireland, in 1690, died at Augusta, Me., July, 1813, aged one hundred and twenty-four. I saw him after sunset of a cold evening in December at the age of about one hundred and eighteen. At that time he took the whole care of the cattle at his barn, and cut all the wood for the fire in his house. He lived on a mixed diet, and had seven teeth left in his mouth. He told me that he had never had a fit of sickness; was once confined for a short time with a broken leg. He lived a bachelor till he was between seventy and eighty, when he was married to a girl of eighteen. They had eight children, who had gone out into the world "to seek their fortune," leaving the old folks to take care of the homestead.

Henry Francisco, born in France, died near Whitehall, N. Y., in October, 1824, in his one hundred and thirty-fifth year. "He abstained almost wholly from animal food, his favorite articles being tea, bread and butter, and baked apples."

"William Scoby, a native of Ireland, died at Londonderry, N. H., at the age of one hundred and ten years. It is recorded of him, that when one hundred years of age he travelled on foot from Londonderry to Portsmouth, more than thirty-five miles, in one day; an exploit which many would find difficult at any period of life. The age of William Scoby is stated in the first edition of Dr. Belknap's History of New Hampshire at only one hundred and four, but one hundred and ten in the second

edition, as it is also in the New Hampshire Gazetteer, the Massachusetts Historical Collections, and likewise by a correspondent of the writer at Londonderry.

"Robert Metlin (called by Dr. Belknap, Robert Macklin), who died at Wakefield in 1787, at the age of one hundred and fifteen, was a native of Scotland. He lived for some time at Portsmouth, and followed the occupation of a baker. The following anecdote respecting him is related by Mr. Adams, in his 'Annals of Portsmouth,' under the year 1787, the year of Mr. Metlin's death.

"He was a great pedestrian. He usually bought his flour in Boston, and always travelled thither on foot. He performed the journey in a day, the distance being then about sixty-six miles, made his purchases, put his flour on board a coaster, and returned home the next day. He was eighty years of age the last time he performed this journey. At that time this was thought an extraordinary day's journey for a horse. The stage coaches required the greater part of two days. Col. Atkinson, with a strong horse and a very light sulky, once accomplished it in a day. He set out early in the morning, and before he reached Greenland, overtook Metlin, and inquired where he was bound. Metlin answered, to Boston. Atkinson asked if he ever expected to reach there, and drove on. Atkinson stopped at Greenland, and Metlin passed him; they alternately passed each other at every stage on the road, and crossed Charlestown ferry in the same boat before sunset."[1]

The Hon. Mrs. Watkins, of Glamorganshire, visited London at the age of one hundred and ten, the last year of her life, to witness the performance of Mrs. Siddons.

[1] J. E. Worcester on Longevity.

While in London, she ascended those many flights of steps which lead to the whispering dome of St. Paul's, a labor which few who have tried it can easily forget. The last forty years of her life, Mrs. W., it is said, lived exclusively on potatoes.

Thomas Parr, of Shropshire (England), died in 1636, aged one hundred and fifty-two years and nine months; ate no animal food. Twice married; the first time at eighty, the second at one hundred and twenty years; had offspring by each marriage. In 1635, he was carried to London, and exhibited at the Court of Charles I.; died in a few months. Dr. Harvey, in a post-mortem, found his organs supple, and said he might have lived longer if he had not changed his diet and air.

Henry Jenkins, Yorkshire, lived to the age of one hundred and sixty-nine years; diet said to be cold and watery.

Peter Zarten, near Temesvar, in Hungary, died January 5, 1724, at the age of one hundred and eighty-five. His hair and beard of a greenish white; his food said to be pulse, milk and bread, with a little brandy.

John Rovin and his wife, natives of Temesvar, Hungary, died in 1741, he in his one hundred and seventy-second year, she in her one hundred and sixty-fourth, having lived together, man and wife, one hundred and forty-seven years.

The New York Herald of January 1, 1861, contains a list of persons of one hundred years of age and upwards, who died in the United States in the year 1860. The whole number is fifty. Of these, thirteen died at one hundred; of the higher numbers, two were at one hundred and twenty, one at one hundred and twenty-five, one at one hundred and twenty-seven, one at one hundred and thirty-five, one at one hundred and forty.

By the United States census of 1850, the oldest person

was one hundred and forty, an Indian woman in North Carolina. In the same State was an Indian aged one hundred and twenty-five, a negress one hundred and twelve, two black females one hundred and ten each, one mulatto male one hundred and twenty, and several white males and females aged from one hundred and six to one hundred and fourteen. In the parish of Lafayette, Louisiana, was a female black aged one hundred and twenty. In several of the States there were found persons, white or black, aged from one hundred and ten to one hundred and fifteen. There were in the United States, in 1850, two thousand five hundred and fifty-five persons of over one hundred years. This shows that about one person in nine thousand will be likely to live to that age.

We have not the means of determining to what extent human life might be carried under the most favorable circumstances. After making due allowance for inaccuracy of record, there is reason for believing that in modern times some few individuals may have attained the age of nearly if not quite two hundred years. It will be recollected that several hundred years were occupied in abridging life — from the time of the flood to the time of Moses, who mentions seventy years as the ordinary period; and if, during this long term, the mischievous influences were gradually deepening their hold upon life, until its minimum, in a particular climate and community, had been arrived at, might not, on the other hand, most valuable results be looked for under the operation of hygienic agencies which are within the reach of human ingenuity and effort, protracted through a series of generations? Among these agencies, are, an atmosphere of the highest attainable approach to purity in dwelling-houses and public institutions; the life-quickening power of direct sunshine; much

exercise abroad in the open air; clothing adapted to the changes of weather; food nutritious, at the same time bland and unirritating; a drink made in Paradise, made right at first, neither requiring nor admitting of narcotic or alcoholic admixtures, and a medication to extinguish disease, or abate its force, or prevent its attack. We already possess vaccination, which can rid the world of one of the most terrific and destructive epidemics which have invaded the human family; we have the Peruvian bark and its extracts, which operate not only to extinguish marsh and lake fevers, but, when taken at suitable intervals in a malarious atmosphere, neutralize the poison, and are a complete prophylactic or preventive of an attack of the fever;[1] we have mercury and iodide of potassium to meet the poison and allay the tortures of constitutional syphilis; colchicum for the merciless attacks of gout and rheumatism; and carbonate of iron and arsenic and strychnia for some refractory forms of neuralgia. We have already remedies for many parasitic animals and plants that nestle in our internal organs, or burrow or take root in the skin; and as the researches of pathologists are now pushed with enthusiasm in this department, we may anticipate for man a nearer approach to immunity from their attacks upon comfort and life than can ever be realized by the larger animals of the lower tribes which have no means of destroying these invaders, while in self-made diseases, we outnumber them a hundred to one.

The remedial means we already possess of abating the force of sweeping diseases, or of extinguishing them altogether, reasonably inspire the hope that cholera, yellow fever, scarlatina, typhoid and typhus, and tubercle, if not

[1] Jour. Med. and Phys. Science for Jan. 1861, Phila.

starved out by hygienic influences, will have their remedies or antidotes, and will be met with the same confidence as we now meet small-pox or lake fever. And if the time shall ever come — and who does not look for a *moral* and *physical* regeneration of our race, for surely one cannot come without the other — when the food best suited to a prolonged and uniform health shall be adopted, — the appetite not left to become gluttonous like that of the beasts, but kept under the conscientious control of reason and science, — and the only drink that of Paradise, then there will be a progressive improvement in health, and life will be lengthened as certainly as it has been shortened by the sottish inventions of man; the human face no longer blotched and scarred from an empoisoned blood, but fresh and fair, and lit up by an eye sparkling in its hundredth year. On this subject, we are not left without a cheering note from the harp of prophecy: "There shall be no more thence an infant of days, nor an old man that hath not filled his days; for the child shall die an hundred years old; . . . . . and they shall build houses and inhabit them; and they shall plant vineyards, and eat the fruit of them. They shall not build and another inhabit; they shall not plant and another eat; FOR AS THE DAYS OF A TREE ARE THE DAYS OF MY PEOPLE, and mine elect shall long enjoy the work of their hands."[1]

[1] Isa. lxv. 20, 21, 22.

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