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HYGIENE OF THE BRAIN.

M. L. HOLBROOK, M.D.

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CURE OF NERVOUSNESS.

Amid all our speculative uncertainty there is one practical point as clear as the day, namely: that the brightness and the usefulness of life, as well as its darkness and disaster, depend to a great extent upon our own use or abuse of that miraculous organ, the brain.—Professor Tyndall.

HYGIENE

OF THE

BRAIN AND NERVES

AND THE

CURE OF NERVOUSNESS.

WITH TWENTY-EIGHT ORIGINAL LETTERS FROM
LEADING THINKERS AND WRITERS
CONCERNING THEIR

PHYSICAL AND INTELLECTUAL HABITS.

BY

M. L. HOLBROOK, M.D.,

EDITOR OF THE "HERALD OF HEALTH"; AUTHOR OF "PARTURITION WITHOUT PAIN," "EATING FOR STRENGTH, "LIVER COMPLAINT," "DYSPEPSIA AND HEADACHE"; TRANSLATOR OF "FRUIT AND BREAD: A NATURAL AND SCIENTIFIC DIET," AND OF "FROM THE CRADLE TO THE SCHOOL."

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PREFACE.

During a month's sojourn, many years ago, in near proximity to a settlement of Indians, where I had frequent opportunity to observe their habits and mental characteristics, I came to the conclusion that, whatever their defects of development might be, they were certainly not subject to nervousness. There are abundant examples among our own race of people who were "born before nerves were invented." But, on the other hand, the greater strain put on the nervous system by our unnatural methods of culture, and by the sharp conflict which competition compels, has caused a remarkable increase in nervous maladies. A true civilization would seek to prevent them, and that can only be done by a correct knowledge of the functions and uses of the nervous system.

We ought certainly to understand the use of all the tools which we are obliged to employ. The brain is, in one sense, a tool, employed in the manufacture of thought and emotion. Wisdom would dictate that we should learn how to keep it in the very best condition possible. It has been the aim in preparing this book to give such knowledge as is necessary to do this. It has been gathered from many sources, and put into a form most easily understood. It is to be hoped that it may be serviceable to all who read it.

The numerous letters from some of our thinkers and writers, giving an account of their own physical and intellectual habits, found in Part II, we are sure will be appreciated; and we hereby tender to the writers of the same our hearty thanks for permitting us to give them to the public.

M. L. H.

HYGIENE OF THE BRAIN AND NERVES.

PART I.

CHAPTER I.

The Brain.

There are few persons who do not appreciate the value of sound lungs, a strong heart, a vigorous stomach, muscles that never tire of motion, and nearly everybody gives some practical attention to the health of these organs; but the nervous system, which presides over all the vital processes of the body, and out of which flow thought, feeling, emotion and will, which make us intelligent creatures, receives too little of our care—is too little guarded from evil influences.

It is to make some slight contribution to the

well-being of the brain and nerves that this little book is undertaken. It is true there are those who think that the less we know of ourselves, and the sooner we forget to live by rule, the better; but this class will soon become obsolete and forgotten. The tendency of modern times is to make the discoveries of science available for human welfare, and what welfare is more important than the perfection of our own bodies, and especially of that part of them most nearly allied to the immortal—the nervous system. The poet George Herbert, a companion and friend of Lord Bacon, and perhaps the best of the old devotional poets, in that most exquisite and thoughtful poem, "The Church Porch," says:

"Slight those who say, amidst their sickly healths,
Thou liv'st by rule; what doth not so but man?
Houses are built by rule, and commonwealths;
Entice the trusty sun, if that you can,
From his ecliptic line, beckon the sky—
Who lives by rule then keeps good company.

"Who keeps no guard upon himself is slack,
And rots to nothing at the next great thaw!
Man is a shop of rules, a well-trussed pack,
Whose every parcel underwrites a law;
Love not thyself, nor give thy humors way:
God gave them to thee under lock and key."

In order to guard the brain and nerves from injury, and give them that wise care which is essential to right living, we should possess some understanding of the nature, structure and uses of these organs; and so we will begin by giving a general view of them.

The brain is that large mass of soft, pulpy matter which fills the skull. Every animal which has a backbone or spinal column has a brain, with just one exception, and that is an oceanic fish; but the brains of different animals vary greatly in size. The elephant has the largest brain of any animal—one that sometimes weighs nine or ten pounds. The full-sized whale has a brain weighing about five pounds; but an elephant's brain only weighs the five-hundredth part of the weight of its body, while a man's brain weighs not far from the one thirty-sixth part of his own weight. The brains of birds are larger in proportion to the size of the body than those of men. A canary's is the twentieth of its own weight, and the little blue-headed tit's the twelfth.

The brain of man, however, is of better quality than that of any animal, and weighs on the aver-

age forty-eight ounces; that of woman weighs forty-four ounces. It is separated into three

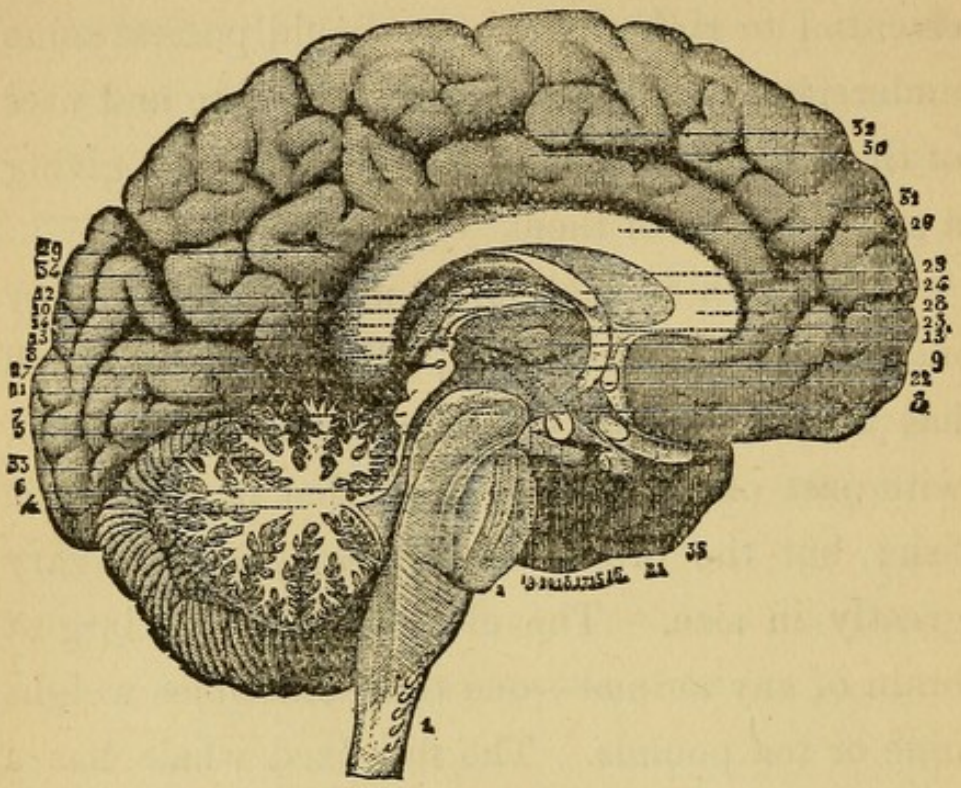


Fig. 1.—Vertical Section of the Brain.
1. Medulla Oblongata.
4. Cerebellum.
29–34. Cerebrum and its Convolutions.

principal parts: the cerebrum, the cerebellum, and the medulla oblongata.

THE CEREBRUM.

The cerebrum occupies nearly the entire skull, in fact all except the small portion at the back part of the base of this cavity. Its function is that of thought, feeling, emotion, will, intelligence. It is now certain that there can be no

intelligence without brain substance. The oyster and clam are not intelligent—they have no brain; and in proportion as man's brain is increased in size and developed we have intellectual phenomena. On the other hand, let the brain substance be injured or destroyed, or deficient in quantity or quality, and idiocy, stupidity, ignorance, feebleness, absence of intelligence, lack of will and moral force, become at once apparent. Consciousness is inseparable from the activity of this part of the brain, and though there are many movements in animals after the cerebrum is removed, yet no consciousness is present.

THE CEREBELLUM.

The cerebellum has entirely different work to do from that of the brain proper, and is much smaller in size, weighing only a few ounces, while the cerebrum weighs several pounds. It is separated from the cerebrum by a tough membrane called the tentorium, a process of the dura mater, or lining membrane of the skull. This process which separates the large and small brain is very serviceable, as it forms a bed for the former, and relieves the latter from supporting it.

There has been much written about the func-

tions of the cerebellum, and it is now known that its chief function is the co-ordinating into one movement the entire action of the muscles. This is perhaps best illustrated by a comparison. A skillful dancer or gymnast can combine the actions of his muscles into one beautiful movement of grace and dexterity. The nimble kitten will play, and its movements be wonderfully harmonious. It knows precisely how far to jump for a mouse, and in making the effort all the muscles obey. The monkey and squirrel climb trees with perfect ease, and rarely fall. Their actions illustrate that co-ordination which physiologists say is the function of the cerebellum. On the other hand, the drunken man cannot co-ordinate the movements of his muscles, and so he staggers about. The muscles refuse to obey because the cerebellum has been temporarily paralyzed, and cannot attend to its functions.

The method by which physiologists prove this function, it is true, has some objections, for it consists in removing the cerebellum from such animals as can endure it, more especially from the pigeon and common barnyard cock. The result is, they immediately lose this co-ordinating

power and cannot control their muscles, lack stability, and act as a drunkard does.

These experiments cannot be tried on human beings, but there are a few cases in which the cerebellum has become diseased which show that co-ordinating power is its chief function. In those fishes which possess great power of movement the cerebellum is relatively larger than in those of a torpid nature; and in reptiles we have a very good illustration of the relation between a small cerebellum and that inertness which they manifest. In snakes the cerebellum is small, and though they may at times show considerable muscular force, yet as a rule they are lazy, and prefer to move about no more than is necessary. If poisonous reptiles had a larger cerebellum, they would be much more dangerous creatures than they are at present.

In birds the cerebellum is of large size, in perfect conformity with the varied muscular movements which this class of animals perform. In the mammalia the cerebellum varies greatly in development, yet there is a close correspondence between its size and the amount and variety of muscular movements which the animal can perform. Men with large muscles and great physical

power have a large cerebellum, while feeble ones, and those by nature of a delicate constitution, generally possess one of a diminutive size. The same is true of animals. It is said that in the horse or ox trained to hard work the cerebellum is larger than in the one not so trained.

Dr. Ferrier, whose remarkable studies and experiments on the brain by means of electricity have attracted so much attention in the scientific world within a few years, has demonstrated that the cerebellum is the ganglionic center of the motor nerves of the eye—every kind of movement of the eyeballs being proved by him to originate from a particular part of this organ. This helps to explain the very close relation between the guiding power we derive from the eye and the equilibrium of our muscular movements. With what difficulty we maintain our equilibrium when we cannot see! So, too, the dizziness which comes from turning round rapidly, Dr. Carpenter thinks, is the result of a compression of ocular impressions which prevent the movements of the eye co-ordinating with the general movements of the body.

There may be other functions of the cere-

bellum not yet discovered, but as yet no other are known to exist with any certainty.

THE MEDULLA OBLONGATA.

The *medulla* connects the brain proper with the spinal cord. It is a center of less complex functions than the brain, but more complex than the cord, and intimately connected with essential vital functions. All but four of the cranial nerves are directly connected with its gray centers, and it is the seat of such actions as proceed from these nerves, either singly or combined. The co-ordination of the muscles which produce articulate speech probably have their center here. It is also a center of facial expression, and without doubt the crying of babies is a reflex action of this part. The chief function of the medulla, however, is the co-ordination of respiratory movements. So long as the medulla is intact, the function of respiration goes on with regularity and rhythm, although other parts of the brain may have been destroyed. Destroy this, however, and respiration ceases and instant death ensues. Nearly all know that a blow on the base of the brain destroys life instantly. This is because the medulla has been destroyed

and the function of respiration lost. On account of this it has been called "the seat of life," "the vital point," etc. The only animal, so far as we know, that can live after the medulla has been injured is the frog, and this is explained by the fact that it respires partly through the skin.

The medulla is also a source of innervation for the heart, though this organ has centers in its own substance which help to govern its regular movements.

CHAPTER II.

The Spinal Cord.

The spinal cord is an extension of the brain outside of the skull into the passage that constitutes a part of that long chain of bones piled one upon the other, and called the spinal column or backbone. It is an easy matter to get a view ot this cord in any animal after the butcher has split the bones with his ax, exposing more or less of it in, it is true, a somewhat fragmentary state to our view; or it may be dissected out carefully in fishes, birds, or other small creatures, and studied with care. It is a soft, delicate, pulpy mass of gray and white substance, protected from injury by the bony prominences which arch around it in a very wonderful way, inclosing it on all sides in a long cavity, or canal, which is often called the spinal canal, and cerebro-

spinal axis. The cord is surrounded by an envelope of membranes which support it and the vessels supplying it with blood. The length of the cord is from eighteen to twenty inches, but its weight is very slight, hardly exceeding an ounce and a half. In form it is round, being slightly flattened in certain parts. It extends downward to the first lumbar vertebra. Like the brain, it is divided into two lateral halves. It would be tedious to discuss at great length the anatomy of the cord, which is exceedingly curious, and difficult to be understood without special study in the dissecting-room, which is unnecessary to our object. We will, however, say briefly something about its functions. The anterior lateral half is entirely insensible to irritation, and serves as a conductor of stimulus from the brain to the muscles. Cut this half of the cord, and those parts situated below it lose their power of motion. If the posterior or back part is cut, however, the power of motion is not lost. When the will directs that certain muscles shall act, it sends the order down through this half of the cord, which, if not injured, carries it to the muscles, and they obey. If, however, there be any injury to this half, the connection is severed, and the man-

dates of the will are not and can not be carried out.

The posterior half of the spinal cord has different functions, perhaps several, although as yet our knowledge is not complete on this subject. It is now certain that if the gray substance of the posterior half of the spinal cord be cut in two, then sensibility of all the parts below this region is completely destroyed, so that they may be cut, pinched and pricked without any sensation. There is no means of communicating intelligence of any pain from the surface to the brain, and so a knowledge of pain cannot exist.

The posterior half of the spinal cord may be cut without in the least destroying sensation. This half of the cord is concerned with the cerebellum in aiding to co-ordinate the movements of the muscles. It is not necessary to go through with all the details of the experiments that lead us to this conclusion. We will mention that the peculiar disease formerly believed to be a form of paralysis, and frequently occurring in patients who have suffered with diphtheria, typhoid fever, and some other diseases, known as locomotor ataxia, in which there is difficulty

in co-ordinating muscular action, is the result of lesion of this half of the spinal cord.

We have now three different functions of the spinal cord:

1. The conduction of motary stimulus to the muscles.

2. The conduction of sensation to the brain.

3. Co-ordinating power.

But we are not through with the functions of the cord. We know that it is, after all, only an extension of the brain—that it is, like it, composed of gray and white matter, and its gray substance may, to a slight extent, generate nervous energy, and act as a nervous center of motion, and perhaps of sensation. The experiments which have led to this view have been made mainly on frogs which have been decapitated, and which can be made under certain circumstances to jump about, to apparently feel pain, at least to try to brush off with one foot a burning acid applied on the other foot. Similar experiments bring similar results applied to decapitated criminals.

If the spinal cord be injured, the parts below the injury are paralyzed. This happens when any serious accident has broken or displaced the

bones of the column which surround and protect the cord. Even a little piece of bone pressing on it cuts off all communication with the brain and the parts below. When a person is paralyzed in this way we say his back is broken. If the injury be in the middle of the back the legs are paralyzed. If at the neck, the whole body is paralyzed.

All along the spinal column nerves branch off that go to every portion of the body.

The spinal cord should not be injured by blows, by jars, as in jumping from a height, by exposure to cold, by violent exercise, or by tight clothing which impedes the circulation of the blood in the parts, and the flow of nervous influence to and from the brain to all parts of the body.

CHAPTER III.

The Cranial and Spinal Nerves.

There are thirty-one pairs of spinal nerves. Each one of these arises from the spinal cord by two roots; one of these roots is endowed with motor properties—that is to say, it conveys that property to the muscles which gives them the power to contract and move—but the other root has a very different property, for it cannot induce motion, but only the power of feeling and sensation. The root which gives sensation is the larger of the two. Why this is so is difficult to see unless sensation requires more conducting surface than motion. Each of these roots has a ganglion of its own. A ganglion is simply an enlargement of the nerve into a small bulb-like shape, and an immediate return to its former size. Just beyond the ganglion the two roots unite into one com-

mon nerve, passing out at the spinal canal by a passage-way through the vertebra. Any one may examine the passage for himself by taking one of the vertebral bones of an animal, and studying it. The two roots after they have united in one possess both motor and sensory power. As soon as a nerve has passed out of the bony cavity that held it in close confinement and gave it protection, it divides into two branches; one branch is distributed on the front of the body and the other on the back. The branch which supplies the front of the body also supplies the limbs, and is much larger than the other one. These thirty-one pairs of nerves are called the spinal nerves. Eight pairs are given off from the cervical or neck portion of the spinal column, twelve from the dorsal, and five from the lumbar, five from the sacral and one from the coccygeal. The nerves of the cervical region supply the muscles and skin of the neck and arms. The dorsal supply the back, chest and abdomen, and the lumbar nerves supply the lumbar region, and they all have a union with another nervous system not yet mentioned—the sympathetic nerves—which will form the subject of a future chapter.

Besides the spinal nerves there are nine other

pairs which arise directly from the brain itself. These are the cranial nerves and have special functions, which are very different from those of spinal nerves. They are as follows :

The first is called the *olfactory nerve.* It spreads out in a certain part of the nasal cavity and furnishes the sense of smell.

The second is called the *optic nerve.* It is of very large size, goes into the eye and expands into the nervous membrane of the eyeball, the retina, where it receives the vibrations of light, conducting them to the brain, where they are transformed into sensations of sight.

The third is called the *motor oculi communis*, distributed to the muscles of the eyeballs. It is a small nerve and conducts to the muscles of the eyeball stimulus for moving the ball in many ways.

The fourth, or *trochlear*, is a motor nerve, distributed to a muscle of the eye not supplied by the third pair.

The fifth pair has two roots, a small one supplying the muscles which masticate our food, and a large one the *trifacial*, or nerve which gives general sensibility to the face. A most tormenting form of neuralgia originates in this nerve.

The sixth pair supplies another muscle of the eyeball not otherwise provided for.

The seventh pair has two branches, one forming the nerve of hearing, and the other distributed to the muscles of the face.

The eighth pair consists of three branches: the *glosso-pharyngeal*, presiding over the sense of taste; the *pneumogastric*, with very extensive distribution, to be spoken of hereafter; and the spinal accessory, also of extensive distribution.

The ninth pair is the *sublingual* or motor nerve of the tongue.

FURTHER REMARKS ON THE CRANIAL NERVES.

The third pair of nerves, when healthy and evenly distributed to the eye, gives a wonderful beauty to this organ and its surroundings. If paralyzed or diseased, then the upper eyelid falls, the eyeball becomes immovable, except outwardly, and the pupil of the eye dilates. The third pair animates the eye and its surrounding muscles.

The seventh pair of nerves is of special interest; one branch going to the ear for the purpose of taking recognition of sound, and the other branch being distributed to the superficial muscles of the face, constituting really the nerve of expres-

sion. We may imagine this nerve when large and active giving wonderful beauty of expression to our faces; and, on the other hand, when inactive, giving a listless, stupid countenance, and when paralyzed giving a fearful distortion of the facial muscles.

One branch of the eighth pair, the *spinal accessory*, seems to have an intimate connection with the voice, this becoming weak, hoarse, and perhaps partially lost on division of the nerve.

It also influences swallowing; for its division prevents the complete close of the glottis, and so food may find its way into the air-passages. A branch of this nerve, which passes to the heart, seems to hold over it an inhibitory power; perhaps preventing it from too rapid movement. Another external branch of this nerve assists in the control of the respiratory muscles during speaking and singing, so as to make the breathing correspond to the necessary action of the voice.

Perhaps the most interesting of the cranial nerves is the pneumogastric branch of the eighth pair. Its name, pneumogastric, signifies to some extent its distribution, namely, to the stomach and lungs; but it has branches distributed to the ear, the pharynx, larynx, heart, lungs, stomach,

liver and abdomen. Its action upon the heart is to hold it to a certain number of pulsations per minute, and if the branch going to the heart is cut this organ begins to beat at a rapid rate. The effect on the lungs is quite the opposite, for by a section of the branch distributed to these organs, the respirations become deep, but infrequent, falling to four in a minute.

The influence of this nerve on the stomach is very great; and it seems to furnish it with a stimulus for both the secretion of its gastric juice and for its muscular contractions. When both nerves are divided, digestion ceases almost entirely, and death supervenes. There is little doubt that much of our modern dyspepsia arises from an insufficient supply of nervous stimuli for this organ through the pneumogastric nerve. The cause, however, does not lie in the nerve, which has no power to generate stimuli, but in the brain, which does not generate it in sufficient quantities, or, if it does, gives it to other organs.

The termination of the nerves in any organ is curious and interesting. In muscles they terminate suddenly and at right angles in a muscular fiber. In glands they terminate abruptly in the cells. The influence of the nerves over secretion

is very great and well known. The sensory nerves do not terminate in any organ specially, but in the integument of the skin in filaments.

Nerves are composed mainly of albuminous substances, combined with sulphur and phosphorus, and with a brain fat, also combined with phosphorus; also of a substance resembling starch.

Nervous tissue is regenerated after its partial destruction—that is, if a nerve be divided or removed it grows again slowly, and its function is restored; and it is now known that where a portion of the brain is destroyed it may grow again. Especially is this true in the case of pigeons, and, no doubt, it is also true in the case of man.

The properties of the nerves of sensation and motion are inherent, and the perfection of their activity depends largely upon a full supply of healthy blood for the nourishing of their substance.

CHAPTER IV.

The Sympathetic Nervous System.

There are two nervous systems in each individual. They are quite distinct from one another, and yet united by filaments, so that there is an action and reaction from one to the other. The first is the nervous system which we have described, with its center in the brain and spinal cord, and its ramifications in every part of the body. This system is the seat of thought, emotion, sensation, and will. The other is the *sympathetic nervous system*, and presides over the functions of nutrition, secretion and vegetative life. It has its center in what may be called the abdominal brain, or pair of brains, consisting of large semi-lunar ganglia, one lying on each side of the spinal column in the upper part of the abdominal cavity. A chain extends upward

on each side of the spinal column, the whole length of the trunk, into the brain. This chain consists of a cord which swells into ganglia every few inches. From these ganglia nerves are given off which are distributed to all the great internal organs of the body, the heart, lungs, stomach, liver, kidneys, intestines, and especially to the muscular coats of the arteries. It is a striking peculiarity of the sympathetic nervous system that its nerves follow very closely the blood-vessels. Starting from the heart they envelop the arteries in a network of fine interlacing nerves, which follow them in all their ramifications. The semi-lunar ganglia are often called the solar plexus, for the nerves radiate from them in every direction, as the rays from the sun. These radiating nerves control the action of the abdominal organs.

The action of the sympathetic nervous system is not yet thoroughly understood, but, unlike the other nervous system, it is not under the control of the will. It acts in its own peculiar way—is not hampered by the will or interfered with by any caprice of the individual. It cannot think. It can scarcely feel, though experiments show there is slight sensation in it.

It knows nothing that is going on in the world; it probably knows nothing of what is going on in the body, and yet it has control of the most important functions of organic life. It hastens, retards, increases or diminishes the supply of blood to any organ or part; thus providing for secretion, excretion and the maintenance of heat.

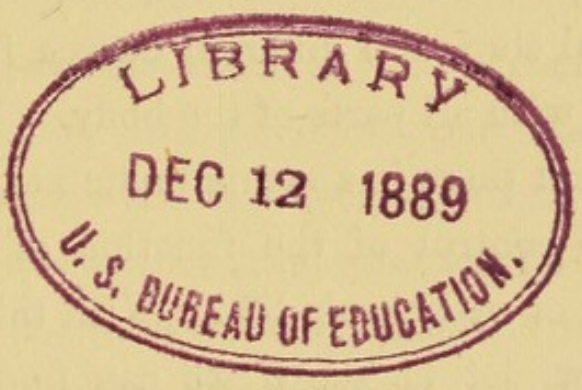
The action of the sympathetic nervous system is slow. It takes time for it to respond to any nervous stimulus. In this respect it differs from the other system, which responds at once to any excitement. Once excited, however, its action is uniform and regular. The peristaltic action of the bowels, for instance, is under the control of the sympathetic system, and the movement is slow and continuous. This slowness of action may be seen in another way. When a person has been exposed to cold and wet, the brain, or cerebro-spinal system, recognizes it at once; but the pleurisy, which may result from this exposure, is regulated by the sympathetic nervous system; and this does not appear at once: it may be hours or days before we are sick. So, too, the recuperation from an attack of sickness is largely under the manage-

ment of this system, and so it requires days, weeks, months, and perhaps years, for a person to recover from a serious illness. For this reason, when we are warned by uneasy sensations that there is danger in exposure to wind, rain, snow and wet, we should avoid them.

The sympathetic nervous system is differently developed in different people. In the thin, poorly-nourished dyspeptic it is generally deficiently developed. In the person of sanguine temperament, ruddy face, and round, plump and healthy body, these nerves are well developed, and they keep the body well nourished by sending plenty of blood to the tissues, even though the brain may suffer for it. When this system is strong one recovers from sickness rapidly—recovers from fatigue in a short time.

There should be a harmony of development between the two nervous systems. Then they help each other, and make a round, complete character; but this is not always the case, for where the cerebro-spinal predominates it is apt to rob the sympathetic of nourishment, so that sleep is not perfect and nutrition is incomplete. From such a condition of things come nervous exhaustion, depression of spirits and melancholy.

On the other hand, when the sympathetic system predominates, there is too much nutrition and growth of body, but not enough mental and muscular activity. All should strive to maintain a harmony of development between these nerves, and never tax both powerfully at the same time—as would be done in using the brain vigorously just after a hearty meal. In such a case the sympathetic system would be robbed of blood, and digestion rendered imperfect.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CHAPTER V.

How the Nerves Act.

In the preceding chapters a general view of the nervous system has been given. We have seen that it consists of a brain and nerve-centers, a spinal cord, and different nerves for communicating with all parts of the body. We have also seen that there is a sympathetic nervous system, having control of the function of growth and repair, or of organic life. With this knowledge in view, let us see if we can find out how it is that nervous action takes place. We will not enter into a long and elaborate discussion of the subject. It is too intricate for this place. Still, a simple statement will aid us when we come to discuss the management of the nerves and the cure of nervous disorders. Let any person survey his own sensations for an hour,

and find out, if he can, in what they consist. You are pricked with a pin hidden somewhere in your clothing. It is a very simple thing. The sharp point impinges itself against a nerve —perhaps lacerates or irritates it. Now how do the nerves act? They have no voice; they cannot speak; but only act in their own way. They can feel. A limited, wholesome amount of feeling is pleasurable, but an excess of it is painful. Now what are the phenomena. The brain takes cognizance of the pain caused by the pin, finds out where it is, and the hand removes it. How did the news of the pricking reach the brain? How did the command of the brain to set the muscles to work reach into the arms and hands? Let us see if it can be made clear: The nerve-cells, lacerated by the pin, contain a certain amount of nutriment—digested and elaborated food—in a condition of what is called unstable equilibrium—that is to say, the slightest disturbance causes it to explode, as powder does in a gun by the fall of the hammer on the detonating cap. This explosion generates force, molecular movement, which is conveyed along the nerve till it comes to another larger nerve-cell, or collection of cells, called a ganglion, con-

taining more matter in unstable equilibrium, which again, so to say, explodes, generating more force; and the little disturbance starting in the nerves of the skin travels to the brain at the rate of thirty feet per second. Reaching the brain, which is a large center stored with nutriment easily disturbed, a certain amount is again exploded, generating force sufficient to set the will in motion, and flowing along the nerves to the muscles sets a sufficient number of them in motion to remove the pin. Or we may explain the action in another way: You are standing on a street corner, waiting for an omnibus. It approaches. You lift your hand, a very simple thing to do, and the driver sets his whole frame in motion to stop his horses and omnibus, that you may get inside. How can so slight a movement of your arm produce such results on the nervous system of another? Thus: A ray of light reflected from your hand struck very gently on the sensitive retina of his eye. This retina is composed, among other things, of cones of nervous matter containing nutriment ready to explode on the application of a ray of light, and the force generated by the explosion traveling like a wave up the nerve to the brain, where

more nervous matter explodes, and motion is generated, which sets the whole nervous and muscular system of the driver in action and produces the desired result. Or take another case: A sudden, startling noise strikes your ear, and you jump, perhaps you shriek. It is only an explosion of nervous substance. If we could see the action of the nerves we should find that life is a continual explosion of nerve material. You sit quietly in your seat at the opera, and the vibrations of the air caused by the instruments and voices of the musicians striking on the nerves of the ear keep up a series of explosions in the brain in the form of delightful sensations of music. Thus through the nerves of the ear, eye, mouth, nose and skin come from without multitudinous causes of nervous action. Could anything be more beautiful, more wonderful? revealing the creative power in a universe which never sleeps.

CONDITIONS OF HEALTHY NERVOUS ACTION.

The first requisite to normal and vigorous nervous action is good digestion, in order to supply the nerves with abundant and rich blood, from which power may be obtained.

The next necessity is that the blood be equally

distributed to the nervous apparatus, and those organs that transform its latent force into sensible force.

Still another condition of healthy nervous action is that the blood be well supplied with oxygen.

It is also necessary that it be not loaded with the products of decomposition, which choke the play of the organs as ashes choke the burning of the fire in a grate. This is secured by a healthy action of the skin, lungs, kidneys and bowels.

Nerve substance does not bear pressure well. Pressure on the brain stops its action; pressure on a nerve trunk modifies or even prevents its action altogether; pressure on the large nerve of any limb so alters its conducting power as to cause it to be sensibly observed in a feeling of numbness.

Another condition of vigorous nervous action is a normal degree of bodily heat. This may be shown in many ways. The amount of nervous activity in a cold-blooded animal is less than in a warm-blooded one; but when the cold-blooded creature is warmed by heat its nervous force is increased: and as cold weather approaches and

the temperature of the body diminishes, the cold-blooded creature stops generating nerve force almost entirely, and hibernates till heat sets its blood in motion again, and permits the generation of nervous force once more. So in warm-blooded animals (in man, for instance), if the bodily temperature is lowered to a certain point, as is the case in exposure to severe, long-continued cold without food, the generation of nervous force is diminished, and ceases altogether; the person becomes drowsy, unable to keep himself awake, and, if not speedily rescued, dies.

It has already been remarked that an abundant supply of good blood is essential to healthy nervous action. General bloodlessness is a principal cause of inactivity of the nervous system. Temporary loss of blood causes fainting and suspension of nervous activity in the brain. If the blood is deficient for any length of time, the nervous explosions of which we have spoken are feeble and infrequent. If the heart is feeble and unable to supply the brain and extremities with blood, nervous action is limited. Aneurism of an artery which prevents the blood from circulating freely produces the same effect, and when a clot of blood plugs up an artery it may

cause paralysis of the brain or any part of the body. Notice, also, when the hands become very cold, and the supply of blood is deficient in them, how stiff they are, and how difficult it is for them to obey the commands of the will. Not only must the blood be abundant, but it must be rich. Poor blood will not supply the nerves with the material for generating nerve force. It must contain those substances which they can use. Oxygen must be abundant, and the carbonic acid must be carried off as fast as generated. Urea, if allowed to remain in the blood, will alone put an end to healthy nervous action.

Last of all, the nerves themselves must be sound and healthy. They must be continuous in their substance. A nerve which has been cut can no more convey nervous impressions than a telegraph wire which has been broken can be made to convey a message. Also a brain which has been wounded or injured by overwork, by excesses of any kind, by intemperance in eating or drinking, by unnatural stimulation and the use of narcotics, will neither generate nor distribute nervous energy in an abundant and healthful manner.

CHAPTER VI.

Has Nervous Activity Any Limit?

In this chapter we ask, and shall try to answer, the question, Is there a limit to nervous action? There is a general belief current, even among scholars, that a man may go on acquiring knowledge as long as life and health remain, if he will only make all the application in his power. It is, perhaps, unfortunate for us that this is not so; but it is not, and we might as well know it first as last. There is a limit to the power of the brain to act, and there is a limit to our acquiring power; and this is largely determined by the amount of nervous substance one possesses, or, in other words, by the size of the brain. There are some subjects none can become proficient in, and even in those in which we are most skillful we forget easily what has

been acquired, unless we constantly review our acquisitions.

We all find there is a limit to our power of physical endurance. Athletes find there is a limit beyond which training must not be carried, or it will cause weakness rather than strength. Their best performances are limited quantities, which cannot be increased. Sportsmen find there is a limit to the speed of their best horses. Beyond a certain speed none can go. In the Lifting Cure we find the patient when he begins is able to increase his strength, perhaps, five pounds a day, and this goes on maybe for weeks. Then comes a time when one pound is as much as can be added to the previous day's weight, and finally he reaches a point beyond which he cannot go with safety.

It is the same with our nervous systems. The schoolboy and the schoolgirl find this out before they have studied long. They know there are some problems in mathematics they cannot solve, and some one boy can solve and another can not. The young, strong and ambitious often rebel at this, and struggle against it, hoping, believing that they only lack courage; but in the end they all find their limit, their vanity takes

a back seat and they labor in their sphere, doing such work as Nature has rendered suitable to their abilities.

The comparative ability of men is also an interesting subject. Between the extremes of intellectual strength and weakness there is a great distance. Even in physical strength this is true. One man may be forty times as strong as another in his muscles. The greatest weight which can be lifted by one person in the Lifting Cure may be only forty pounds, while the heaviest by another has been over twelve hundred pounds. Now forty is contained in twelve hundred thirty times. There is every reason to believe that the difference in the mental power of different persons may be far greater than the difference in their physical power. We have not, however, the same accurate means of determining this difference. Galton has shown, in his admirable work on "Hereditary Genius," that among the wranglers at Cambridge for the highest honors the lowest number of marks is often thirty times less than the highest. Now as the wranglers are picked men, the difference in mental power between the best wrangler and the intellectually weakest man in Cambridge is much

more than thirty times, it may be sixty, or even one hundred, times. If we measure man's mental power by his ability to acquire knowledge, then one man may, for aught we know, have one thousand times as much strength as another man. If we measure it by his power to originate ideas and produce original thought, then the difference is equally great. Estimate the difference between Daniel Webster and the smallest pettifogging lawyer in the country, and we find the difference between them immense.

In order to apply hygienic law to the brain and nerves we must know the limit of mental power. If we think there is no limit, we deceive ourselves, and do harm. If, on the other hand, we know the extent of our powers, we can work within such limitations as are safe.

There comes also a time when knowledge decays in our brains, and we forget what we once knew well. This may be caused by weakness, or deficiency of brain substance. All our powers are required to retain what knowledge we have, and if we acquire more we must forget something we already know. We lose at one end as much as we gain at the other. There is not room in the brain for all knowledge, and the hy-

giene of the nervous system demands that we do not burden ourselves with that which is useless. It requires quite as many brain cells to acquire and retain useless as useful knowledge, a good as a bad thought. If this was understood by parents and educators, much time might be saved and the value of life increased; for our brain substance would be reserved for only the best thoughts, as the wise farmer reserves his best soil for the most useful crops. A soil first occupied by weeds is never so good afterward as if the first crop had been a useful plant. A brain once occupied by a great vice is never quite so safe as the brain which has been trained in the acquisition of useful knowledge.

The health of the nervous system is greatly benefited by a strong will and by good judgment; persons with these possessions may never become geniuses, but they will become reliable citizens, in whom we may place confidence. Great genius is a nervous disease. It can only exist where all the nervous tissue is occupied with one class of thoughts to the exclusion of another class, both of which are necessary to mental health.

CHAPTER VII.

Nervous Exhaustion.

The word "exhaustion" is significant, and easily understood. It comes from two words—*ex*, out; and *hourire*, to draw. Put together, of course we have exhaustion: to draw out, to drain off, till nothing is left. We exhaust the water in a well by drawing it out, by pumping it dry. We exhaust our forests by cutting them down. We exhaust our resources by extravagant living. We become physically exhausted by excessive labor, strain, dissipation. Physical exhaustion has reference to the whole body, including the nerves. The power of the stomach may be exhausted, causing dyspepsia. The power of the muscles may be exhausted, causing physical weakness and inability to walk, to lift any weight or to perform any physical labor. The muscles

may be exhausted in several ways: they may be exhausted by excessive labor, by inability of the stomach to digest food from which blood is derived, by fevers and various diseases, by great strain, by inability of the brain to supply nerve force. The brain and nerves may be exhausted in the same way. Exhaustion may be temporary or permanent; a day's labor may cause temporary exhaustion. There is a temporary loss of nervous tissue and nervous supply, but a good night's rest, with appropriate food, restores it. Permanent exhaustion comes from the destroying of the source of nervous supply, or the permanent injury of the nerves themselves. This will be made clear by a comparison of the nervous system to the old-fashioned saw-mill, located on a small stream of water on the border of a wood. A dam across the stream, uniting the opposite banks, stops the water in its course, and it backs up and fills the banks till the water overflows. Now the accumulated water is turned through a sluice onto the wheel, the mill is set in operation and does the work of hundreds of men. An insufficient rain, or a failure of the swamps and springs, exhausts the water supply, and the mill stops till the water accumulates to fill the

reservoir again, when the mill moves on once more. If the supply is only temporarily cut off, the delay of work is temporary; if permanently cut off, the mill cannot be advantageously used, and is taken down, or a steam-engine is put in and motive force is manufactured by means of fire and water, which are more under human control than the fall of the rain. The nervous system is very much like a machine. It must have its daily and hourly supply of force, to keep it in action. We take better care of our machinery and tools than we do of our bodies. We often treat ourselves as if we were worth less than our horses, our dogs, our axes and saws, which cost us little, and which, even without care, may last a lifetime.

The victims of nervous exhaustion are numerous. They meet us at every turn. Their variety is numberless. There is the mother, exhausted with child-bearing and the care of the household, by sleepless nights and the insufficient digestion and assimilation of food. There is the woman of fashion, whose beauty has faded and whose charms are gone. The demands of society have robbed her of health, and she is now a wreck both mentally and physically. There is the

hypochondriac, whose gloomy views of life, whose depression of spirits, whose mental debility, whose indisposition to activity, are a source of constant pain to himself and his friends. There is the melancholy one, whose dejected spirits and cast-down manner, whose mental alienation and dismal condition, lowers the happiness of all who come in contact with him. Then there is the victim of sexual excesses, whose nervous state often borders on, and runs into, insanity: he suffers pangs of torture unknown in almost any other disease. We might add to this list nervous exhaustion from excessive care, great anxiety, overstrain, business ventures which turn out badly. All these are easily recognized. There are also other milder forms of exhaustion not causing hypochondria, melancholia, or mental agony, but leaving the patient more or less depressed and unhappy, as when there is irritability, fretfulness, and a disposition to criticise, to find fault, to scold, to become peevish, to become easily offended, to become excited on trivial occasions, to magnify trifles, to cry easily, to get angry and fly into a passion without a cause, to sleep poorly, to be dainty about food, to be unable to keep the mind on

one thing, but to let it run from one subject to another, to be unable to hold a steady hand, or speak connectedly on any topic, even inability to utter a sentence logically and coherently. These, and many more symptoms, are often the result of a weakened condition of the nervous system—in short, a mild form of nervous exhaustion.

Many do not recognize these forms of mental obliquity as diseases, but as moral defects, and treat them by censure. They should be recognized as physical diseases, and treated by hygiene. Children often receive unjust treatment from parents for nervousness when they should receive medical or hygienic treatment.

These nervous evils endanger the prosperity and mental character of the race. Their capability of being propagated is very great. The offspring of nervously exhausted parents are pretty sure to possess the same traits in an increased degree. Moderation, and a pleased, happy state, are the normal conditions of the human mind. Nervousness, indeed all nervous disorders, so to say, distort the harmony of life, hinder the haste which they generate, put an end to contemplation, and act in an unfriendly man-

ner upon the normal processes of life. Where nervousness dwells bodily soundness of the individual cannot prevail; but liability to extremes of action and reaction is pretty sure to be present. The person is now on the heights, now in the depths; now joyous, now so miserable and unhappy that he thinks he never had a pleasant moment in his life, and he never hopes for one in the future.

The causes of nervous exhaustion may be summed up in the following general heads:

1. They are inherited.
2. They arise from defective nutrition.
3. From overstrain.
4. From the use of stimulants.
5. From insufficient sleep.
6. From indulgence in vice and passion.
7. From scrofula.
8. From anything that deteriorates the physical constitution and lowers the health of the body.

These causes, singly or united, bring about a sort of nervous bankruptcy of the individual. As has been said before, the normal activity of the nervous system is dependent on rich, healthy blood. Nervously exhausted people usually have

thin, poor blood. It is deficient in fibrin and blood corpuscles. There is not force enough stored up in it to keep the wheels of life in a high state of activity, and so they move slowly, feebly, painfully, or hardly at all.

In our age nervous exhaustion is in the ascendant. It crops out in every direction. Our hothouse education promotes it, by cultivating the mind at the expense of the body. Our sedentary ways of living promote it. Our haste to get rich, our risks in business, our anxieties, our cares, all help to bring on nervous exhaustion. Only the prudent and well organized escape, and even these are sometimes engulfed by the stupidity and treachery of others. It is time for us to consider this matter in the light of science and common-sense, and see if something cannot be done to relieve our generation from the curse of nervous exhaustion, and show people how to conduct their lives so that peace and serenity shall take the place of haste and excitement, and all their attending evils. In another chapter we shall point out some of the remedies which have been found most useful in cases of nervous exhaustion.

CHAPTER VIII.

How to Cure Nervousness.

To lay down broad rules and general principles for the treatment and cure of nervousness is by no means an easy task. However, "a stout heart to a stiff brae," as they say in canny Scotland, and we have at least a guiding hope that this chapter may be read with interest by very many persons, and prove beneficial to not a few.

Those who suffer from nervousness—and their name is legion—have our sincerest sympathy and pity, and they know that they are but little accustomed to either from the too cold-hearted world. It is characteristic of poor human nature to pity only that suffering which can be seen, and those who to all outward appearances are hale, healthy and strong, yet who know and feel

that they are not as others are, must as a rule brood over their sufferings in the silence of their own heavy hearts, until they make up their minds they will work out their own salvation.

"There can't be much the matter with you, at all events." Do we not hear this sentence made daily use of toward some one who complains without apparent cause. Would those who make this unfeeling remark be surprised to learn that a man may be to all appearances strong—nay, he may even be, so far as muscular power is concerned, vigorous and capable of prolonged physical exercise, while he is at the same time suffering from nervous disorders which make his existence a wearisome burden to him, and shorten his life.

In the human body there are, as already stated, two distinct nervous systems. The brain and spinal cord are the centers of one set, viz., the set of animal life, which are distributed to the various muscles of the body and to the skin. Any one of these nerves may be described as a filament or thread, or prolongation of the brain itself, thickest where it joins the brain or spinal column, and all along its lower course dividing and subdividing into smaller and smaller bunches

until the minutest and most remote muscular fiber and the smallest speck of skin are supplied with a loop or filament of nervous matter. Judge of the size and fineness of these when we tell you that you cannot prick the skin or flesh with the point of the finest needle without piercing one or many of them. One cannot think for a moment of the delicate and intricate machinery of the nervous system without exclaiming to himself, "How fearfully and wonderfully are we made!" The nerve tubes themselves, which are the chief components of nervous and brain matter, vary in size from one-24,000th up to one-1,200th part of an inch, and the nerve cells from one-8,000th to one-200th part of an inch in diameter. Is it any wonder that the nervous system should be easily and often put out of order. There are two sets of nervous filaments bound up together in the same sheath to form each nerve, just as two sets of telegraphic wires might be bound together, isolated and placed in the same tube. The one set of nerve filaments is called the motor, and they carry the will from the brain to the muscles you propose to call into action.

I "will" to dip my pen in the ink, and the

will is carried downward by the motor filaments of the nerves of my arm, and brings into play the muscles which move the extremities toward the inkstand, and here, in writing, the eye plays no unimportant part: to wit, I have forgotten to dot that last *i*. The omission is painted on the retina of my eye, the nerves of the retina communicate with the brain, and the brain, well knowing what printers are, sends instant orders to fingers to correct the omission. The other set of nerve filaments take cognizance of the sensations of skin and muscles. They are called excitor filaments, because they excite the brain to action. To give a common example: You slip out of bed some morning and tread on what is sometimes called the business end of a carpet-tack. The nature of the accident is at once telegraphed to the brain through the excitor filaments, and the order to lift the foot is sent back by the motor filaments. But until that message goes and the other comes, you are powerless to move your foot. It is a sort of telegraphic work, and the brain is the head office. Take another illustration: A whale in the Arctic ocean is pierced in the tail with a harpoon. The tail sends word to the brain, "I am struck with a harpoon," and

at once the brain, on receiving this message, if the whale is wise and able, sends back word, "Strike and capsize the boat," or, what is more likely, "Swim out of the way"; whatever order comes back the tail tries to execute.

The other system of nerves is also of the greatest importance to the animal economy. These are called the nerves of organic or vegetative life. Lying in front of the spinal column is the chain of ganglia or nerve-knots. They communicate with other ganglia among the intestines, and with the spinal cord. From these ganglia proceed the nerves which are distributed to the internal organs of the body, heart, liver, stomach, etc., and to the blood-vessels, also.

Although this second system of nerves is connected with the first, and to a certain extent sympathizes with them, its action is beyond the control of our wills. The ganglia from which they arise are, so to say, each little frames themselves, little Leyden jars filled with the electricity of life itself. Now, if this system be weakened, we can easily understand how a man or woman may be ill and nervous and not show it much outwardly, for the two sets of nerves are to a great extent independent of each other. We

have, indeed, as the immortal Bichat well says, "two lives, an organic or vegetative, and an animal life."

It is on account of some defect in the former life, the organic man, that the largest number of persons suffer from nervousness; and it is pleasant to be able to tell those sufferers that a majority of them can be cured.

We will now explain the causes and pathology of nervousness, and its general symptoms; when the reader will be able to understand the rationale of treatment.

Nature moves in a mysterious way her wonders to perform. Chemically, brain matter consists of water, fat, albumen, ozmazone, and phosphorus; but the inner workings of the nerves, the mystery of the nervous fluid, are hidden from mortal man, and science has not yet lifted the vail that enshrouds them. One thing we know, however, as the blood, rich or poor, pure or impure, that supplies the nerves, is, so will the nervous power be. Again, if the nervous power be small, the heart itself being regulated by that power, it naturally follows that this organ acts feebly and irregularly, and the blood is not cir-

culated sufficiently to nourish the nerves; so they, so to speak, starve.

Seeing that the nerves must be supplied with pure blood in proper quantity to enable them to do their duty, can we wonder if neglect of the common rules of health shall cause a feeling of illness, an unstrung state of the system, and misery and wretchedness? The nerves get poisoned with impure blood, starved with thin blood. The blood may be poisoned by bile, by alcohol, by bad food, by tobacco, tea, coffee, opium, henbane, hops, chloral, by breathing polluted air, neglect of the skin. One thing follows—nervous exhaustion.

The causes of nervousness above enumerated act on the system through the blood. Other causes act on the nerves themselves. Mental anxiety and worry is not one of the least of these, especially if continued for any length of time. The loss of sleep is another; so, too, are excessive exposure to heat and cold, overwork, bodily fatigue, too much brain work.

The symptoms of nervousness are too many to mention, and vary in different subjects. The patient knows and feels he is ill, but cannot tell where or how. He becomes fretful and peevish,

and angry without a cause. He is easily startled, complains of irregular action of the heart, sleeps badly, and this loss of sleep spoils the next day's happiness. Resolution and courage fail, memory is impaired, he becomes tired and easily confused. He is subject to fits of melancholy, continually makes himself unhappy. He looks on the dark side, and seems to have no silver ray to line the clouds of life. If the nerves of motion become weakened, the sufferer has little pleasure in either bodily or mental exertion. The appetite fails, becomes capricious, inconstant; the patient complains of a bad feeling, a pain in the head, flatulence, irregularity of bowels. Woe be to him now if he flies to alcohol to stimulate his failing powers!

We shall not here enter into the symptoms of hysteria, so often the result of nervousness in both men and women.

Now, from whatever cause or combination of causes nervousness has been produced, if happiness and health are to be restored, the causes must be removed and the injury they have occasioned be repaired. For, in proportion to the weakness of a man's system and the enfeeblement of his nerves, will be the liability of his

falling a victim to other and more fatal maladies; and thus it is that every day we find such diseases as bronchitis, consumption, Bright's disease, brain disease and insanity following at the heels of nervousness.

The indications for treatment are fourfold. First, we must remove the cause, restore the tone of the heart, improve the blood. All injurious habits must be given up; late hours and intemperance in eating abandoned; smoking, if practiced, stopped. This done, the patient is on the road to a cure; for Nature is very kind when she has a chance, though she is dreadfully cruel when abused.

The food is most important. It must be abundant and wholesome—neither too much nor too little. It should not be sloppy, and soups had better be avoided so long as solid food can be taken. Rise from the table feeling you have had enough, but not oppressed with what you have eaten. Many a man has lived to old age by following this rule. The bread should be stale, and no very heating food taken.

Eight hours' sleep should be taken every night if possible. This alone will nearly cure. "Early to bed and early to rise" should be the

motto. Sleep is the salvation of the nervous system. When there is strength, a cool bath, short and quickly over, with much friction under a sheet, should be taken every morning, and a reaction secured. Without a reaction much harm results.

The exercise should be moderate and pleasant. Riding, driving, rowing, light physical labor, are all good. Those who live in cities and cannot enjoy out-of-door labor or riding, should adopt systematic habits of exercise. Some form of gymnastics will be very serviceable. The Lifting Cure, if rightly used, has great value in the cure of nervousness. It seems to be able to restore the lost equilibrium of the system, and bring the weak parts of the body up in strength to a par with the strong parts. The passive exercises of the Movement Cure are also excellent, and any one may learn from books how to apply it to himself, if he will. Breakfast early; dine at one or two, and sup two hours before going to bed; drink no tea. Take no narcotics to make you sleep. A few raw oysters before bedtime are worth all the narcotics in the world, are easily digested, and furnish material for restoring nervous tissue and blood. If you wake

up in the middle of the night and cannot go to sleep, eat slowly a crust of bed; this will often help a nervous person to go to sleep again.

A change of scene, air, with cheerful society, and sea-bathing, are excellent agents for curing nervousness.

Avoid physic—it exhausts the tone of the system, which you ought to restore.

Above all, keep up a good heart, and a firm faith in all that is good and true.

CHAPTER IX.

The Cure of Nervousness—*Continued.*

DIET, REST FROM HEAD-WORK.

The eminent C. B. Radcliffe, M. D., Fellow of the Royal College of Physicians of London, in one of his able lectures on Cerebral or Brain Exhaustion, furnishes us with some excellent hints concerning Diet and Rest, which we quote quite fully, as what he says is applicable to a very large class of persons suffering from a sort of bankruptcy of the faculties of the mind—a kind of bankruptcy which, we are sorry to say, is quite too common and too little guarded against. Dr. Radcliffe speaks concerning food first, and says:

"I confess to being a heretic in matters of diet. Do what I will, I cannot bring myself to accept the current belief that butchers' meat is

food *par excellence*, and that all other food is little more than 'padding.' On the contrary, I feel convinced that views and practices in this respect have changed infinitely for the worse during the last few years, and that herein, perhaps, may be found one main reason why various nervous disorders are so numerous and often so difficult to deal with.

"Few persons with any practical experience, I think, will maintain that the diet of 'training,' which is relatively rich in lean meat and poor in the other constituents of diet, especially in the oleaginous, can be kept up for any length of time with absolute impunity. The fact, indeed, is simply this, that an extraordinary degree of muscular strength is got up, not by the diet simply, but by the whole plan of training, in six weeks or thereabouts, and that afterward the man in training gets out of 'condition'; every day perceptibly losing muscular energy and firmness and pluck, and becoming headachy, feverish, and out of sorts in every way.

"Few persons, also, will nowadays be prepared to contend uncompromisingly for Bantingism, which is practically the diet of training carried still further to extremes on the side of

meat; and not a few, I take it, will have begun to suspect that there may even be something actually hurtful in the practice. For myself I will simply say that I have quite come to a conclusion on the subject, and that I very much doubt whether there ever was a fallacy which, to use a common phrase, has more effectually 'played into the hands' of medical men—of those especially who are sought after by persons suffering from disorders of the nervous system.

"These are extreme cases, but after all not so extreme as to be beside the purpose. Often, indeed, I meet with persons who are just in the state of those who have been over-training, who are not 'up' to any work, bodily or mental, and who tell you that they cannot for the life of them tell why they are so, for they have not been taking it out of themselves by work of any kind, and they have been doing all they could to keep up their strength: drinking beef tea by the quart, eating meat three times a day, etc.

"It is certainly possible for people to enjoy excellent health upon the most different kinds of diet. No doubt there are individuals who take kindly to animal food, and others who do not do so; but all the evidence, as I can read it, is

against the notion that meat is to be looked upon as the food which must be had at any price. At all events, I cannot help but think that the present practice of urging persons at all weakly, especially children, to eat as much meat as they can, may have not a little to do in causing the development of many nervous disorders, and in deranging the health in many other ways besides; perhaps (as the inquiries of Dr. Parkes would lead one to expect) in causing liver and kidney and other glandular diseases by overtaxing the eliminating power of these organs.

"It is high time, I take it, now that meat of all kinds is only to be had at almost famine prices, that people, and especially the poor, should be taught to think that animal food is not so essential as they believe it to be. It is high time, for instance, that the English should be taught to imitate the French in their diet. But I must not dilate as I would fain do upon these matters, nor must I attempt to lay down any definite rules of diet. Indeed, all that I must allow myself to do is to reassert my belief that excess of animal food, relative or actual, is a very important cause of many disorders of the nervous system; and that in the prevention and

treatment of these disorders it is all-important that the oleaginous and farinaceous articles of diet, rather than the nitrogenous, should be fully supplied. I maintain, indeed as I have long done, that the nerve tissue (which consists in large measure of a kind of fat) is starved if the hydrocarbons are withheld; and that this withholding is one main reason for the speedy breaking down in training or in Bantingism; and I further believe that this is not the only way in which the want of hydrocarbons operates mischievously. Indeed, the fact that muscular work shows itself in the amount produced, not of urea, but of carbonic acid, convinces me that the hydrocarbons are necessary for action, as well as for nutrition, in nerve and muscle; are necessary, perhaps, in keeping up the electrical charge of nerve and muscle, which, as I believe, has so much to do in nervous action and muscular action. Possibly, also, these hydrocarbons may have some work to do as 'floating fuel,' though not much; for if much work of this kind had been required of them, it is not easy to believe that the natives of hot countries would have been so ready to stoke themselves with oily mat-

ter; the Hindoo, for example, with ghee, and the Italian with olive oil.

WALKING OVERESTIMATED.

"I am also very much disposed to maintain that too much stress may be laid upon the importance of walking exercise in very many cases, in cerebral exhaustion among the rest. Of this I am confident that very many cases of the latter disorder come under notice, in which over-walking would seem to be no insignificant cause of breaking down in health, and in which little or no progress is made toward recovery until the patient begins to economize his strength in this direction; in standing quite as much as in walking, perhaps more. It would often seem as if the amount of vital power at the disposal of the individual did not allow of much head-work and much leg-work together, though quite sufficient to allow of a fair amount of either kind of work singly; and that, under these circumstances, if the head-work must be done, it is expedient to avoid walking exercise rather than to seek opportunities for taking it; and often to settle down in an easy chair and have a nap rather than to walk at all. It is a common thing for a

person suffering from cerebral exhaustion to find that he cannot stand or walk, except for a short time, and that if he persists he soon becomes faint and breathless and unable to talk, though comparatively fresh and well before he began to walk and stand. It is also a common thing in such a case for walking exercise, however moderately indulged in, to be followed by inability to keep the thoughts to this point, or by distressing drowsiness or actual sleep; the walking exercise, in short, having brought on head-symptoms which were not present previously. Upon this point I am thoroughly convinced. I am also constrained to believe—indeed the simple facts of experience leave me no alternative—that in very many cases the persistence in walking and standing, when the opposite rule of rest ought to have been observed, has had mainly to do, not only with bringing on and keeping up a state of cerebral exhaustion, but with pushing matters to the crisis of paralysis. I do not remember a single case of hemiplegia, in any form, in which the attack was not preceded by marked failure in locomotive power, and in which the history did not countenance the notion that the attack might have been averted if there had been more

prudence in the matter of walking or standing. The simple occurrence of hemiplegia must show that the brain had become unequal to the full amount of locomotive work demanded of it; and if so, then there must surely be grave danger that a jaded brain may break down in paralysis if it be overtaxed in the direction of this particular work. In a word, I cannot help but look upon this and other forms of paralysis in which locomotion is compromised as in the main preventable, when people in whom symptoms of cerebral exhaustion are beginning to declare themselves are more alive to the necessity of saving their strength in the direction of locomotion. At all events, upon one point I have no doubt, namely this: that in many cases of cerebral exhaustion, both with a view to prevention and cure, it is necessary to check rather than to encourage walking exercise.

REST FROM HEAD-WORK.

"I am also disposed to think that rest from head-work may be too much insisted upon in cerebral exhaustion, and in other cases of the kind. Often and often I have met with patients with jaded brains who have certainly let their

minds lie fallow too long. More than one overworked barrister, who could scarcely drag on until the long vacation, has complained to me that the vacation was too long, and that it would have been better for him if he had returned to his own work sooner, or if he had changed his work. Mere distraction, even travel, is not enough. Weeds will grow apace under such circumstances; and soon, very soon, the difficulty is to get the mind under cultivation again. What is wanted generally, even at the beginning, is, not that work should be given up altogether, even for a short time, but that it should be moderated in amount, or changed. It is given to few to imitate the example of a late Premier, who, when thoroughly over-wrought at the end of the session, recruited himself by spending a great part of his holidays in writing 'Juventus Mundi'; but the fact is full of significance in the present place. Indeed, the longer I live the more am I convinced that it is a grave mistake to let the mind lie fallow, even for a short time; not only in the particular cases under consideration, but in all cases where head symptoms have to be dealt with: in epilepsy, for example, no less than in cerebral exhaustion. In epilepsy,

indeed, I have long maintained that it is the very gravest blunder in practice to suspend education —that the very basis of successful treatment is only to be laid in education. In the case of an epileptic child I should be altogether hopeless of arriving at a satisfactory result, except by building the plan of treatment on this foundation; and the same feeling would influence me considerably, even in the case of an adult suffering from cerebral disorder, let this disorder be what it may, if in one way or another I could not keep his mind from preying upon itself, by providing him with some proper occupation. Of course, this notion may be carried too far. Undoubtedly harm, much harm, may be done by pressing the necessity for work too strongly; but, practically, this danger will prove to be small in comparison with that of letting the mind lie fallow."

CHAPTER X.

Value of a Large Supply of Food in Nervous Disorders.

There is such a thing as eating too much, and there is also such a thing as eating too little. Gluttons do the former; nervous persons sometimes do the latter. We would not advise nervous persons to eat more than they can digest, but we would advise them to cultivate the love for wholesome food, and try to eat all that can be digested. Dr. G. Fielding Blandford, F. R. C. P., takes a similar view as to the value of a large supply of food in nervous disorders, and says in one of his lectures, from which we quote quite fully:

"Among the various therapeutical agents and innumerable drugs advocated and employed for the relief of nervous weakness, and the cure of the disorders which thence arise, it is possible

that the unaided effects of food may not in all cases have met with the trial they deserve. Patients thus afflicted are told to live well and adopt a generous diet, but the generosity of this is usually estimated by the amount of port wine, or other alcoholic stimulant, rather than by that of the bread, mutton, or beef.

"Certain chronic invalids who have been brought under my notice have been lifted out of their former condition of 'nervousness' by an increase in the quantity of their food. They have been people suffering from some general neurosis, taking the form of an insanity of a low and depressed character, or hypochondriasis, hysteria, alcoholism, or neuralgia—affections closely allied one to another, which may be witnessed in one form or other in individuals inheriting the same neurotic temperament. We may see different members of the same family displaying, one insanity, another neuralgia, a third hypochondriasis, while the conversion of one variety into another is a matter of every-day observation.

"If we inquire into the past history of nervous patients, and have the opportunity of learning accurately the facts thereof, we often find that

for a considerable time the supply of daily food has been in no degree adequate to the necessities of the individual. Here is a common case: A man somewhat past middle life, but whose years do not imply senile decay, becomes unfit for business, fidgety, irritable, depressed, or even melancholic to the extent of insanity. We hear that he has been a hard-working man of business, always nervous, and very probably an indifferent sleeper. Being most heavy for sleep in the morning, he has risen at the latest moment, and, snatching a mouthful of breakfast, has hurried off to catch the train or omnibus, worried and anxious lest he fail to reach his office at the hour appointed. At lunch-time, if he be really hard-worked, he takes, not a meal, but a sandwich or biscuit, eaten perhaps standing, and often bolted in so great a hurry that digestion is difficult; he tells us that he dare not take more of a meal in the middle of the day, for he would be rendered unfit for the remainder of his work. In the evening, with what appetite he may, he eats his dinner, perhaps not before half-past seven o'clock. Now, granting that his dinner is amply sufficient, such a man lives on one meal a day, with very little beside. These are the persons who

cannot go on without frequent holidays; nervous by inheritance, they break down because they are insufficiently fed. A holiday, during which they live better, builds them up again for a time, again to break down; often to fall into the condition above-mentioned. Another class, among whom we may frequently witness the same result and corresponding symptoms, are the clergymen, who for various reasons deny themselves an adequate amount of food. Either they fast rigidly, according to the rule and doctrine of the day, often allowing some hours to elapse before they break their fast, or they think that hearty eating is a snare and a carnal enjoyment, or they hold it sinful to eat their fill while others are in want. Whatever the cause, certain it is that many of the clergy break down in one or other of the forms of nervous disorder already enumerated, and an enlarged dietary is to them a necessity. A vast number of women, for one reason or other, take a very small supply of food; some think it unladylike to eat heartily; some eat on the sly, and when this is not practicable go without. Many, from the lives they lead, are doubtless correct in saying they cannot eat, because they have no appetite. These stay

in the house from month to month, or never venture beyond the door except in a carriage, because ladies do not walk in the streets. Others have misgivings on the score of their digestion. Like many women who lead sedentary lives, and habituate themselves to passing long periods without action of the bowels, they suffer greatly from constipation, which is looked upon as an indication and a warning that they ought not to eat. So they starve themselves, and fancy that if they abstain from food it is of little consequence whether they pass a motion once a week or once a fortnight.

"It may be well to consider somewhat more in detail the various neuroses which have been mentioned.

"The first on the list is low nervous depression, commonly known as melancholia, the most formidable of all that have been named, the one most likely to run in a short time to serious and even fatal insanity, but which, if arrested at an early stage, is often singularly amenable to treatment. In almost every example of this variety, and almost from the commencement, we find a marked disinclination to take food, and in extreme cases it can only be administered by some

kind of forcible feeding. In milder cases, and at an early period, it will be taken if we insist upon it, and the result of a large supply is frequently manifested in a very brief time. It has been ascertained by many writers that refusal of food on the part of melancholia patients is due to dyspepsia, and in confirmation of this opinion they point to the foul and furred tongue, the obstinate constipation, and the fetor of breath so constantly observed in such patients; but this condition of tongue and fetor are due, I am convinced, not to gastric disturbance, but to the generally depressed and devitalized state of the individual; and the best proof of the absence of dyspepsia is that, although we suddenly compel the ingestion of what, compared with that previously taken, may be called a large quantity of nourishment, the stomach by no means rejects it, but, on the contrary, retains and digests it, as is shown by the rapid amelioration which takes place. It is inconceivable that dyspepsia can be the cause of refusal of food when the administration of it is unattended by sickness or inconvenience, even when that which is taken into the stomach is not light invalid diet. From my own observation, and from the subsequent confession

of patients, I am inclined to believe that the refusal of food is in almost every case the result of delusion, this being in turn the result or interpretation in consciousness of the extreme nervous depression and exhaustion under which they are laboring. They are too wicked to live, too wicked to eat; it is sinful to pamper their flesh and their appetites; they beg for cold water and dry bread, but the idea of a good dinner their soul abhors. If we see such sufferers at an early stage, when forcible feeding is not necessary, and they will take that which is ordered, merely protesting against the uselessness or wickedness of the proceeding, we may prescribe a large amount of food without fear; nay, with a confident expectation of the greatest benefit.

"Now the latter, and it may be the friends, will protest loudly that it is impossible to take this quantity; he will assign every conceivable reason for avoiding it; but if we are firm and insist, and, if necessary, cause him to be fed with a spoon, he will retain and thrive on it, and in a few weeks, or even days, will show very marked signs of its good effect. Patients have recovered under this treatment in a singularly rapid manner. Some learn in a short time to appre-

ciate the benefit of the food, and miss their meal if from any cause they are unable to take it at the appointed hour; and some have gone on for years after their recovery, taking not the quantity prescribed during the acute stage of their illness, but one very much larger than that on which they had endeavored to live for so long, and under such a change of regimen have lost all trace of the depression and hypochondria from which they formerly suffered. Although beef-tea, chocolate, and milk have been mentioned as articles of diet, it by no means follows that liquids are to predominate; on the contrary, solid food is far better as a sedative, and also far more nutritious, and it may be taken as in health.

"It is rather, however, in chronic alcoholism that the good effects of food may be witnessed. Here it is of the greatest consequence to abolish alcoholic stimulants entirely; in fact, in such abolition lies the only hope of effecting the reformation of the chronic drinker. The intense sinking and craving for the accustomed stimulus may often be effectually met by food. Such patients are unquestionably most difficult to deal with; they assign reasons of all kinds for reject-

ing food, and for being treated by their favorite remedy. They are faint, they require support, they suffer from stomach ailment, from pain, from want of appetite, nausea, or sinking; but they rarely vomit that which they take if drink is withheld, and this is a tolerably sure sign that the stomach is equal to the digestion of the food. The symptoms of alcoholism need not be here described; but whether they be the transient and immediate results of a heavy debauch, or the graver signs of commencing degenerative change of the nerve-tissues, which runs on to alcoholic paralysis, epilepsy, or dementia, food is equally demanded, and is in fact the one thing which can arrest this degeneration, by supplying nutritive elements in large quantities. The recovery in such cases is often astonishing. I lately saw a young man who for many weeks was completely paraplegic, but who nevertheless entirely regained the use of his limbs. The recoveries, too, from alcoholic dementia are often equally surprising; in fact, there seems scarcely any state from which recovery might not take place if the disease has not existed for a long period, and if we are able to withdraw all alcohol, and administer nourishment in quantity.

"There are a number of people whose nervous temperament displays itself in symptoms which are called, in common parlance, hysterical or hypochondriacal. While young they are termed hysterical, especially if they are women; when older they are known as hypochondriacs, and their nervousness then takes for the most part the form of depression and anxiety, or even suffering, on account of some fancied bodily disorder.

"Few of these will be found to take an adequate supply of proper food, and those who take the least will present the most distressing symptoms of their disorder. The hypochondriacal direct their attention to the digestive organs more frequently than to any other region. They suffer from constipation, flatulence, and a host of other evils, and for this reason either shun food, or eat most unwholesome and extraordinary combinations irregularly or at long intervals. Hysterical women—I am not now speaking of young girls—are especially prone to eat irregularly; to take food, if possible, when unnoticed; to eat altogether a very inadequate quantity, and to eke it out by an inordinate proportion of stimulants. If we look at such, especially the

hypochondriacal, their whole aspect betokens innutrition. Often they are miserably thin; if they are given to drink they may be fat, but their flabby tissues speak of low organization and defective power. It is evident that the nervous energy of such people is very low; this is manifested by their mental depression and disturbance, and the defect must be supplied from some quarter or other. But whence can a supply of force come except from the material of food taken into the system by the alimentary organs? Moral measures are, it is said, and said truly, essential to the recovery of such persons. But moral measures constantly fail, because the bodily health does not allow of mental improvement, and is not *pari passu* attended to. As in more marked mental aberration no amount of argument, proof, or moral suasion will expel a delusion which vanishes of itself when the bodily health is renovated; so change of scene, of persons, and moral treatment of every kind, will fail with the hysterical or hypochondriacal so long as they try to live upon physic or alcohol, or upon a diet almost devoid of nutritive elements.

"It may be objected that some hypochon-

driacal patien eat, not scantily, but enormously, taking more than is necessary for a person in health. Such are to be found, but in my experience they are the least to be pitied of their class. Though nervous about themselves, and prone to take notice of the slightest indication of anything they may think an ailment, they are not generally depressed or unhappy, but, after a fashion of their own, they exert themselves, and enjoy life. Such people, I believe, take this amount of food from a feeling that it is to them a necessity, and thus they keep at bay the graver nervous disorder which perpetually threatens them. Food is to them a stimulus, and were it withdrawn they would speedily show signs of more serious mental mischief.

"The only other subject on which I propose to say something is neuralgia. It is obvious that any observations on it must be of the widest and most general character, and that no account can be taken of the special forms of this neurosis, or of any pathological changes connected with it. Believing with many others that neuralgia is one manifestation of impaired sensibility, as other neuroses may be displayed in mental symptoms, and in these alone, I think that the radical cure,

and not the mere alleviation, is to be found in many cases in the supply of a large amount of nutriment to the nervous system. The confessed failure of drugs in the case of neuralgias, and the mere temporary alleviation by such methods as hypodermic injection, inhalation, or a dose of alcohol, point to the necessity of some more general mode of treatment, which shall effect a greater change in the functions of the nervous organs. Whatever the form of food specially indicated, it generally will be found that the entire amount requires to be increased, and that the quantity taken for a series of years has been deficient. It may be that the alimentary system of elderly persons will be found incapable of assimilating the requisite amount. On the intractable nature of the neuralgias of the aged, nothing need here be said.

"With two remarks I will conclude. First, in all chronic forms of neurosis, alcoholic stimulants are a hindrance rather than a help—are productive of evil rather than of good. Secondly, in such disorders the fear, so commonly entertained, both by doctors and patients, of 'overloading the stomach,' producing 'biliousness,' and the like, is in the majority of cases not realized.

Great opposition will be offered by patients, and every kind of evasion attempted. They will swallow bottles of medicine far more willingly than they will eat sufficient meals at regular intervals. To induce them to do this is often a difficult task, and here moral handling is required. If this be judiciously applied to the patient and the patient's friends, some very remarkable results may be attained."

CHAPTER XI.

Important Questions Answered.

In the previous chapter great stress is laid on the importance of abundant food in the cure of nervousness. Does this advice apply to all cases?

Answer. By no means. A great deal of nervousness originates in the monotony of life. The clerk who is confined for months in his office becomes nervous for want of a change of scene, and an increase of his food alone would do him no good. He needs a "change of air," a change of society, a change of surroundings. He needs something new to look at. The sight of green fields, mountains, forests, natural objects, broad expanses of water, and fresh air and sunshine, with the exercise which accompanies them, are his first requisite. Give him these,

and his appetite will improve, he will eat and digest more, and out of his food and the air he breathes his nervous system will be built up anew.

But the office clerk is not the only man who becomes nervous from want of change of scene. Half the nervous disorders of women are due to the monotony of their lives. In cases of disordered nerves arising from grief or a severe mental shock, the diet-cure would be of but slight avail; and in the saddest of all forms of nervous disorders—religious despondency—it would be useless. Grief, anxiety and religious despondency are best treated by change of scene, and by a total separation of the patient from all former surroundings. Grief and anxiety wear themselves out in course of time, and as they lessen so does the nervous condition improve. Religious despondency, on the other hand, is far less hopeful. One thing, however, must be remarked —that the persons most subject to religious despondency are idle, with little or no occupation for mind or body. For such, good steady work would be of great service. Nervous disorders are of so many kinds, spring from so many causes, and possess such an infinity of complica-

tions, that to lay down a uniform system of cure would be out of the question; but, in any case, change of scene and surroundings and change of occupation are far more valuable aids than medicine.

There is much nervousness among farmers' wives. Sometimes it is caused by the very bad food which they prepare—the fried pork, ham and eggs, hot bread. These things do not nourish the body well; but the monotony of a farmer's wife's life is too great, and the labor, in addition to child-bearing and rearing, too much, and they should frequently have a change of scene and surroundings. City women are cured of their nervousness by going to the country. Country women might be cured by going to the city and spending a few days or weeks there. Not all, however, can do this. Then let them get out into the woods and fields, and make the acquaintance of the birds, flowers and trees, or let them ride or drive, or take a sail, or ride on the railroad. A change, if but for a day, frequently made, will help to prevent an increase of nervousness, and aid in making life much more endurable—make it, indeed, what it ought to be, a little heaven here below.

GRIEF AND SORROW.

Why is it that grief, sorrow and despair are so exhausting to the nervous system?

Ans. Because they are forms of nervous exertion which consume large quantities of nervous substance, and at the same time they destroy the appetite and digestion, retard the circulation of the blood, and prevent that sound sleep which restores nerve substance. The mind in such cases cannot act easily. It is like drawing a sled on dry ground. The true remedy is to take the mind off of these subjects, which exhaust, and place it on something agreeable.

QUANTITY OF FOOD FOR BRAIN-WORKERS.

Do brain-workers require as much food as those who work only with their muscles?

Ans. What is a brain-worker? A man who writes books, edits newspapers, practices law, plans and executes a campaign, contrives how to build a house, a steamboat or a railroad, invents a new machine—in fact, works at "head-work"—is a brain-worker. A farmer and mechanic may be a brain-worker, quite as well as a lawyer and preacher. Now, it is estimated by Dr. Carpenter that, while the brain is not over *one-*

fortieth the weight of the body, it receives *one-fifth* of all the blood; and to make this blood, a great deal of food is required. According to some physiologists, three hours of hard study wear out the body more than a whole day of hard work at the anvil or on the farm. Still, a brain-worker rarely eats as much as a muscle-worker, unless, at the same time, the former, as he ought to, takes also considerable out-of-door exercise. Nor can brain-workers manage so indigestible food as those who work at manual labor. In our country, however, nearly all are to some extent brain-workers, and all ought also to work with the body sufficiently to maintain a high degree of health, upon which, after all, the vigor of the nervous system depends.

NERVOUS EXHAUSTION THROUGH INDOLENCE.

Why is it that indolent people are sometimes as nervous as the overworked?

Ans. The indolent man does not exercise his brain sufficiently to keep it in a high degree of vigor. Indolence exhausts, by allowing the entrance of fretful thoughts into the mind; not action, in which there is health and pleasure. We never knew a man without an occupation who

did not seem to be very busy. It may be he was occupied in worrying about his dinner, or the place where he should spend his holiday—which he did not work for; in abusing his wife and children; in inventing pleasures, and abusing them when found; in turning the house upside down by doing little jobs foolishly supposed to be useful. And women, too, when stretched on the rack of a too-easy chair, are they not forced to confess that there is as much nervous force required to enable them to endure the "pains and penalties of idleness" as would, if rightly directed, render them useful and happy? The fact is, there are far more who die of selfishness and idleness than of overwork; for where men break down by overwork it is generally from not taking care to order aright their lives and obey the laws of health.

A HINT FOR THOSE WHO NEED IT.

May not fretting over past errors cause nervous exhaustion?

Ans. Most certainly; and no waste of force is so foolish as this, because if our mistakes are curable, the same energy we expend in regretting would counteract their bad effects; and if

they are incurable, why think any more about them? None but a child cries over spilt milk. The mischief is done, and let it be forgotten, only taking care for the future. Sometimes people keep fretting about troubles that may never take place, and spend floods of nervous force on absolutely nothing. Real worry from great trials of various sorts is quite enough, and causes a greater draught on our vital force than hard work. Let us not, therefore, aggravate matters by anticipations of troubles that are little better than visionary.

NERVOUS TEMPERAMENTS.

Have you any hint for the person with an excessive development of the nervous temperament?

Ans. Yes; several of them. Persons of a nervous temperament seem to be always upon wires. Nature has given them energy; but their physique is in many cases inadequate to supply the demands made upon it. The steam is there, but the boiler is too weak. Duke d'Alva, according to Fuller, must have been of this nature. "He was one of a lean body and visage, as if his eager soul, biting for anger at

the clog of his body, desired to fret a passage through it." The same thought was wittily expressed by Sydney Smith when he exclaimed: "Why, look there at Jeffrey; and there is my little friend ——, who has not body enough to cover his mind decently with; his intellect is improperly exposed." Now, these are just the sort of people who should not kill themselves, for, though wrapped in small parcels, they are fine goods. They owe it as a duty to themselves and others not to allow their fiery souls to "fret their bodies to decay"—not to throw too much zeal into trifles, in order that they may have a supply of nerve force for things important. The person with this temperament who desires to wear well must take for his motto, "Nothing in excess." Such a one, as we have had occasion more than once to urge, avoids dinners of many courses, goes to bed early, and does not devote his energy to the endurance of overheated assemblies. When young men around him have athletics on the brain, he keeps his head and health by exercising only moderately. He is not ambitious of being in another's place, but tries quietly to adorn his own. "Give me innocence; make others great!" is his motto.

When others are killing themselves to get money, and to get it quickly, that with it they may make a vain show, he prays the prayer of Agur, "Give me neither poverty nor riches," for he thinks more of the substance than of the shadow.

BRAIN FOOD.

What is brain food?

Ans. All food that nourishes the body and makes good blood is brain food. The same blood that nourishes the foot and hand also nourishes the brain and nerves, though the latter no doubt take from it and require in it substances which the former do not. In general, the fruits and grains contain those substances which the brain requires, but our present mode of cookery is such that much of our food is robbed of its most nutritious properties, or rendered indigestible before it reaches the stomach. Brown bread, made from the very best of wheat, or, if the entire bran is too irritating, bread made of wheat from which the external cuticle has been removed, but not with it the second layer, is very desirable for brain-workers. Bakers' brown bread, made of poor white flour and the worst of bad bran, however, is not fit to be

eaten. If made in the form of gems it is best, provided these are light. Several English literary men advise oatmeal as an excellent food to do brain-work on, and they are right; used once a day with fruit, it serves an excellent purpose. Indian corn-bread is also nearly as good. Lean meat is not a brain, but a muscle, food, and is not so important for brain-workers. Oysters are a valuable brain-food, if eaten raw after the day's work is done. Fruits, especially apples and grapes, have two values: they thin the blood, so that it may circulate easily in the finest vessels; and they furnish acids, so necessary with the alkalies of grains, in generating the nervous currents. They also furnish phosphorus and sugar, both essential to brain action. Some form of fat is essential to nourish the brain. This organ is rich in fats. It may be obtained from oatmeal, corn, starchy-foods, cream, butter, milk, eggs, or nuts. If, however, the system is overloaded with these, a great deal of out-door physical labor is required in order to supply oxygen, so that the carbon and hydrogen of the fat may be oxydized and made available. The chemist has taken the hint, and offers to furnish us with brain-foods, condensed and bot-

tled, ready for use, and there are now some fifty preparations made to feed starving brains. They have only temporary value, and must not be relied on permanently. Only a false civilization makes them at all in demand. Tea, coffee, wine and tobacco are called brain-foods by many. They act only by their stimulating properties, and do not feed the brain. If relied on to any great extent they exhaust the brain, sometimes beyond recovery.

There is a class of brain-workers employed on our great morning daily papers who are obliged to work very rapidly and all night. It is an exceedingly unnatural employment, and very exhausting to the nervous system. Some of these keep up their strength by stimulants, some by oatmeal, and some by beefsteak. The first is fatal to long usefulness. Each man must seek out for himself those normal means best suited to his case. For a further discussion of the subject of Food, see our work, "Eating for Strength," fifth edition.

SLEEP.

What relation has sleep to health of brain?

Ans. Sleep has at least three uses: It is

required to store up oxygen for use during the day; to give nature an opportunity to remove some of the debris from broken-down tissue; and, not least important, to rebuild the used-up tissues.

IMPERFECT SLEEP.

Why do we sometimes wake, after a long sleep, only half rested, and with a very irritable nervous system?

Ans. It may be because the air of the room is bad, too little oxygen is taken up, and too much carbonic acid breathed; it may be because the blood is not rich enough in substances which are needed to repair the worn-out tissue. In such case the remedy is apparent.

RAPID MOVEMENTS.

Are rapid movements and fast thinking more exhausting to the brain than slow ones?

Ans. Yes. If you double the speed of any work, you require quadruple force to keep it up. Nervous persons should train themselves to work slowly.

COLD BATHING.

Is cold bathing good for nervous people?

Ans. Sometimes a weak, cold-blooded person

is made nervous by long-continued cold baths. They abstract more heat than he can spare. To such, tepid or warm baths are preferable.

SLEEPLESSNESS.

Why is it so hard for nervous persons to get to sleep after any excitement?

Ans. Because the vaso-motor nerves cannot quickly contract the cerebral arteries and empty them of blood. All such should spend their evenings quietly, and take a hot foot-bath, or sitting-bath, before retiring. A little nourishing food before going to bed is also often useful. It attracts to the stomach that blood which swells the cerebral arteries. If one cannot go to sleep then, it is sometimes a good thing to take a mouthful of hard, dry, raw wheat into the mouth and give yourself up to chewing it fine. This will take the attention from thought, and often bring sleep. Another good method is to have some one give gentle percussion with the hands over the small of the back and hips. If rightly done, this is very soothing and useful.

FAST EATING.

Why do nervous persons find it so hard to eat slowly?

Ans. Because they are nervous. The remedy is in a resolute determination to correct the habit.

NERVOUSNESS OF MERCHANTS.

What bankrupts the nervous system of our merchants more than anything else?

Ans. A restless ambition to become rich leads men to enlarge their business to unsound and unsafe proportions, and to embark in enterprises and speculations outside of their legitimate sphere, which, almost without exception, prove disastrous. These cause that anxiety of mind and loss of sleep which break down the nervous system prematurely.

MENTAL OVERSTRAIN OF MERCHANTS.

How is the merchant to avoid that mental overstrain which comes from great competition in business?

Ans. By organizing his business on a basis that will enable him to stand all honest competition without serious injury. A merchant who thoroughly understands his business, having the means and brains to organize it properly and the ability to manage it successfully, need have no fear of competition. The anxiety of business

men is caused not so much by competition as by errors of judgment in making purchases and extending credits, or in bad management. Merchants who manage with economy, buying wisely and employing the best means for selling their goods, need have no anxiety as to the result. A wealthy merchant is reported to have answered the question, "How did you make your fortune?" by saying, "Buying low and selling high." It does not follow, however, that a merchant must sell his goods at a large profit to succeed in business. But as a general rule it may be truly said that selling goods without a profit is a sure indication of coming bankruptcy. It was discovered in the trade in 1876–7 that one of the oldest and most respectable houses in this city was selling many goods at their actual cost, and nearly everything in their line at a margin that would hardly pay the cost of selling; and although this house held a position among the first, and bore a good reputation of many years' standing, yet it proved no exception to the rule mentioned, for it soon failed and compromised at thirty cents on a dollar.

MENTAL HYGIENE FOR THE AGED.

How are old people to keep the mind from

failing, and even becoming obliterated, before the body is worn out?

Ans. Only by cultivating it. As people grow old they should work less, and read, study and think more. The reason why so many aged people have a blank where there should be a mind is generally because the latter is not kept alive and active by culture. The rust gets so thick that thoughts cannot be formed.

AMUSEMENTS.

What is the effect of recreation and amusement on the health of the mind?

Ans. It is of the highest importance that invalids, students, brain-workers, old and young, in all positions of life, have some recreation, some wholesome amusement. How it is to be provided, each person must decide for himself. Some will choose one method, some another. As a rule, for sedentary persons, out-of-door amusements, when the weather permits, are preferable, because they bring the body into the air and sunlight.

Hunting and fishing will do well for certain seasons of the year, and for those who like these sports, but they are not well adapted to

women and children. Zoology, field botany, mineralogy, entomology, geology, natural history, etc., are agreeable forms of amusement for a large class of both sexes; garden work for another class. Mechanical work is a form of recreation well adapted to those who have mechanical genius. Horseback-riding and rowing are among the very best of means for resting the mind and strengthening the body. Out-of-door sports of all kinds have their place and use. For indoor recreation, vocal and instrumental music stand highest, and every person ought to learn to sing and play on some instrument, so that he may have that pleasure which grows out of musical culture. Vocal music has special value for expanding the chest, and filling the lungs with air, and for quickening the circulation and digestion, and calling the mind away from care, trouble and despondent moods, which more or less annoy the lives of the best of people. Music has another advantage: it is adapted to so many persons, of both sexes; and those who cannot take a part in making it can derive pleasure from listening to it. Reading aloud, and especially declaiming, is,

like music, exceedingly valuable to those who have weak lungs.

Playing with children is a form of recreation of very high value to those who really love these pure, beautiful creatures, but one must get on their level to be able to give them as much pleasure as he receives. The reading of humorous books and funny stories and anecdotes may be classed as a species of recreation which should not be forgotten. Story-telling, and anything that causes healthful laughter, should be cultivated as a means of mental hygiene. No form of amusement should be carried to excess, for this defeats the end for which it is designed, and debilitates the nervous system instead of strengthening it. Especially should nervously-exhausted people choose their amusement wisely and well, so they may receive good rather than evil.

AMUSEMENTS IN GERMANY.

What is the influence of popular amusements upon the health and character of the Germans?

Ans. The influence is certainly good here, as everywhere, so far as amusements are conducted in accordance with the laws of health;

but to answer the question fully one must have an insight into the German character. There is a marked difference between the manner in which amusements are regarded and provided for in Germany and in America. We are inclined to ignore amusements or to regard them merely as something to be tolerated but not expressly provided for. This at least was the view of the Puritan Fathers, and the gradual introduction of popular and social amusements in New England as elsewhere among us has been regarded with jealousy by all those retaining the original feeling concerning them.

In Germany, however, amusements such as dancing, card-playing and theater-going have never been forbidden by the Church or by public sentiment in any form, and it has always been the especial care of kings and others in authority to provide as regularly for the amusement of the populace as for any other recognized public necessity. A German prince, to make himself and his family popular, will build an elegant theater, and often, as in Hanover, require all military officers to attend, deducting the small admission fee from their pay. The theater is thus made a brilliant and popular resort, and

brought under the influence of the clergy and of the refined and moral classes who attend it.

In the public schools of Germany the same general theory of amusements is apparent. Physical and mental relaxation are systematically provided for, and the teachers enter into and share them heartily with their pupils. Every teacher can sing, and most can play upon some musical instrument. When the children become restless, the teacher, instead of scolding them, will often take his violin and lead them in a lively song, combined, perhaps, with marching or other physical exercises. The military taste of the Germans enters largely into all these amusements. At recess, in many schools, the teacher goes with the boys to the playground and conducts a military drill. At other times a teacher may be seen marching through the streets at the head of his pupils on the way to the public-school gymnasium, where the exercises of swinging, leaping, marching, etc., are conducted with military precision and with a spirit and energy scarcely to be found elsewhere.

In all this, as throughout the entire system of German amusements, it is important to ob-

serve that with the amusement there is usually associated some form of instruction. The German mind easily submits to having its sports thus regulated and controlled for a useful purpose, and hence it would be easier in Germany than in almost any other country to establish a system of combined physical and mental hygiene alike for children and adults; and this is being done through such agencies as the Kindergarten and the now popular *Volkserziehungs Geselschaften* (Societies for Popular Instruction).

Such being the character of German amusements, we may well say that they have a most beneficial influence upon the health of the people. Only where they go beyond reasonable limits, and are associated with beer drinking or other excesses, can they be regarded as in any manner prejudicial either to health or good morals. An American in Germany will indeed find occasion for unfavorable criticism, but if he be devoid of narrow prejudices he cannot fail to find much worthy of imitation, and this especially in the matter of popular amusements; for we may wisely accept all that is good in this sturdy and heroic race, while avoiding whatever may be found objectionable.

UNSUSPECTED CAUSES OF SOME OF THE NERVOUSNESS IN WOMEN.

What are some of the unsuspected causes of nervousness in women?

Ans. Dr. Abby Cutter, of Louisville, Ky., a thoughtful and earnest physician, enumerates a few of these in a letter too long for insertion here; but the following synopsis gives its chief points:

1. Self-abuse and secret vice on the part of girls—a habit dangerous and exhausting, and leading to a complete ruin of the nervous system.

2. The employment of male physicians by sensitive and timid women at childbirth and in the treatment of diseases peculiar to their sex, is sometimes a cause of nervous disease.

3. The excitements incident to the wedding-day and the long wedding-journeys connected with it, have made many nervous invalids. The practice of making wedding-journeys, she thinks, should be given up entirely. Cases in her own experience as a physician, where delicate women have suffered from invalidism all their lives from this cause alone, have proved to her satisfaction

that this is a more frequent cause of nervous diseases than is generally known.

4. Another cause is lack of harmony and adaptation between husband and wife, each making the other nervous and unhappy when they should do the reverse.

5. Excessive childbearing is still another cause, especially when coupled with other cares that break down the general health.

6. Errors of dress are causes of nervousness in women in very many ways. If they would dress for comfort and health, many nervous troubles would flee away as the morning dew before a bright sun.

7. Lack of mental exercise is also a serious cause of nervousness, to be remedied only by proper mental culture.

NERVOUS CHILDREN.

What is the cause of so much nervousness in children?

Ans. The causes are too many to enumerate in this connection, but the following may be mentioned as the chief:

1. Nervousness inherited from nervous, dyspeptic, scrofulous and debilitated parents. Only

the wisest course of care and education will cure them.

2. Nervousness from the presence in the intestinal canal of crude, half-digested food, or from worms. In very young children this is common. The food in such cases should be bland and nutritious. Bread and milk and fruits are best for them.

3. Scrofula is a cause of nervousness in young children and in those who have a scrofulous constitution; the physical culture should be attended to with the greatest care, and a chance given for them to outgrow it. The art of physical education is almost unknown in America, and this is a grave misfortune. Our schools often make children nervous and scrofulous, when they should cure both conditions. Parents, teachers and physicians are to blame for this. The only remedy is a wise hygiene applied to the education of the young from the time of conception till they are old enough to become their own masters.

CLIMATE AND NERVOUSNESS.

Has climate any influence in causing or curing nervousness?

Ans. What is called a stimulating climate is apt to aggravate nervousness. We have an English friend who spends much time in America, and his great complaint is that our climate makes him so nervous that he can hardly control himself. He has to take frequent trips to some region where the air is moist, so his nerves may become quiet. The climate of Colorado, which is clear and bracing, aggravates nervousness. Oregon, on the contrary, has a moister air and less sunshine, and here a friend, who suffered from an overtaxed brain while living in California, found the climate favorable to sleep, and his nervousness was very much diminished. Nervous, restless, overworked people often find the climate of Florida quieting to their overtaxed nerves.

NERVOUS EXHAUSTION OF TEACHERS.

What are the causes of the nervous exhaustion so common among teachers?

Ans. This exhaustion is peculiar to American teachers, and seems to be the natural result of the general nervousness of the American people. Not only are our teachers peculiarly liable to nervous irritability, but the same men-

tal constitution in the children causes them to be far more restless, and hence disorderly, in school than are children in most European countries. Teaching is in itself not exhausting. To those having a natural aptitude for it, it is a most delightful and healthful occupation. American teachers are worn out not by teaching, but by governing, their pupils.

In Germany teaching is not regarded as wearing upon the nervous system. In visiting schools there we frequently found those who had taught without interruption from early manhood to the age of forty-five or fifty, with no apparent injury to health and not the slightest indication of nervous exhaustion. We well remember a hale and vigorous old gentleman of sixty in one of the public schools of Berlin who had taught in the same capacity for thirty-five years. His pupils were boys from twelve to sixteen years of age; and the reason he had not been worn out was, not only that he was less nervous than most American teachers, but, still more important for him, that his pupils were not nervous or irritable. We asked another such teacher, one whose service in a boys' primary school had extended from the age of twenty to about forty

years, how he managed to govern his pupils so easily; to which he replied, as though it were the simplest thing in the world, "When the children come to school for the first time, we tell them the rules, and they always obey them." Now, we would not say that those children were better than American children, but rather that they were less nervous, and hence the temptation to disorder is with them far less. The German teacher has another advantage in the fact that he continues for a long time in the same grade of schools, and thus becomes so familiar with his particular routine of duties that he requires to spend no time out of school in exhausting study, but devotes his evenings to social recreation, or to such mental culture as is most agreeable. He is not continually struggling for a higher position in the school or for some other profession. He teaches quietly, and, as it would seem to us, monotonously, year after year, until retired, at last, upon a life pension.

But while there is much less of nervousness in a German than in an American school, there is no lack of strength or industry. Everything moves on with military precision, and with a

sort of rugged energy that carries all before it, and that crushes opposition, but does not scold or fret at it. In America there are a larger proportion of female teachers than in any other country, and, as women are more sensitive and more easily annoyed than men, the position of a teacher in America is to them peculiarly trying. The advice of Dr. Clarke, of Boston, regarding the care of woman's health, is, of all places in the world, most applicable to American female teachers.

The remedy for restlessness on the part of scholars and nervous exhaustion on the part of teachers is to be sought in that general building up of the system and broadening of the character which is to result from a wise system of physical culture. The constitutional nervousness and consequent premature exhaustion of Americans as a race has been at its worst, and we are now progressing toward a healthier and stronger life.

A WORD FROM BROWN-SEQUARD.

What are the best rules for regulating the health of the brain?

Ans. Brown-Sequard says that "nerve force is produced through blood. It is a *chemical*

force which is transformed there into nerve force. This nerve force accumulates in the various organs of the nervous system in which it is formed during rest. But if rest be prolonged, then it ceases to be produced. Alteration takes place in the part which is not put to work. On the other hand, action, which is so essential to the production of nerve force, if prolonged, will exhaust force also, but produce a state distinct from that of rest. Over-rest will produce a lack of blood, while over-action may produce congestion. The great thing, therefore, is to have sufficient but not excessive action.

There is another law, which is, that we should not exercise alone one, two, or three of the great parts of the nervous system ; since thus we draw blood to those parts only, and the other parts of the body suffer. In the due exercise of all our organs are to be found the principal rules of hygiene.

To conclude with these great rules of hygiene, I should say that we should not spend more nervous force than our means allow us. Many commit this fault. We should make an equal use of all our organs, and of the various parts of the nervous system. Those who employ

the brain suffer a great deal from inattention to this law.

Lastly, there should be regularity as regards the time of meals, the time and amount of action, the time and amount of sleep—regularity in everything. It is very difficult indeed to obtain it. But there is in our nature more power than we know, and if we conform ourselves to the law of habit things will soon go on without our meddling with them, and we come to be perfectly regular, although we perhaps had naturally a tendency quite the reverse.

CHAPTER XII.

What our Thinkers and Scientists Say.

EXPECTANT ATTENTION.

The influence of expectant attention in modifying nutrition and secretion is no less remarkable than we have seen it to be in producing muscular movements. The direction of the attention to a part is sufficient to call forth sensations in it; and if this be kept up, it may produce a change of functional action and the nutrition of the part. There can be no doubt but real disease may be caused by the indulgence of the hypochondriacal tendency to dwell upon uneasy sensations. This persistent direction of the attention has a much stronger effect when there is an expectation of a particular result. Thus it happens that the spells of pretenders to occult powers, in

all ages and nations, often produce the predicted maladies in those subjects who are credulous enough to believe in them. This was formerly the case among the negroes of the West Indies, who practiced on one another a species of African witchcraft, called *obeah*. Whenever a victim became fixed in the belief that an *obi* had been put upon him by some old man or woman who possessed the power, there was a slow pining away, death being a not uncommon result. So great was the dread of these spells that the mere threat of one party to a quarrel to put *obi* on the other was often sufficient to terrify the latter into submission. Even among the better instructed, a fixed belief that a mental disease had seized upon the person, or that a particular course of treatment would prove successful, has been the occasion of a fatal result.

On the other hand, *the same mental state may operate beneficially in checking the morbid action and restoring a healthy state. The confident expectation of a cure is the most potent means of bringing it about, doing what no medical treatment can ac-*

complish, as may be affirmed by an experience extending through ages.—WILLIAM B. CARPENTER, M.D., F.R.S.

NORMALLY DEVELOPED BRAINS.

Unless men and woman both have normally developed brains, the nation will go down. As good a brain is needed to govern a household as to command a ship; to guide a family aright as to guide a congress aright; to do the least and the greatest of woman's work as to do the least and greatest of man's work. Moreover, in both sexes, the brain is the conservator of strength and prolonger of life. It is not only the organ of intellection, volition, and spiritual power, but the force evolved from it, more than the force evolved from any other organ, enables men and women to bear the burdens, and perform the duties, of life; and with its aid, better than with any surgery, can they overcome the "ills that flesh is heir to."—EDWARD H. CLARKE, M.D.

ALCOHOL ENFEEBLES THE REASON.

If, then, alcohol enfeebles the reason, what part of the mental constitution does it ex-

alt and excite? It exalts and excites those animal, organic, emotional centers of mind which, in the dual nature of man, so often cross and oppose that pure and abstract reasoning nature which lifts man above the lower animals, and, rightly exercised, places him little lower than the angels. Exciting these animal centers, it lets loose all the passions, and gives them more or less of unlicensed domination over the whole man. It excites anger, and when it does not lead to this extreme it keeps the mind fretful, irritable, dissatisfied, captious. The flushed face of the red-hot angry man, how like it is to the flushed face of the man in the first stage of alcoholic intoxication. The face, white with rage, and the tremulous, agitated muscles of the body, how like both are to the pale face and helpless muscles of the man deep in intoxication from alcohol. The states are not simply similar, they are identical, and the one will feed the other.—Benj. W. Richardson, M.D., F.R.S.

WOMEN AND BRAIN LABOR.

We have heard a great deal of late of the danger to women's health of over-mental strain of intellectual labor. I do not say

there is never danger in this direction, that girls never study too much or too early, or that the daughters of women who have never used their brains may not have inherited rather soft and tender organs of cogitation to start with. I am no enthusiast for excessive book learning for either women or men, though in books read and books written I have found some of the chief pleasures of a happy life. But of one thing I am sure, and that is, that for one woman whose health is injured by excessive study (that is, by study itself, not the baneful anxiety of examination superadded to study), there are hundreds whose health is deteriorated by want of wholesome mental exercise. Sometimes the vacuity in the brains of girls simply leaves them dull and spiritless. More often in those swept and empty chambers of their skulls enter many small imps of evil omen.

Let women have larger interests and nobler pursuits, and their affections will become, not less strong and deep, but less sickly, less craving for demonstrative tenderness in return, less variable in their manifestations. Let women have sounder mental culture, and

their emotions—so long exclusively fostered—will return to the calmness of health, and we shall hear no more of the intermittent feverish spirits, the causeless depressions, and all the long train of symptoms which belong to the Protean-formed hysteria, and open the way to madness on one side and to sin on the other.—Frances Power Cobbe.

DIFFERENCE BETWEEN MAN'S AND WOMAN'S BRAIN.

There is a natural difference between the two sexes; not in the number, but in the degrees, of the primitive powers of the mind. Some are stronger in women, others stronger in men, and both sexes seem to be destined to different occupations in society. Indeed no education will change the nature of the innate dispositions. Let, then, each sex, and each individual, be cultivated and employed in those things for which they are fit. The claim to justice and merit is equal in man and woman; their duties only are different. Females are not destined in any circumstances to be slaves, or mere patient drudges, nor are their duties limited to those of chaste wives and good managers of their families

only: women are required also to direct the education of their children, and to be agreeable and intelligent companions to their husbands. Let their understandings be cultivated by useful knowledge; by the study of the human mind, and the principles of education, and of their duties in the direction of their families; let their intellects be improved by the study of history and of arts and sciences. Girls commonly learn only objects of secondary importance, mere accomplishments; and, hence, when they arrive at the age of being united to a husband, they are seldom capable of supporting permanent friendship, by the elevation of their minds, and the steady practice of the domestic virtues. Many do not know how to guide themselves, and still less their offspring, their servants, and household affairs. Indeed, if the fair sex go on as they have done hitherto, they cannot repine that they have no share in political concerns. If their minds do not take a more serious and more solid turn, they may govern in drawing-rooms, where delicate feelings and polite manners are attended to, but they will have

no permanent influence on the laws of society.—G. SPURZHEIM, M.D.

REJUVENATING POWER OF SLEEP.

Sleep is the great rejuvenator of the nervous energies, the winder up of force in the nervous coils of the brain, which gives a good running power for the day. Deprive the brain of the time required for the restoration of its energies, and there is experienced at first a dull, heavy, inert feeling, often accompanied by headache and a lifeless, unrested condition of the whole body. Continue this longer, and more serious evidences of mischief begin to be manifested. The state of the blood, the time of life, and the inherent strength or weakness of the nervous system, determine the nature of the mischief which prolonged lack of sufficient sleep brings on. In very young persons, convulsions, congestions, and acute inflammation of the brain are very likely to occur; but when the lack of sleep is not so great, but more protracted, the child either acquires a stupid, listless manner, or a very irritable, nervous one, bordering upon actual disease. Later in life, the deprivation of an

adequate amount of sleep, keeping the brain in a state of forced activity, its tissues become redder than natural, and various uneasy sensations are felt in the head, of a dull, heavy character, bordering upon acute pain. Connected thought becomes almost impossible, and the entire body sympathizes and suffers by the lack of nervous tone. If yet further prolonged, the slight derangement passes into actual disease; in those with impure blood into a low form of nervous fever with delirium; and in those with pure blood, into acute insanity, congestion, and softening of the brain, or into an attack of apoplexy, or paralysis.—J. R. Black, M.D.

PHYSIOLOGICAL EFFECTS OF EXCESSIVE BRAIN LABOR.

Several years ago, desiring to ascertain the effects of excessive mental labor upon the brain as indicated by the excretion of urine, I performed a series of experiments upon myself by which it was clearly ascertained that the solid matter eliminated by the kidneys was notably increased in direct relation with the extent to which the brain was worked. All this was, for the time being, at least, within

the limits of health. But by persevering with the experiments, and carrying the mental exertion to a still higher point, a stage would have been reached at which the decomposition of brain substance would have been greater than the formative processes, and then disease would have existed. I would have been living, as it were, on my brain capital, instead of the income, and brain bankruptcy would have been only a question of time, just as it is in financial matters. This is exactly what people do with their brains continually. Overwork causes them to use up their brains faster than they make them, and, as a consequence, that organ, which of all others it is essential to keep in a healthy condition, becomes the seat of serious disease. —William A. Hammond, M.D.

TRAINING BOTH SIDES OF THE BRAIN.

A greater supply of blood to the left hemisphere incites this hemisphere to more brain work, and the right side of the body to more muscular work; but let the training of the left side of the body call for more blood, and the right hemisphere will soon receive more blood and be better able to

assist or supplement the left in brain work. ....By this means may be restored to our race an inexpensive power, more permanent than steam, and equally applicable to mental and physical labor; a power which, in many cases, can double the products, and which, in all cases, can save or economize the ordinary one-sided powers. Through the restitution to our children of this natural capacity, the diseases and infirmities which attack one side of the body or the other would become unknown or rare. More continuous learning and thinking could be accomplished, and the fatal consequences of excessive strain on the brain would remain the accidents of age, instead of becoming the ironic rewards of young, heroic effort. Man would be rendered more serviceable as a worker, more harmonious in his movements, and more delicate and thorough in his perceptions, and more kind and amiable in his family relations. In short, the humane temper and passions would be harmonized to a point which the mind cannot foresee to-day, but whose social consequences cannot be over-estimated. It seems but yesterday that the lamented Agassiz urged

his pupils of Penikese Island to become "ambidextrous," if they wanted to become good naturalists; and my illustrious friend, Brown-Sequard, proclaimed at his Lowell Institute lectures "*the equal training of both sides* in our children as an urgent necessity."—Dr. Seguin.

AMOUNT OF BLOOD NECESSARY TO MENTAL VIGOR.

A very instructive class of facts may be adduced, connecting mental action with the quantity and quality of the blood supplied to the brain. No organ is active without blood. The demand made by the brain corresponds with the extent and energy of its functions. Deficiency in the circulation is accompanied with feeble manifestations of mind. In sleep, there is a diminution of the supply of arterial blood to the brain. General depletion lowers all the functions, mind included. On the other hand, the cerebral circulation is quickened, the feelings are roused, the thoughts are more rapid, the volitions more vehement; great mental excitement is always accompanied with an unusual flow of blood, often outwardly shown by the throbbing of the vessels.

In delirium, the circulation attains an extraordinary pitch.—ALEXANDER BAIN, L.L.D.

TAKE CARE OF YOUR HEALTH.

Let me utter one practical word; take care of your health. There have been men who by wise attention to this point might have risen to eminence—might have made great discoveries, written great poems, commanded armies, or ruled states—but who by unwise neglect of this point have come to nothing. Imagine Hercules as oarsman in a rotten boat; what can he do there but by the very force of his stroke expidite the ruin of his craft. Take care, then, of the timbers of your boat, and avoid all practices likely to introduce either wet or dry rot among them. And this is not to be accomplished by desultory or intermittent efforts of the will, but by the formation of *habits.*

The will no doubt has sometimes to put forth its strength in order to strangle or crush the special temptation. But the formation of right habits is essential to your permanent security. They diminish your chance of falling when assailed, and they augment

your chance of recovery when overthrown.—JOHN TYNDALL, LL.D., F.R.S.

NEUTER VERBS.

Of persons who have led a temperate life, those will have the best chance of longevity who have done hardly anything else but live—what may be called the neuter verbs—not active or passive, but only being; who have had little to do, little to suffer; but have led a life of quiet retirement, without exertion of body or mind — avoiding all troublesome enterprise, and seeking only a comfortable obscurity. Such men, if of a pretty strong constitution, and if they escape any remarkable calamities, are likely to live long. But much affliction, or much exertion, and, still more, both combined, will be sure to tell upon the constitution—if not at once, yet at least as years advance. One who is of the character of an active or passive verb, or still more, both combined, though he may be said to have lived long in everything but years, will rarely reach the age of the neuters.—ARCHBISHOP WHATELEY.

EXERCISING THE BRAIN.

The proper object of life is the development of the mind, and this, the true end of all our own exertions, should never be lost sight of; for it is one which never disappoints. It can only be attained by keeping up the activity of the faculties; for the brain, as well as the muscles, requires constant exercise to maintain its power: unemployed, it loses what it once possessed, and may sink into mediocrity from a comparative state of excellence. If the mind is altogether absorbed in the pursuit of wealth, it gradually loses all desire for that superiority which alone satisfies its higher faculties. In the midst of those necessary avocations upon which the welfare of our families depends, we should spare some moments to maintain at least that degree of improvement which had been acquired; it is essential to the general health that we should do so. We know that bodily health cannot be maintained without due exercise, neither can mental—they are mutually dependent—and to neglect one is to neglect the other. As we advance in life, the importance of a healthy mind is even greater

than a healthy body, for the one enables us to bear the evils of the other, and the decay of the body precedes that of the mind. In our progress through this nether world, a rightly judging, well-stored mind compensates for many disappointments, and alleviates the effects of the vanity of our wishes; for there are few who, before the age of fifty, do not find many of the aspirations of early life, only vanity.

It is hardly an exaggeration to assert, that the most important law of health is a well-regulated mind. The tone of the mind has the most important influence on health. If a man's pursuits are rational, and in harmony with the laws of God—if he walks in the ways of wisdom, and his thoughts are directed to proper objects—if he keeps his mind in an active state by the constant acquisition of knowledge—if his meditations lead him to have constantly in his mind's eye that he is not a mere dweller on earth, but a being destined to exist in a more exalted state, where the mind which he is now educating shall live in brightness inconceivable to his present thoughts—the self-satisfaction so produced will have

the most exhilarating influence on his health. —Lionel John Beale, M.R.C.S.

HOW CHANCELLOR KENT WAS EDUCATED.

I was brought up among the highlands and hilly parts of Connecticut, and was never kept on the *high-pressure* plan of instruction. It was not then the fashion. I went to school, and studied in the easy, careless way, until I went to college. I was daily, and sometimes for a month or more, engaged in juvenile play, and occasional efforts on the farm. I was roaming over the fields, and fishing, and sailing, and swimming, and riding, and playing ball, so as not to be but *very superficially learned*, when I entered college. I was not in college half the time. I was at home, at leisure, or at gentle work, and much on horseback, but never in the least dissipated. I easily kept pace with my class, for it was in the midst of the American War, and there were few scholars, nor much stimulus to learn. *Silent leges inter armas.* When I went to study law, I had my own leisure, and great exercise and relaxation in enchanting rides, and home visits, until I got to

the bar. I lived plain—drank nothing but water, ate heartily of all plain, wholesome food that came in my way—was delighted with rural scenery, and active and healthy as I could be. Here I laid the *basis of a sound constitution*, in which my brain had not been unduly pressed or excited, and only kept its symmetry with the rest of the animal system. It was not until I was twenty-four that I found that I was very superficially taught, and then *voluntarily betook myself to books*, and to learn the classics, and everything else I could read. The ardor and rapidity with which I pursued my law and literary course were great and delightful, and my *health and spirits* were sound and uniform, and neither has faltered, down to this day.—Chancellor Kent.

ORIGIN OF ABUSE OF THE MIND.

The gross errors committed by parents in overworking the brains of their offspring has its origin in the false system of philosophy, which has existed from the time of Plato to the present day, and by which the mind is regarded as a separate entity, having no sort

of connection with and being nowise influenced by matter. If Phrenology do nothing else than dispel this preposterous idea it will accomplish much. Had this science been discovered and its principles acted upon a thousand years ago, what grievous errors in education, what incalculable injury to the brain, would have been avoided; and what a mass of splendid talent which has been employed in bootless metaphysical speculations might have been profitably turned into more useful channels! So long as people were ignorant of the fact, that in this life the mind works through the agency of material organs, no rational views of education and of the true method of preserving the health of the brain could be entertained. Many writers before the time of Gall knew, indeed, the intimate relations existing between mind and matter, but it was the science of Phrenology, first discovered by him, which turned the public mind strongly and practically to this important point, and will doubtless in time work a thorough change in public sentiment, and be attended with most happy results.—Robert Macintosh.

INTELLECT NOT ALL.

I will simply say here, although I cannot as yet give proofs, that there are other powers of the intellect besides the ordinary mental powers. These latter are extremely limited and cannot reach beyond a certain point.

But there are those now living who perhaps one of these days will make some discovery or invention that will make a revolution in our theories and medical practice.

There are those who have the gift of genius, which is superior to the ordinary mental powers. Discoveries are made not by the ordinary mental powers, but by something above and beyond them. The former puts a question to the latter and it sends back the answer.

We see this illustrated on certain occasions when we are endeavoring with all our powers of concentration to recollect a name that we have forgotten, when suddenly (when we are not thinking of it) the name returns to our memory. This is due to the action of that power, of which I have spoken, which is beyond the ordinary mental powers.

The will power acts on the nerves by a sort of telegraphic communication, and does

not act on special muscles at one time, but produces variety and complication of movements at the same time. It never gives an order in this way: "I wish this muscle to act."

Those who use their muscles the best and with the greatest effect are never conscious of doing so.—Dr. Brown-Sequard.

EARLY MENTAL CULTURE A MISTAKE.

The history of the most distinguished men will, I believe, lead us to the conclusion, that early mental culture is not necessary, in order to produce the highest powers of mind. There is scarcely an instance of a great man, one who has accomplished great results, and has obtained the gratitude of mankind, who in early life received an education in reference to the wonderful labors which he afterward performed. The greatest philosophers, warriors, and poets, those men who have stamped their own characters upon the age in which they lived, or who, as Cousin says, have been the "true representatives of the spirit and ideas of their time," have received no better education, when young, than their as-

sociates who were never known beyond their own neighborhood. In general their education was but small in their early life. *Self-education*, in after life, made them great, so far as education had any effect. For their elevation they were indebted to no early *hot-house culture*, but, like the towering oak, they grew up amid the storm and the tempest raging around. Parents, nurses, and early acquaintances, to be sure, relate many anecdotes of the childhood of distinguished men, and they are published and credited; but where the truth is known it is ascertained that many, like Sir Isaac Newton, who, according to his own statement, was "inattentive to study, and ranked very low in the school until the age of twelve," or, like Napoleon, who is described by those who knew him intimately when a child, as "having *good health*, and in other respects was like other boys," do not owe their greatness to any early mental application or discipline. On the contrary, it often appears, that those who are kept from school by ill-health or some other cause in early life, and left to follow their own inclination as respects study, manifest in after life powers of

mind which make them the admiration of the world.—Amariah Brigham, M.D.

Walter Scott's Boyhood.

Here is a boy lying about in the fields, when he should have been at his Latin grammar; reading novels when he should have been entering college; spearing salmon instead of embellishing a peroration. Yet this personage came out of this wild kind of discipline, graced with the rarest combination of qualifications for enjoying existence, achieving fame, and blessing society. Deeply learned, though neither the languages, nor the philosophy of the schools, made part of his acquisition; *robust* as a plowman; able to walk like a pedlar; industrious as a handicraftman; intrepid as the bravest hero of his own immortal works. Here is enough to put us on inquiring, not whether learning, and even school discipline, be good things; but whether the knowledge usually thought most essential, the school discipline which is commonly esteemed indispensable, be in fact either the one or the other.—Harriet Martineau.

A WISE THOUGHT FROM HERBERT SPENCER.

Our general conclusion is, then, that the ordinary treatment of children is, in various ways, seriously prejudicial. It errs in deficient feeding; in deficient clothing; in deficient exercise (among girls at least); and in excessive mental application. Considering the *regime* as a whole, its tendency is too exacting; it asks too much and gives too little. In the extent to which it taxes the vital energies, it makes the juvenile life much more like the adult life than it should be. It overlooks the truth that, as in the fœtus the entire vitality is expended in the direction of growth, as in the infant the expenditure of vitality in growth is so great as to leave extremely little for either physical or mental action, so throughout childhood and youth growth is the dominant requirement to which all others must be subordinated—a requirement which dictates the giving of much and the taking away of little—a requirement which, therefore, restricts the exertion of body and mind to a degree proportionate to the rapidity of growth—a requirement which per-

mits the mental and physical activities to increase only as fast as the rate of growth diminishes.

Regarded from another point of view, this high-pressure education manifestly results from our passing phase of civilization. In primitive times, when aggression and defense were the leading social activities, bodily vigor with its accompanying courage were the desiderata; and then education was almost wholly physical; mental cultivation was little cared for, and, indeed, as in our own feudal ages, was often treated with contempt. But now that our state is relatively peaceful—now that our muscular power is of use for little else than manual labor, while social success of nearly every kind depends very much on mental power—our education has become almost exclusively mental. Instead of respecting the body and ignoring the mind, we now respect the mind and ignore the body. Both these attitudes are wrong. We do not yet sufficiently realize the truth that, as, in this life of ours, the physical underlies the mental, the mental must not be developed at

the expense of the physical. The ancient and modern conceptions must be combined.

Perhaps nothing will so much hasten the time when body and mind will both be adequately cared for as a diffusion of the belief that the preservation of health is a *duty*. Few seem conscious that there is such a thing as physical morality. Men's habitual words and acts imply the idea that they are at liberty to treat their bodies as they please. Disorders entailed by disobedience to nature's dictates they regard simply as grievances; not as the effects of conduct more or less flagitious. Though the evil consequences inflicted on their dependents, and on future generations, are often as great as those caused by crime, yet they do not think themselves in any degree criminal. It is true that, in case of drunkenness, the viciousness of a purely bodily transgression is recognized; but none appear to infer that if this bodily transgression is vicious, so, too, is every bodily transgression. The fact is that all breaches of the laws of health are *physical sins*. When this is generally seen, then, and perhaps not till then, will the physical training

of the young receive all the attention it deserves.—HERBERT SPENCER.

HOT-HOUSE BRAINS.

A man cannot make a hot-house of his brains, especially while young, without cutting short his life—in most cases, at forty or thereabouts, he has, say, twenty years of work. If he treats himself properly, works only at moderate pressure, allows his natural development, physical and mental, he is as likely to live, vigorous, till seventy. He has, to put it lower, forty years of work—double what the forcing process would allow him. And we have pointed out that it is not unfair to claim for each of the forty years a much higher average activity than for each of the twenty.

Every young man of parts has thus to choose between the hot-house and open-air systems of brain nurture. It is true that the multiplicity of things now to be learned presses him hard—this is the more reason why he should consider. The habit-model of useful brains of this age should be that great scholar and worker who said that he accom-

plished his vast amount of daily work by taking "plenty of sleep." Plenty of sleep, plenty of exercise, plenty of wholesome food, plenty of time for its digestion, plenty of all that nature calls for—these are to build up the intellectual giants who are to lead progress in the time to come. Let those aspirants who disdain nature and her laws have a care! "In the physical world," it has been well written, "there is no forgiveness of sin!" —R. R. Bowker.

BOOK-GLUTTONY AND LESSON-BIBBING.

Above all things, let my imaginary pupil have preserved the freshness and vigor of youth in his mind as well as his body. The educational abomination of desolation of the present day is the stimulation of young people to work at high pressure by incessant competitive examinations. Some wise man (who probably was not an early riser) has said of early risers in general, that they are conceited all the forenoon and stupid all the afternoon. Now, whether this is true of early risers in the common acceptation of the word or not, I will not pretend to say; but it is

too often true of the unhappy children who are forced to rise too early in their classes. They are conceited all the forenoon of their life, and stupid all the afternoon. The vigor and freshness which should have been stored up for the purposes of the hard struggle for existence in practical life have been washed out of them by precocious mental debauchery — by book-gluttony and lesson-bibbing. Their faculties are worn out by the strain put upon their callow brains, and they are demoralized by worthless childish triumphs before the real work of life begins. I have no compassion for sloth, but youth has more need for intellectual rest than age; and the cheerfulness, the tenacity of purpose, the power of work, which make many a successful man what he is, must often be placed to the credit, not of his hours of industry, but to that of his hours of idleness in boyhood. Even the hardest worker of us all, if he has to deal with anything above mere details, will do well, now and again, to let his brains lie fallow for a space. The next crop of thought will certainly be all the fuller in the ear,

and the weeds fewer.—T. W. Huxley, M.D., F.R.S.

CONTINUED AND VARIED ACTIVITY OF THE MIND.

Continued and varied action of the mind are essentials to length of life and health of life, and those brain-workers who have shown the greatest skill in varied pursuits, even when their works have been laborious, have lived longest and happiest and best.

The truth is that when men do not die of some direct accident or disease, they die, in nine cases out of ten, from nervous failure. And this is the peculiarity of nervous failure —that it may be fatal from one point of the nervous organism, the rest being sound. A man may, therefore, wear himself out by one mental exercise too exclusively followed, while he may live through many exercises extended over far greater intervals of time and involving more real labor, if they be distributed over many seats of mental faculty.

Just as a sheet of ice will bear many weights if they be equally distributed upon it, but will give way and break up at one point from a lesser weight, so the brain will

bear an equally distributed strain of work for many years, while pressure not more severe on one point will destroy it in a limited period, and with it the body it animates.

CONCLUSION.

Let health and education go hand-in-hand, and the progress of the world, physically and mentally, is sound and sure.

Let the brain, in the first stage of life, make its own inventory; distress it not with learning, sadness, romance or passion. Let it take nature as a second mother for its teacher.

In the second stage, instill gently, and learn the order of mind that is being rendered a receiving agency; allay rather than encourage ambition; do not push on the strong, but help the feeble.

In adolescence, let the studies, taking their natural bent, be more decisive and defined as toward some particular end or object, but never distressing, anxious, or distractingly ambitious. Let this be an age of preparation for entering the garden of knowledge, and of modest claim to admission there; not for a charge by assault

and for an entry with clarion and standard and claim of so much conquered possessions.

And for the rest, let the course be a continued learning, so that with the one and chief pursuit of life other pursuits may mingle happily, and life be not

> ...."a dissonant thing,
> Amid the universal harmony."

—Benjamin W. Richardson.

PART II.

PHYSICAL AND INTELLECTUAL HABITS OF DISTINGUISHED MEN AND WOMEN,

AS DESCRIBED BY THEMSELVES.

I.

O. B. FROTHINGHAM.

My Dear Sir: You ask me to put down on paper the rules of physical and intellectual health that I have observed in the course of my life. I do so with pleasure, though the story will be brief and bare, and not much, perhaps, to your purpose. My youth was past and my habits were formed before attention was much called to questions of hygiene, even in its broadest aspects. The

temperance reform, now so well established, so reasonably advocated, and so generally applied, hardly touched the well-to-do classes. In regard to clothing, food, sleep, exercise, general maxims were deemed sufficient; the results of physiological inquiry into the conditions of health in the brain and nervous system were either not reached or not communicated; less was expected and less demanded of men and women then than now, and less, consequently, was obtained. The conscientious man who was devoted to intellectual pursuits, and wished to get a fair amount of good work from his faculties, such as they were, made his rules of conduct for himself, or applied the best rules current, according to his needs.

In my own case it soon became evident that simplicity and method were the two cardinal principles of practice. The conduct of life must be *regulated;* days must be counted; hours must be reserved and set apart; a plan must be formed, not so rigidly that departures from it in cases of necessity or convenience were forbidden, yet rigidly enough to prevent waste from casual interruptions

and distractions. From the time when I was old enough to feel rationally accountable for the use of time and the economy of mental power, it has been my custom to devote the early part of every day—say from eight or nine o'clock till one or two—to serious mental work. The afternoon was given to exercise, recreation and social intercourse. No severe employment of the brain was pursued late at night or far into the evening. Not half a dozen times in my life have I studied or toiled till midnight. In order that sleep might be quiet and refreshing, the brain was allowed to cool, and the blood encouraged to circulate evenly through the frame.

Eight hours was the old rule for sleeping. I have never had more than seven; of late years six has been the utmost attainable, and, if sound and regular, it has been sufficient for my needs. Though early rising was commended, both by precept and example, the injunction to greet the dawn as it tripped over the hill-tops never impressed me. "Sunrises and such like gauds," as Charles Lamb says, did not interest me. It seemed to me that early rising was a mat-

ter of temperament, and that on such a point the constitution should within reasonable limits be consulted, though I have no question that the habit may be cultivated, and in most cases to advantage; *always* to advantage when the economies of life allow early hours for retiring. The object being *to get out of the system all it will yield healthily*, the question whether the demand shall be made and complied with at one period of the twenty-four hours, or another, is secondary; that object being *kept in view*, the individual may be permitted to consult the mechanism of his frame.

Touching eating and drinking, the only rules prescribed, in my early manhood, were, not to eat or drink too much—not to eat or drink what was manifestly hurtful—and not to eat or drink at unreasonable—that is, at unwholesome—hours. The exigencies of modern city life make it convenient to dine after sundown—as late sometimes as seven or eight o'clock. The old fashion of three meals in a day, the chief one not far from the middle, by two or three o'clock, seems to me preferable on all accounts. It falls in with

a more natural division of hours and employments; it gives an interval of rest when it is required; it secures a brighter evening and a more serene night.

Thanks to a vigorous constitution and to out-door exercise, ball playing in youth, walking and lifting in later years, I have been able to eat and digest such food as was provided, animal or vegetable, cereals or fruits. There were, in my day, but few *doctrinaires* on questions of diet. I was never a theorist; never a vegetarian; always carnivorous; always inclined to eat the most nourishing and invigorating food, but always willing to concede the wisdom of a different practice for others. The circumstance of having been entirely free from dyspepsia, so free as not to know what it was till past middle life, and still being unacquainted with it in any but its lightest form, does not embolden me to lay down the law to dyspeptics, nor does it make me proof against the consideration that a different regimen might, in my own case, have resulted in greater vigor, elasticity, and happiness of sensation.

In one respect, I am satisfied that it would,

I mean, in regard to the use of wine. I was familiar from my boyhood with the sight of wine and the spectacle of its use; it was on all the tables at which I sat, and after manhood was reached it was freely offered me. From that time on, the inclination to take wine has never been checked by any save personal considerations. It was always used sparingly; sometimes for long periods it was wholly disused, there being no desire for it. It was never used except at meal times; it was never employed for purposes of nervous stimulation; neither tea nor coffee, both of which were used, were ever, in any single instance, employed for that; and no positive ill effect is now or ever has been traceable to either them or the wine.

And yet, were my life to live over again, I should accustom myself to abstinence, if not total all but total, from all three. It seems to me now, on looking back, that something of dullness and languor, something of exhaustion and dreaminess, something of lethargy, something too of heat and irritability, may be chargeable to a practice not in any grave degree harmful or blameworthy. The

faculties have been less keen and patient than they would have been under a strictly natural regimen. My present habits will not, it is likely, be changed, unless circumstances compel me to change them; but I should earnestly advise young people who are forming habits, to rely on their natural resources of power, and to keep those resources full by natural means: wholesome exercise, a plentiful supply of air and light, sufficient sleep, and the "food that is convenient."

Is it owing to the prejudices of my education, or to the felicity of my constitution, or, in part, to both, that the present scrupulosity in regard to dietetics, and the nice observance of the laws of hygiene, seem to me a little exaggerated, and, so far, unwise? Are the uses of hardship confined to the moral world? May it not be that the physical system requires for its full vigor the discipline that comes with the effort to accommodate itself to harsh natural conditions? Is there not a modicum of truth in the homely saying that "every man must eat his peck of dirt," not as a disagreeable necessity which he cannot avoid, but as a condition of vigor

in his digestive functions? As the bird fancier mingles bird seed with fine gravel to ensure the health of his feathered protegés, so Providence, as we call it, compels us to become robust by a miscellaneous and provoking diet. You are engaged in the humane work of altering the physical conditions of life, so that men and women may attain a greater measure of bodily and mental health with less effort and danger. It must cheer you to know that a good many of your fellow creatures have attained a reasonable degree of both, notwithstanding the imperfection of their conditions and the misfortune of their habits. With the best conditions there will always be friction enough; for, as the conditions are improved, the standard of bodily and mental health will be raised, and the "struggle for existence" will be transferred to a higher plane.

Faithfully yours,

O. B. Frothingham.

New York, October 14, 1877.

II.

FRANCIS W. NEWMAN.

Dear Sir: You request me to furnish you from my own experience with hints that may be useful to others on the habits of intellectual life, as conducive to the welfare of the brain and nerves. If I were so egotistic as to reply by a minute history of my physical experiences, it might afford (I presume) material for rumination to the wise; but my circumstances have always been exceptional, generally advantageously so, making it useless to bid others do as I have done. For instance, if I give a hint to any one, "Never overwork yourself!" (which I make no doubt is a wise precept), I know, alas! that many will say, "I dare not stop work when I first feel fatigue of brain: I shall lose my employment: I need to be manifestly ill and gravely disabled, before *others* can see that I really *must* stop." In every profession a man, for years perhaps, labors with very scanty and inadequate pay; then when his merits at last are known, he gets too much work, but reluctantly admits this. He thinks

"to make hay while the sun shines," and make up for the past ill remuneration. This I believe to be a serious danger to every successful practitioner; though it is hard to believe that if he be *earnest* to take up work with smaller income, it is not in his power. I have known, intimately, sad cases of successful professional men thoroughly ruining their health, from dread to lose the moment of benefiting their families.

As for myself, all my life I have had less, far less, of ostensible and necessary work than I was able easily to perform; and I have studied and written from love of it more hours by far than my public duties occupied or needed. Hence I have always been able to relax and take my ease, as soon as I had incipient symptoms of mental strain. Nevertheless, at one time I sadly suffered from *sleeplessness*, through the excitement of imagination. I first suffered in this way (which took the form of writing letters home, with head on pillow, to my mother and other friends) after a partial recovery from a terrible fever at Aleppo. I may say, in parenthesis, that I now impute that fever entirely to my ignorantly

continuing to eat heartily of flesh-meat during the heat of the summer in that climate. Five immense efforts of nature, by violent sweating, did but temporarily throw the fever off; a sixth was successful. But meanwhile my physician, my kind and tender companion, treated me as was the mode of that time (1831), and put 220 leeches on me, causing me enormous fatigue and reducing me to a skeleton. The fever left me on the seventeenth day, but I could not stand up (if I remember) for three weeks after, and then had to learn to walk again, like an infant, darting from chair to chair. The fever, or perhaps rather the treatment, permanently weakened my nerves. A tap at the door will make me jump; but previously I could have borne the report of a pistol in the room. I also had sleeplessness from inability to control my mind when I went to rest. This returned upon me much later. To this day, what is called a soiree, where one meets many people and talks on numerous subjects, is very apt to destroy my sleep: so does ascending any great height, whence I look down on depths. Though there has been no possible danger, absolutely

nothing to alarm, yet, when I am about to sleep, I start up as from the side of a precipice. This is a peculiarity, denoting that my nerves never recovered their original robustness.

That I entirely recovered (at first by horse-exercise), my muscular strength does seem to me remarkable. Whether at all imputable to the fact that I have never in my life had the habit of making alcoholic drink an ordinary beverage, and have retained my childish dislike for it, others must judge. In my own estimate, I had always a good appetite, but others called me a small eater. I only know that my habit was to dine on the first solid dish which presented itself: this goes a great way to save one from eating too much. I have maintained the same weight all my life since early youth—that is, for more than fifty continuous years—and have remained wiry, without any fat. If I may advise any one, it is, *to eat the very least* in quantity which will keep him in health. Any superfluous food must either derange health, or use up (in chemical process to get rid of the superfluity) force which else would be at his voluntary

disposal. It is a great thing in advancing age to be light as a boy. My digestion was always painful, until I became a vegetarian, ten years ago; but though painful, I make no doubt it was successful, to judge by the state of my skin, and my unchanged weight. But I regard abstinence from flesh-meat to be an advantage to an intellectual and sedentary person, scarcely inferior to abstinence from wine, ale, etc. Sedentary I suppose I must be called; yet I have from youth been an active walker, and still, at seventy-two, walk very sharply, though seldom long distances. Above all, I covet sleep. The more I sleep, the better I am. No student should grudge himself sleep. I count seven hours normal; and six too little; if I can get now and then eight, my brain is stronger for it, and I can work more hours after it. Perhaps I ought not to conceal that I am sadly out of harmony with the prevalent doctrine of the day concerning hardihood. When I was a young man I had my own theories about bracing and hardening my body. I slept on a hard straw mattress. I generally scorned a greatcoat, at least a warm one. In Asiatic travel I had plenty of necessary hard-

ships. I slept with open window in most seasons, but trial brought me round to an opposite conviction. At University College, London, I found that the young men with open necks had no such immunity from cold and cough as I enjoyed through my wraps. One of my greatest distresses there was speaking (loud) against their coughs and nose-blowings. Except in warm summer, I seldom rise early, because I become cold in sitting still, especially after the night has chilled the room. Once only in seventeen years was I absent from my lecture-room in London through inability to use my voice; an inability caused only by struggling against the noises of coughs, etc. But my dear wife (whom I lost last year) said that in more than forty years she had not known me have a cough. Yet, at this moment, I am the weaker from having foolishly "roughed it" eight years ago, when in September sudden cold came on after great heat, and I had no winter flannels with me. Let me add, that I hold to Cicero's advice (given to a student), "Take exercise, so much as is needful for health; but *not* so much as will

conduce to the greatest bodily strength." I have no doubt that hard, muscular work stupefies the brain. I have as much manly strength as my duties require. Not long back, a person standing at my side, while I spoke loud to a large audience for an hour and a quarter, told me that my last sentence was uttered as vigorously as my first, and that he had watched in vain to hear me failing. But of course in lifting weights, etc., I could not be called anything but a weak man. What does it matter? Each has his own specialty. With no padding of fat, I am glad of good thick clothing; or in bed, of soft undercloth or feather-bed. I shun linen sheets and everything glossy; preferring rough cotton. In short, I try to nourish and cherish my skin, and find it succeeds. *Dry* rubbing suits me far better than cold baths.

I am respectfully yours,

F. W. Newman.

Weston super Mare,
November 12, 1877.

III.

T. L. NICHOLS, M.D.

My Dear Doctor: You have chosen a good subject for your new book. All civilized men need to understand the Hygiene of the Brain and Nerves. The English are not so rapid and helter-skelter as the Americans; they take things easier and are more methodical. With a climate never hot, and never cold, though often wet, they get more out-of-door exercise, and I am often obliged to restrain the tendencies of invalids to expend in long walks the force needed to build them up in health. I have known a slender little girl, who I feared would die of consumption, walk fifteen miles across country for a visit, and return home the same evening. The fresh air and all the breathing is good, but I enjoin greater economy of force.

Methodical habits go into intellectual labor as well as business. Authors plod on day after day, generally getting to work at ten A. M., taking an hour for lunch, and then working away till five, when they take a walk before dinner. Of course there are some who do not

begin to work until sometime after they have dined. But these take strong tea or coffee, or something stronger, and so work into the small hours of the morning.

My own habits are quite the opposite. I rise at five o'clock in summer, often at four, for there is nothing more delightful than an English summer morning. In May and June the birds begin to sing at three o'clock, and the sun is well up at four. In winter I get to work at six, and do the bulk of my work before breakfast. Life flows to the rested brain and is not drawn away to the stomach. And it seems to me that what is called the wear and tear of a literary life consist chiefly in this contrast. Our vital force is a limited quantity. We cannot work fully in two places at once. In our work we want it all for the brain. When we are about to eat, are eating, or have eaten and are digesting our food, we want all our force to carry on the secretions from salivary glands, stomach glands, liver, pancreas, and for all the blood-making processes. Therefore, I discourage eating while the blood is at work in the brain, or working when it is fully employed in assimila-

tion. No newspapers, no books, no conversation that involves thought at meals. The English pretty well adhere to this. They may glance at the *Times* at breakfast, but I have not heard much intellectual conversation at dinner—none to hurt—and after-dinner speeches as a rule do not show signs of brain-work. Nor should they. A clever dinner speech must be made at the expense of the digestive apparatus. Englishmen like to eat alone and in silence. The pressure and wear and tear of life here seem to me to be more anxiety than overwork. It is overworry.

Just now I am trying an experiment on the relations of work to diet, to test upon myself my theory that the trouble of overwork is chiefly, if not wholly, in the digestive apparatus. I have long since found that the less I eat, the better I feel, and have lived on very moderate amounts of food, but I have not accurately weighed and measured to see precisely what amount of food is needed. On the 5th of November, when people were celebrating the festival of Guy Fawkes, I began to keep an account of my diet. I eat twice a day, at nine and four. I take no stimu-

lants of any kind. The first week I took bread and its equivalents, milk, eggs, fruit and vegetables, an average of eight ounces a day, dry weight, or nearly—say that of solid food like cheese. Of course I do not reckon the water in the milk, fruits and vegetables. I was not particular about cost, buying as needful at the customary prices, and fruits and some vegetables are dearer this season than usual. The actual cost of my week's diet was sixty-eight cents, or a little less than a dime a day, not including cost of cooking.

On my second week, I am eating only brown bread, milk and fruit. I like this better. I have found some excellent American dried apples, for the English apple crop this year is very poor. The weight is about the same—the cost a fraction more. I find my brain weariness troubling me less and less, and my power of work increasing. I wrote yesterday a long article—a fair day's work before breakfast—and I work twelve to fifteen hours a day with very little sense of fatigue. My stomach has such light work that all life flows freely to the brain, and I can work on, hour after hour. Next week I shall leave out the

milk, and try an entirely vegetable, a perfectly Pythagorian, diet of bread and fruit. With this I shall find the quantity that suits me best, which I expect will be from six to eight ounces a day. I shall also give a little time to an experiment upon cost. "How to Live on Sixpence a Day," which has been translated into German, and I believe also into Hindustanee (for a mild Brahmin wrote to ask my permission), and which was reprinted in America with the title of "How to Live on a Dime and a half a Day." Luxurious people said it was absurd and impossible—and that in a country where agricultural laborers are expected ,to find shelter, clothing, food, etc., for a family, on wages of two dollars a week, and where the entire expense of the paupers in some great workhouses, including salaries of overseers, is less than sixty cents per week. When bantered on the subject, I have always said that I would undertake to live, and live perfectly well, keeping up weight, strength, and power to work on half the money—that is, six cents a day. So I shall put it to the test—an experiment quite as useful, I fancy, as walking a thousand

miles in a thousand hours, or, as Gale is now trying to do, a thousand quarter miles in a thousand consecutive ten minutes.

When I have finished my experiment you will have a full account of it in *my Herald of Health;* meantime I wish you all possible success in your useful and beneficent labors.

Very truly yours,

T. L. Nichols, M.D.

32 Fopstone Road, Earl's Court,
London, S.W., Nov. 15, 1877.

IV.

JOSEPH RODES BUCHANAN, M.D.

Dear Sir: Your letter, asking my personal experience and suggestions in reference to hygiene, especially of the brain and nerves, has just been received, and, approving most heartily your valuable labors for the development of a higher manhood, I take pleasure in responding.

I have some views of hygiene differing materially from those which have been most current in this country, which it would require much more than a letter to express

I know nothing more necessary to be impressed on every one than the importance of adapting the diet to the varying requirements of each constitution, and the varying conditions of the system from day to day. No uniform system of diet can suit various constitutions of opposite organic development, and there are few persons who do not need frequent changes of diet to maintain perfect health. At one time salt is a necessity (especially in hot weather); at another, a matter of indifference. At one time strong coffee may aid greatly in restoring a depressed nervous system, and warding off malarious fevers; at another, it may greatly aggravate nervous disorders, sleeplessness and neuralgia. A volume would be required to illustrate the necessity of varied diet; but, after all, a vigilant observation, by each individual, of the natural cravings of his own constitution, and the effects of each article of diet, is the only reliable guide. It was by this careful self-study that I relieved myself of severe dyspepsia in early manhood, and have brought up a comparatively weak constitution to a

very healthful and enjoyable condition, at the age of sixty-three.

As for the hygiene of the brain, it depends chiefly on that of the body, and is included in the laws of diet, exercise, etc., but it has also its special culture and development.

It may seem odd to those who regard the brain simply as the organ of intellectual power that I regard the affections as the chief subject of consideration in cerebral hygiene; yet nothing is more certain in anthropology (which, as I present it, is a positive experimental science, and not a matter of literary speculation) than that the vitality and circulation of the brain are maintained, not by the intellectual powers, but by the emotions —not only the gentler emotions that seek the good of others, but the more heroic emotions which constitute impulses and volitionary powers.

The first requisite, therefore, to a sound, vigorous brain is a resolute will and ambition to succeed in some honorable career; the second is what has sometimes been called *altruism* (in opposition to egotism)—the love

of friends, the love of society, the love of woman, the love of universal humanity—in short, LOVE in all its possible forms—not omitting the love of the divine and heavenly, which is the essence of religion, and the life and inspiration of the darkest hours that are surrounded by calamity and injustice.

When these loves are all normally developed, and coöperate with a strong will and heightened ambition, the brain has a fund of power that is inexhaustible, and the intellect is ever clear, copious and truthful. There is, therefore, no higher hygienic law for the brain than to love with our whole soul, and work with all our might in the direction that duty indicates. And, as love requires earthly objects and sympathy, we need to seek the society of those whose earnest and loving natures render them worthy of our love, and whose intelligent companionship will strengthen our mental and moral power. He who has a dozen noble friends is well provided for the hygiene of the brain; and it is the duty of those who aim thus to live rightly and make the world better for their having lived in it, to seek each other's society, with-

out reserve or hesitation, and to unite in groups, clubs or societies of any kind, in which by their moral power they may sustain each other, and react upon society for its good—so that social influence may emanate from the wise, the good, and progressive, and not merely from fashion, wealth, and the lower instincts of the multitude.

When I know of such persons I seek them in a fraternal spirit, and when they approach me I welcome them with cordiality; and if all students of nature and books who live not for self alone would follow these suggestions, there would soon be a social atmosphere about them in which there would be nothing morbid—in which the brain and soul might attain a higher development. Are there not everywhere materials enough in both sexes for such society if they were brought together, and is it not the duty of every one who appreciates these suggestions to seek and to organize such society, for innumerable reasons?

Regarding the above as the major portion of cerebral hygiene, I would offer but four minor suggestions.

1. *Vocal Culture.*—The exercise of the voice and mind in conversation and in addresses to our friends or the public is the most efficient exercise for strengthening the entire brain, for want of which many a solitary student loses half the enjoyment of life, and half his mental vigor.

2. *Balanced Culture.*—As man's constitution consists of opposite powers, no great cultivation in any direction can produce satisfactory results, unless it be balanced by culture in the opposite direction to give it a basis. Regular muscular exercise is therefore necessary to the student or man of intellectual pursuits, even to give the brain itself practical energy, and the exercise of the arms and shoulders is especially beneficial.

3. *Nourishment.*—A nourishing diet, abundance of blood, and sufficiency of sleep, or rest in the horizontal posture, are necessary to a sound brain. Abstinence, poor food, indigestion, and loss of rest impair the tone of the brain and favor the development of melancholy, irritability, and insanity. Rich blood nourishes the brain; poor, watery blood absorbs and removes cerebral substance. The

food should be varied to suit the individual constitution, but as a general rule animal food and alcoholic drinks are not favorable to the best condition of the brain, although in very cold weather they are less objectionable than in the warm or temperate. Whenever freely used, they diminish the relative power of the moral and intellectual portions of the brain. Their tendencies coincide so well, it is an inevitable inference that a diminished consumption of animal food would be followed by a diminished appetite for alcoholic liquids, and by an increased development in the masculine constitution of those qualities which render woman more temperate and refined than man.

4. *Secretion.*—The brain is analogous in its vital character to the glandular or secreting organs, and *sympathizes with all of them.* Hence it is indispensable to a sound cerebral condition to maintain every secretion in healthy activity. This is indeed far more important than muscular exercise, and is to some extent *a substitute for it.* The secretions of the skin, lungs, liver, kidneys and bowels are all indespensable, and every inter-

ruption should command immediate attention. Dr. James Johnson said he never felt so well prepared for intellectual effort as just after his liver had been roused by a cholagogue medicine.

Much more might profitably be said, but I would conclude with this suggestion, that he who by the foregoing rules brings up his brain to its best condition will find it so active, so warm, and well supplied with blood, in every part, that he will be conscious of its action, and will be able to discover many of the functions of the different regions by the local sensations in the head—the sense of warmth, heat and tension where the organs are active, the aching or tenderness where they are fatigued, the absence of any sensation where they are inactive, and the pain or tenderness where they have been subjected to painful mental impressions.

Under a proper cerebral hygiene, there should be a consciousness of vital action, a gentle warmth, and slight tension over the head generally, and especially in the superior regions.

Very respectfully,

JOSEPH RODES BUCHANAN.

Oct. 27, 1877.

V.

GERRIT SMITH.

(Written by his Daughter.)

Dear Sir: In compliance with your request, I am happy to give a brief statement of my father's mode of life.

He was a man of large frame, was six feet in height, and weighed, ordinarily, from one hundred and eighty-five to two hundred pounds. His constitution was wonderful—prolonging his life to the age of seventy-eight, in spite of excessive mental labor, sedentary habits, serious local difficulties, requiring repeated surgical operations, and, above all, an attack of dyspepsia, resulting in a temporary insanity of a most trying character.

He generally rose about six o'clock, remained in his dressing-room until half-past seven, breakfasted at eight, eating sparingly of meat, but freely of fruit, cream, and Graham-bread. For the last year or two he took a cup of tea at the close of the meal, but for more than twenty or thirty years of his life took neither tea nor coffee, and for a year or more he ate no meat. At dinner he was

more fond of vegetables and dessert than of meat. He never touched the castors, and often said that he kept his "child's-palate," liking sweets, but disliking condiments. This peculiarity was often pretty severely tried during the long period (from ten to fifteen years) in which he scrupulously abstained from the products of slave labor. For the last year or two, yielding to the urgent wishes of his physician, he took a glass of Rhine-wine at dinner, using the only wine-glass in the house! Tea was a very light repast, consisting, often, simply of a bit of bread and butter, and a cup of weak tea.

He retired early, rarely being up later than ten o'clock. But in cases of emergency he waived this habit. When in Congress he voted on the Nebraska Bill, which came before the House in one of its night sessions. For several years after his father's death, when burdened with the care of an estate of seven hundred thousand acres, he would, occasionally, after working hard all day, remain at his desk until eleven o'clock at night. Every evening, after disposing of the mail, answering letters and reading newspapers (he read

from sixty to seventy papers a week), he came to the parlor and spent an hour or more in delightful conversation on the news of the day, old friends, and scenes—amusing anecdotes coming in now and then with scraps of verse, little bits of pleasantry and loving words for all of us. These charming moments flew by and sometimes overlapped the usual hour for retiring. Latterly, a few gentle gymnastic exercises, suggested by and always pleasantly recalling his friend Judge Conkling, closed the day.

For a long period it was his habit to walk from two to three miles daily, going through a series of arm exercises; but of late years the walk seldom exceeded a mile and a half. He was rarely deterred by deep snows, mud, or heavy storms. For several years he rode daily on horseback, and continued this habit until he was over seventy.

He was stricken with apoplexy Dec. 26, 1877, and, two days later, passed away painlessly and unconsciously.

With kind regards, your friend,

ELIZABETH S. MILLER.

GENEVA, Dec. 7, 1877.

VI.

THOMAS WENTWORTH HIGGINSON.

Dear Sir: For answer to your letter I can say that I have been a busy worker with the brain all my life, and have enjoyed very unusual health. I am now fifty-three, and have not been confined to the house by illness since I was seventeen, except for a short time during the war, when suffering from the results of a wound. This favorable result I attribute to (1) a good constitution and an elastic temperament; (2) simple tastes, disinclining me to stimulants and narcotics, such as tea, coffee, wine, spirits and tobacco; (3) a love of athletic exercises; (4) a lifelong habit of writing by daylight only; (5) the use of homœopathic medicines in the early stages of slight ailments.

I have never been a special devotee of health, I think, but have followed out my natural tastes; and have certainly enjoyed physical life very much. It may be well to add that, though, as I said, my constitution was good and my frame always large, I had yet

an unusual number of children's diseases, and have often been told that my life was several times preserved, in infancy, against all expectation, by the unwearied care and devotion of my mother. This may encourage some anxious parents.

Very truly yours,

THOS. WENTWORTH HIGGINSON.

P. S.—In view of the present solicitude as to the decay of the original New England stock, it may be well to say that I am the descendant of several of the very oldest Puritan families, and that I can find no record or tradition of any ancestor who was physically as large as myself. I trust, however, that I shall not equal in longevity the Reverend John Higginson, one of these ancestors, who died in 1708, aged ninety-two.

NEWPORT, R. I., Nov. 11, 1877.

VII.

NORTON S. TOWNSHEND, M.D.

My Dear Doctor: You ask for a statement of facts in my personal experience that have a bearing on the subject of Mental Hygiene. I shall cheerfully comply with your request, but I fear that the even tenor of my life will enable me to furnish but little that is worthy of your attention. Such experiences as I can recall will group themselves under the following heads: parentage, diet, labor, study, and faith, or philosophy.

First. My parents descended from a vigorous and healthy ancestry; both of them were considerably more than eighty years of age when they died. They were persons of some education, of temperate and industrious habits, and of robust health, almost to the close of life. From what I recollect of them, they must have had the good fortune to be born before nerves came into fashion. The physical and mental health which I have enjoyed is doubtless due to a good constitution inherited, rather than to any special care of my own.

Second. For more than sixty years I have been favored with almost unbroken health. I have had no experience of headache, toothache, or of many other aches that are sometimes supposed to be the unavoidable inheritance of humanity. I have always had a good appetite for plain food, and have always been able to make a comfortable meal of anything set before me, without stopping for a moment to consider how my stomach would stand affected, and, except for an occasional sensation of hunger, I have had but little consciousness of having a stomach. For some time, while a student, I used, as an experiment, a spare and mostly vegetable diet, and felt sure that the consequence was an increase of mental force. My abstemiousness was, however, carried too far, and eventually I found my muscular strength diminished; I became nervous and less able to study successfully: I was forced to the conclusion that the best physical condition is likely to be accompanied by the most desirable mental state. I have never used intoxicating liquors, or tobacco, or medicine enough to be sensible that my men-

tal condition was to any appreciable degree affected.

Third. In regard to employment and habits of labor, I have seen some variety. I have been by turns farmer, physician, and politician, then farmer again, soldier, and college professor. I have sometimes labored like a ditcher, at other times have been as careful to avoid hard work as a congressman. The result of my experience is that a regular amount of muscular labor in the open air is conducive both to physical and mental health; then the liver, the kidneys, and the skin, perform their functions in the best manner, the blood contains less effete matter, the brain is best fed, and the mind is most active. A sedentary life, however, never occasioned me any inconvenience, when I could regulate my food properly, by making it more simple and less abundant.

Fourth. My experience compels me to hold as an axiom, that mental labor is essential to mental health. Professional men are compelled to study by their avocations, and if in any way released from this necessity, after habits of mental labor have become established,

they will study from choice, and, consequently, in such cases, the mind long retains its vigor. There is an impression abroad that physical labor is hostile to thought; that the working-man, and the farmer especially, must of necessity be unfitted for mental work. Doubtless it is true that, when physical labor is daily carried to the extent of extreme fatigue, so soon as the labors of the day are over, and the cravings of hunger are satisfied, the body will assert its need of rest: sleep will take possession of the weary frame, mental labor is impossible, and this course continued the faculties will become atrophied from non-use. But with the farmer this state of things is neither necessary, nor profitable; he will always find it for his interest, not only intellectually, but pecuniarily, to take some time for writing or reading before the work for the day begins. This time may be longer or shorter according to the season of the year, but should always be enough to make a record of the events of the preceding day, or to look up themes for that day's cogitations. Any farm, in addition to its business management, will afford abundant scope for study, before its natural history

will be fully understood. A farmer may ask himself whether the soil he tills has been transported, or is chiefly formed from the rocks of the locality, and where the underlying rocks themselves belong in the geologic series, and what is their history. Before the geology and mineralogy of any farm is thoroughly understood, much of the earth's make-up will be mastered. The farmer may wish to know the plants that he finds about his home; this will require the persevering study of botany, a delightful branch of science, and very profitable for mental health and discipline; or he may wish to know the animals about him, both wild and tame; the birds, of which some are his best friends and some are not; the insects that flit or creep about are legion, but may all be known by persevering study. The time required for the systematic study of any branch of natural history need not be great; the real student will add a specimen to his cabinet of minerals, to his herbarium, or to his collection of insects, in the same time that it takes his self-indulgent neighbor to light his pipe. One would think a farmer could hardly fail to observe and note all the

meteorologic changes in the region where he lives, of such vital interest to him is everything that pertains to climate. Then, in addition to these enticing fields for investigation, the farmer is invited to mental effort by the duties he owes to his family, to the state, and to humanity. To properly instruct his children, to vote intelligently, and to understand the many questions that affect society, he must study, as well as work; and in doing this he will be likely to secure for himself the greatest of earthly blessings—a sound mind in a sound body. Do you say that such a life is impossible for a farmer? Pardon me, I know that it is not; what is needed to make such a farmer's life the rule, instead of the exception, is to put our young men upon the right track, and to teach them how to make a fair beginning.

Fifth. Finally, for the preservation of mental health, one needs some faith, or philosophy. The annoyances, disappointments, pains, and sorrows of life are innumerable; even when not invited by our own misconduct they daily and hourly beset us. Amid all these, some faith, upon which the mind can rest ab-

solutely, is essential; though perhaps it matters less what the faith or philosophy may be than that it be held unfalteringly. Probably no faith, true or false, will greatly mitigate the intensity of our afflictions; but any faith, if firmly held, may serve as an anchor in a storm, and save the mind from drifting to total ruin.

Truly yours,

N. S. Townshend.

Columbus, Nov. 5, 1877.

VIII.

EDWARD BALTZER.

I have much pleasure in introducing to American readers one of the leading advocates of health reform in Germany, the Rev. Edward Baltzer, President of the German National Vegetarian Society, editor of the monthly journal of the society, and minister of a free religious association. From his retired home at Nordhausen, in the Harz mountains, he has for many years exerted a wide influence through his journal, and his published writings (some thirty volumes and pamphlets). He is now advanced in years,

but continues his work with seemingly unabated vigor. An invitation to contribute some items of his personal experience to this volume has elicited the following reply.

M. L. H.

[Translation.]

Thanking you for sending me a copy of your book, the translation of Schlickeysen's "Fruit and Bread," which I shall not fail to notice in the *Vereins Blatt* (the journal of the Vegetarian Society), I willingly comply with your request to give you my experience with reference to the influence of vegetarianism upon the brain, nervous system, etc.

In the year 1848, while a member of the Prussian Assembly from my electoral district, I became involved in an insurrection and was dangerously wounded in the left side of my skull and body. For a month ice was kept upon my head, and I recovered, but with the loss of hearing in the left ear, in which, however, I experienced a constant roaring, and suffered also until recently from cold feet, difficulty of digestion, and headache, so that I was able to work and to attend to

the duties of my calling only with difficulty and with frequent interruptions.

All the efforts of physicians, the water cure and the most careful and moderate diet were of no avail.

Sea bathing (in the Baltic), however, somewhat improved my general health, but the above-mentioned difficulties continued and I suffered on through eighteen weary years. In 1866 I adopted a vegetarian diet, and in a very short time experienced a great improvement. My digestion became good, my feet were no longer cold (I wear no stockings), and the chronic headache disappeared. For the first time in many years I experienced the delightful consciousness of health, with a correspondingly increased desire for work.

I fell, since then, into the error of overworking, and suffered in consequence a certain nervous excitability which was aggravated by the continued affection of the left ear, in which all acute sounds caused pain, so that I was obliged to forego the pleasures of social intercourse and of music, which I had previously much enjoyed. In 1876 I had a

serious illness, from which I fully recovered, and am now also entirely free from the difficulty in my head.

I have thus had a rich experience in the care of health, and have learned the injurious effects of tobacco, spirituous liquors and a carnivorous diet, and especially how they impair the nervous system and thereby the mind.

The well-organized mind is indeed its own master, but the power of self-control is strengthened by a life in accordance with natural law. Vegetarianism, rightly understood, is the true method, alike for the sound and the unsound, but as yet its teachings are heard only as the voice of the preacher in the wilderness, yet blessed are the few who hear and practice it—that is, those who practice it in love and with the understanding.

I take the liberty of sending you the current numbers of the *Vereins Blatt*, and will continue to send the future issues, and remain

Your obedient servant,

EDWARD BALTZER,

(Minister of the Free Religious Association.)

NORDHAUSEN, NOV. 9, 1877.

IX.

WM. LLOYD GARRISON.

Dear Sir: Accept my thanks for your kindness in sending me several numbers of the *Herald of Health*, together with the two little tracts, entitled "The Health Habits of Young Men," and also one of aged men, in the persons of William Cullen Bryant and William Howitt; all of which I have read with great interest.

My case presents nothing worth recording. My habits have always been simple and regular, especially in regard to diet. Though not ranking myself among vegetarians, I care very little for animal food, and can dispense with it at any time without an effort. I have been a teetotaller for more than half a century, and have always abominated the use of tobacco in every form. I have not been addicted to taking regular exercise, have had no gymnastic experience, and undoubtedly have been too sedentary in this respect, especially as the pressure upon my brain was so constant and severe during more than thirty years' conflict with the whole

nation for the overthrow of the chattel slavery. I have generally used tea and coffee, not strong in quality, nor copious in quantity, but feel no "aching void" where they are not to be had, always being abundantly satisfied with a glass of pure cold water. I have ever deemed it a most fortunate thing that I attached myself to the temperance cause, almost at its inception.

Respectfully yours,

WM. LLOYD GARRISON.

ROXBURY, Jan. 30, 1878.

X.

A. BRONSON ALCOTT.

Dear Sir: Half a century, mostly confined to fruit and bread diet, along with the dispositions and habits which the Christian regimen promotes, has confirmed the truth and beauty of the doctrines set forth so ably in your translation of Schlickeysen's treatise entitled "Fruit and Bread: a Scientific Diet." It is a timely volume for the perusal of the general public, and especially for parents and reformers of all classes. Books

like this, treating of the full table of human innerments, are particularly needed for instructing our people in the best regimen for ensuring wholesome and vigorous habits of living and thinking. The whole community suffers beyond measure for the want of a finer scientific discrimination of the laws of vital as of spiritual chemistry, enabling us to tap the core of social and moral evils effectually.

Your promised papers on the hygiene for farmers and mechanics will, I hope, reach the far wider and not less hungering community.

You "wish to know how I have trained my *brain* to such FINE thinking as my books display?" I may best refer you to your translation of "Fruit and Bread" for the fullest reply to your question.

Yet I may properly add, however, that a temperament inherited from a hardy and active ancestry doubtless favored the formation of habits that have thus far given a charm to my days, and promise, if I am faithful to the end, a lengthened longevity

—to round out a full century of busy existence were not unworthy of one's human destiny.

As to my accepted bill of fare, I may add, moreover, that fruits rank first and highest in the pyramid; bread properly next; and vegetables lowest, and last, at its base. The distilled juices are forbidden. Flesh, if entering but slightly, is to the fairest temperaments especially unfriendly, if not demoralizing: The less of it the better; the more genially the body answers to the mind; the more ideal, spiritual, nor the less practical. Sobriety in all pleasures is the open way to the highest and purest satisfactions; the deepest, holiest, this life can give; as it is likewise the sole gateway to future beatitude.

You have my thanks for the gift of the book of "Fruit and Bread."

Very truly yours,

A. Bronson Alcott.

Concord, Oct. 18, 1877.

XI.

S. O. GLEASON, M.D.

A PLEA FOR HUNTING.

Dear Sir: When about fifty years of age, I found myself worn out, so that I could walk but a short distance, or do but little mental work. This condition had been brought about by *excess* of both physical and mental labor. The muscular and nervous systems were both enfeebled, but there was no actual disease in either. Travel was tried with some benefit, but I did not get the best results of my time till I took to the fields and forests—*gun in hand.* I never hunted, and never owned a gun until I was past fifty. The experience, of course, was new and fresh. Such had been my intense activity that the factor of hunting just met my want.

I studied the habits of birds and learned something of taxidermy—used all the skill I could master in my efforts to secure a shot, which often requires a great exercise of strategy; as every animal and every bird will escape if possible. I have hunted the birds of the west of California, of Florida, the wild

turkey of the cypress swamps, the deer in the pine woods, the partridge of our forests, the nimble squirrel, and the woodchuck or meadow and upland.

The eye is constantly under training, the ear also; every footprint of nature, every motion and sound must be caught and analyzed. If a nut falls, if leaves rustle, or any unusual sound is heard, an immediate investigation must be had, and a quick decision made as to the cause. The gun must be kept in hand so as to be used with great celerity and precision; as a few seconds may give or lose you a shot.

Thus led by eye and ear, the muscles of the entire body are called into the most delightful activity, with the least possible effort of the will, nearly resembling the spontaneous movements of childhood. The muscles seem to obey the active senses with real delight, and with much less sense of fatigue than in any other mode of exercise. Then the very stillness of the forests and the purity of the air are refreshing. One leaves humanity and cities entirely out of mind, and drinks in life even in the sublime solitude of the grand old

forests. The muscular system gains in strength, blood is sent to the extremities and to the surface, the skin becomes active, the brain is released of its excess of circulation, the nervous system is rested, the entire man refreshed and renewed.

For the past ten years, *hunting* has been my chief source of recreation. The interest still is keen, the results are always delightful and refreshing. Many a magnificent old tree has become my friend, many a stream and glen my delight, and a multitude of exquisite pictures of natural scenery are treasured in my memory. Every season I spend weeks (with my gun in hand) in forest and field. I keep all my senses keen, and my mind active; my nervous system is more quiet and restful; I sleep better, and digest more, by reason of this mode of recreation.

I intend to hunt as long as my eye can see, or my ear can hear, or my limbs transport me to forest and field. While cities exhaust, nature is full of rest and repose.

S. O. Gleason, M.D.

Elmira Water Cure,
Nov. 20, 1877.

XII.

WILLIAM E. DODGE.

Dear Sir: You ask me to give you my views as to the best method of promoting health and perpetuating life.

You know my views as to temperance and I can only say that *fifty years'* experience and observation confirm the opinion that total abstinence from the use of alcoholic drinks is best for the promotion of permanent health.

Regular systematic employment, aided by out-door exercise, is a great preserver of health.

A cheerful disposition, which trusts in God's kind providence, and discharges daily duty, leaving results in his hands, is another preventive influence.

A regular hour for meals as far as possible, and an early retirement for rest, and rising generally with the sun, are also to be recommended.

Every man, by careful watching, learns what kinds of food do not agree with him, and are not easily digested; and, if he desires good health, must avoid them.

Never allow a day to pass without a

regular discharge from the bowels, and have some regular hour for this duty and the system will respond to it. No one can have permanent good health who neglects this.

Watch against colds by keeping out of drafts, and never allow a cold or cough to continue without prompt attention.

Be careful to keep the feet dry and warm and the head cool.

Above all, have the great work for eternity done and settled by *repentance*, faith, and trust in *Jesus Christ*, so that the mind may be at rest and not constantly anxious about death and its consequences.

The following, which I cut from a paper, has been repeated hundreds of times, and has been of great comfort to me, and is a good receipt for long life and health.

"Make a firm-built fence of *trust*,
All around to-day,
Fill it in with useful work,
And within it stay.
Look not through the shelt'ring bars,
Anxious for the *morrow*,
God will help, whatever comes,
Be it *joy* or *sorrow*."

Respectfully yours,

W. E. Dodge.

New York, Oct. 21, 1877.

XIII.

HENRY HYDE LEE.

Dear Sir: You ask me to make a few suggestions, giving my views of the proper hygiene for the brain and nerves, from the standpoint of a business man.

Let me premise that business men, especially merchants, are subject to many trials which more or less affect the nervous system. There is the constant strain to keep watch of the many causes which determine the fluctuations in value of goods, and to be instantly ready for any future possibilities of advantage or disaster. We are often tempted to deal in grain or stocks in a way that is little better than gambling. Some of us, in our excitement, go on without rule or system, until nothing but confusion results. Sometimes this excitement becomes a stepping-stone to a dash into politics, which is pretty nearly fatal to the merchant's proper work. Worse than all these things is the habit which some have of carrying their business with them to their homes, and even to their beds, on which they lie awake in the

attempt to solve some knotty problem; others, when overworked, take stimulants, instead of taking rest—the thing which nature dictates. All these things imperil the nervous system, and in the end cause physiological bankruptcy.

As to suggestions, I may say I have learned that regular sleep, or a good measure of it, is most important for a healthy, active brain. If from any unusual strain or complication of business, you cannot sleep, do not resort to drugs, but remain quiet at home; you can take a drive in the country, but keep away from excitements.

Next to sleep, eat well and regularly; but let your diet be plain and wholesome, and such as suits the appetite. Do not eat between meals, or late at night. I have learned that a large drink of water, taken just before going to bed, helps one to sleep, opens the pores, and throws off a slight cold. It also promotes health. It is important that a business man have simple tastes and good habits; therefore, avoid alcoholic drinks—coffee and tea are quite stimulating enough.

If you are able, have a good pair of

horses, and drive them yourself. It affords a healthy and pleasant excitement, especially if they have mettle, and are high steppers.

Keep a good gun and fishing tackle, and use them occasionally. Good manly recreation helps one to think clearly. The constant labor in the counting-house is very wearying, and sensible recreations make it more easily borne.

Avoid worry, excitement, and bores, and, in short, eat well, sleep well, and pay as you go.

Very truly,

HENRY HYDE LEE.

INDIANAPOLIS, IND., Dec., 1877.

XIV.

DIO LEWIS, M.D.

To DIO LEWIS HOLBROOK—*My Dear Namesake:* I trust you will never learn to use tobacco. It is doing more to destroy the brains and nerves of American boys than any other agency that can be named.

Within half a century no young man addicted to the use of tobacco has graduated

at the head of his class in Harvard College, though five out of six of the students have used it. The chances, you see, were five in six that a smoker or chewer would graduate at the head of his class, if tobacco does no harm. But during half a century not one victim of tobacco was able to come out ahead.

If a man wishes to train for a boat-race, his trainer will not let him use tobacco, because it weakens his brain and muscles so that he can't win.

If a young man wishes to train for a long walk—say a hundred miles in twenty-four hours—his trainer will not let him touch a cigar, because he knows that the young chap will not be able to hold out in such a long walk.

If a young fellow would prepare to play a fine game of billiards, while he is training for the tournament his trainer will not let him touch tobacco.

And, as you see from the experience in Harvard College, if a man will train himself to graduate from a college with honor, he must not use tobacco.

It is a powerful poison, and the brain cannot escape if it be used in any form.

My dear namesake, I can hardly imagine any other news from you which would hurt my feelings so much as to hear that you had begun to smoke cirgarettes.

With most affectionate solicitude for your welfare, I am your namesake,

DIO LEWIS.

OAKLAND, CAL., Dec. 6, 1877.

XV.

FREDERIC BEECHER PERKINS.

My Dear Doctor: Whatever I can say in response to your request may as well be in the form of a letter to you, I suppose, as in any other? At any rate, I will put it so; and you are hereby authorized to *doctor* it into any shape that will suit you better, and to throw it away if you prefer that.

First of all, so far as my experience and observation go, I should say that the one most general rule for mental hygiene is, *Keep the body healthy.* Nothing is more ab-

solutely proved, I imagine (so far as anything can be proved in physiology), than that insanity is the effect of a disorder in the mechanism through which the mind acts, not a disorder in the mind itself. And this statement I take to be valid, whether the mind is admitted to exist separately from the body or not. Accordingly, it follows that the more perfect all the physical conditions, the better will be the mental products delivered through them.

Second. Next under this one general rule may perhaps come a limitation of it. *For the best mental results, the brain activity must have the other activities subordinated to it.* No student, for instance, at a manual labor school, who does full days' works at carpentering or farming, can also do full days' works at learning. And, conversely, if he does full days' works in the study, he can't also do them in manual work. A man can do one work, and other things enough for exercise and amusement. But no one man can do two works. Christ stated the principle over eighteen hundred years ago (Matt. vi, 24), and, like his whole moral code, it is true now,

as it was then. A man may abuse himself for a time, and seem to be doing two works, but he will soon come to the end of this sort of living on his capital.

Third. Where brain activity is the leading object, the rule for the rest of life is, *moderate, agreeable exercise, but not fatigue.* Eat lightly, rather than fully; *exercise* in the open air—don't *work* in the open air. *Play* at games or music—don't *work* at them. Be contented to do your best at some one thing. Few enough are they who can do any great things in one line, even; and we know what Mr. Jack-at-all-trades was master of.

Fourth. At whatever part of the day the greatest mental effort is to be made, the rest of the body should at that time be fresh, and free from need of exertion. It would be absurd—physically absurd, I mean, not merely ridiculous—for a man to attempt to deliver an impassioned speech and dance a hornpipe at the same time. It would be just as absurd, although it would not look as funny, for a man to undertake at the same time to digest a full meal and to think out an important subject. In like manner, it

would be absurd for a man who has an important speech to make in the evening to exhaust himself by doing a full day's work at morning.

Fifth. The best part of the day for brain work is usually the latter half of the forenoon. The strength gained by the night's rest is not expended; the vitality is no longer called upon to enable the stomach to deal with breakfast, and the strength of that meal is also distributed into the system; and the day's life is all on hand to be lived. It may be added that a good forenoon's brain work is as much as any *writer* ought to do, if he has to think out his writing.

Sixth. This supposed breakfast should be light, rather than heavy. If a full meal is to be enjoyed, it should be when there is time enough left for digestion before going to bed, and when the day's work is over, so that the brain need not be put to service during digestion.

Lastly. Few people can live exactly by their rules, and most people who are able and willing to work have to work too hard. For most people, then, my code must come

down to a pretty generalized statement: To use your brain to the best advantage, use it most before dinner and before supper: eat lightly rather than heavily; keep good-natured and keep well.

FREDERIC BEECHER PERKINS.

BOSTON PUBLIC LIBRARY, Nov. 1, 1877.

XV.

JUDGE SAMUEL A. FOOT, LL.D.

Dear Sir: Your letter of the 20th inst. has been received and read with interest. Your proposed publication appears to me highly meritorious, and I am willing to aid you as far as I am able. You will see by an address I lately delivered in my native town in Connecticut, and which I send you by mail to-day, my age and present state of preservation. [We see by this address that Judge Foot is 88 years of age, and in good health.]

There are a few facts in regard to my habits of life which may be useful to you.

When in my sophomore year at college, I read Dr. Franklin's experiments in regard

to sleep, and his conclusion that six hours was all which a person of studious and sedentary course of life required; and as I expected practice of law would be my pursuit, I determined to adopt six hours as my portion of time for sleep each twenty-four hours. I took measures to fix that habit upon me, and succeeded, and it has continued through life.

While at college, like most foolish youth, I learned to use tobacco, and used it freely until I was twenty-five years of age. I then became satisfied that it was injuring me, and, after a severe struggle with the desire for it, was able to give it up, and have never used it since, and have a horror of it.

In the early part of my professional life, I incurred the habit of setting up late, sometimes till one or two o'clock in the morning. Finding this was not judicious, I changed to the opposite extreme, and rose at four o'clock in the morning. As this injured my eyes, I abandoned it, and determined to rise and retire at reasonable hours, and from that time—which was when I was about thirty years of age—I have risen at half-past five from the

middle of April to the middle of September, and at six the rest of the year, and laid away my papers and books at ten o'clock, and retired to rest from half-past ten to eleven. My diet has been general, neither food nor drink confined to any particular article, except about the time I abandoned the use of tobacco I also gave up the use of all intoxicating liquors. In a word, my rule of life has been the golden one of being "temperate in all things," in labor, rest, exercise, drink and diet.

Very truly yours,

SAMUEL A. FOOT.

GENEVA, Dec. 27, 1877.

XVII.

MARK HOPKINS.

Dear Sir: I do not regard the life of a student as unfavorable to health. As a student the one danger is that he will overtax the brain. The danger that men will do this is increased if they are not only students but public speakers. There then come times of pressure when the temptation to excessive work is great.

As I have usually spoken from slight notes, time for writing has not been indispensable, and my habit has been to study till my head began to feel heavy, and then stop. Under the greatest pressure, I have rarely studied after ten o'clock, and have never resorted to narcotic or alcoholic stimulants to enable me to work longer. Of course, the general health must be cared for; but for the health of the brain I should prescribe but two things: first, negatively, abstinence from artificial stimulants; and, second, plenty of sleep.

Truly yours,

MARK HOPKINS.

WILLIAMS COLLEGE,
Feb. 7, 1878.

XVIII.

WILLIAM CULLEN BRYANT.

To JOSEPH H. RICHARDS, ESQ.—*Dear Sir:* I promised, some time since, to give you some account of my habits of life, so far, at least, as regards diet, exercise, and occupation. I am not sure that it will be of any use to you, although the system which I have for many years observed seems to answer my purpose

very well. I have reached a pretty advanced period of life, without the usual infirmities of old age, and with my strength, activity, and bodily faculties generally in pretty good preservation. How far this may be the effect of my way of life, adopted long ago, and steadily adhered to, is perhaps uncertain.

I rise early, at this time of tne year about 5½; in summer, half an hour, or even an hour, earlier. Immediately, with very little encumbrance of clothing, I begin a series of exercises, for the most part designed to expand the chest, and at the same time call into action all the muscles and articulations of the body. These are performed with dumb-bells, the very lightest, covered with flannel; with a pole, a horizontal bar, and a light chair swung around my head. After a full hour, and sometimes more, passed in this manner, I bathe from head to foot. When at my place in the country, I sometimes shorten my exercises in the chamber, and, going out, occupy myselr for half an hour or more in some work which requires brisk exercise. After my bath, if breakfast be not ready, I sit down to my studies until I am called.

My breakfast is a simple one—hominy and milk, or, in place of hominy, brown bread, or oat-meal, or wheaten grits, and, in the season, baked sweet apples. Buckwheat cakes I do not decline, nor any other article of vegetable food, but animal food I never take at breakfast. Tea and coffee I never touch at any time. Sometimes I take a cup of chocolate, which has no narcotic effect, and agrees with me very well. At breakfast I often take fruit, either in its natural state or freshly stewed.

After breakfast I occupy myself for awhile with my studies, and then, when in town, I walk down to the office of *The Evening Post*, nearly three miles distant, and, after about three hours, return, always walking, whatever be the weather or the state of the streets. In the country I am engaged in my literary tasks till a feeling of weariness drives me out into the open air, and I go upon my farm or into the garden and prune the trees, or perform some other work about them which they need, and then go back to my books. I do not often drive out, preferring to walk.

In the country I dine early, and it is only

at that meal that I take either meat or fish, and of these but a moderate quantity, making my dinner mostly of vegetables. At the meal which is called "tea," I take only a little bread and butter, with fruit, if it be on the table. In town, where I dine later, I make but two meals a day. Fruit makes a considerable part of my diet, and I eat it at almost any part of the day without inconvenience. My drink is water, yet I sometimes, though rarely, take a glass of wine. I am a natural Temperance man, finding myself rather confused than exhilarated by wine. I never meddle with tobacco, except to quarrel with its use.

That I may rise early, I, of course, go to bed early: in town, as early as ten; in the country, somewhat earlier. For many years I have avoided in the evening every kind of literary occupation which tasks the faculties, such as composition, even to the writing ot letters, for the reason that it excites the nervous system and prevents sound sleep.

My brother told me, not long since, that he had seen in a Chicago newspaper, and several other Western journals, a paragraph in which it is said that I am in the habit of

taking quinine as a stimulant; that I have depended upon the excitement it produces in writing my verses, and that in consequence of using it in that way I had become as deaf as a post. As to my deafness, you know that to be false, and the rest of the story is equally so. I abominate all drugs and narcotics, and have always carefully avoided everything which spurs nature to exertions which it would not otherwise make. Even with my food I do not take the usual condiments, such as pepper, and the like.

I am, sir, truly yours,

W. C. Bryant.

New York, March 30, 1871.

Dear Sir: You are welcome to make what use you think proper of my letter to Mr. Richards. I continue to pursue the same course of life as when that letter was written—only I have added to my daily exercise whenever circumstances will permit half an hour of brisk motion of the arms, in various directions, without any implement, but in such a manner as to open the chest, and favor

an erect attitude. This is perhaps a trifle, but I have thought it worth mention.

Yours respectfully,

W. C. Bryant.

Dr. M. L. Holbrook.

Roslyn, Long Island, N. Y.,
November 3, 1877.

XIX.

WILLIAM HOWITT.

Dr. M. L. Holbrook—*My Dear Sir:* I am in receipt of your letter of April 27, which my elder daughter, Mrs. Alfred Watts, the author of the "Art Student in Munich," has forwarded me from London. I have read with very great pleasure the letter of Mr. Bryant, the poet, as given in your journal, and I congratulate you on obtaining the conclusive evidence of so distinguished a man; and, also, in having established such a journal as *The Herald of Health*, for no subject in this fast-living and fast-thinking age is of more importance than that of laying the foundations of a sound constitution in youth, and of preserving that constitution through life by attention to the laws and dictates of Nature.

This is an indispensable care, if we mean to pass our time here in comfort and in the full vigor of our intellects, and, I may add, of healthy moral sentiments.

I shall, therefore, jot down with much satisfaction such circumstances and habits of my life as I believe to have mainly contributed to these results. And, in the first place, let me observe that while the modes of my own life and those of Mr. Bryant very much accord, in a few particulars they differ, as, I suppose, must be the case in almost any two individuals. Mr. Bryant never takes coffee or tea. I regularly take both, find the greatest refreshment in both, and never experienced any deleterious effects from either, except in one instance, when, by mistake, I took a cup of tea strong enough for ten men. On the contrary, tea is to me a wonderful refresher and reviver. After long-continued exertion, as in the great pedestrian journeys that I formerly made, tea would always, in a manner almost miraculous, banish all my fatigue, and diffuse through my whole frame comfort and exhilaration, without any subsequent evil effect.

I am quite well aware that this is not the

experience of many others, my wife among the number, on whose nervous system tea acts mischievously, producing inordinate wakefulness, and, its continued use, indigestion. But this is one of the things that people should learn, and act upon, namely, to take such things as suit them, and avoid such as do not. It is said that Mithridates could live and flourish on poisons, and, if it be true that tea or coffee is a poison, so do most of us. William Hutton, the shrewd and humorous author of the histories of Birmingham and Derby, and also a life of himself, scarcely inferior to that of Franklin in lessons of life-wisdom, said that he had been told that coffee was a slow poison, and, he added, that he had found it very slow, for he had drunk it more than sixty years without any ill effect. My experience of it has been the same.

Mr. Bryant also has recourse to the use of dumb-bells, and other gymnastic appliances. For my part, I find no artificial practices necessary for the maintenance of health and a vigorous circulation of the blood. My only gymnastics have been those of Nature—walking, riding, working in the field and garden, bath-

ing, swimming, etc. In some of those practices, or in the amount of their use, Nature, in my later years, has dictated an abatement. In Mr. Bryant's abhorrence of tobacco I fully sympathize. That is a poisoner, a stupefier, a traitor to the nervous system, and, consequently, to energy and the spirit of enterprise; so I renounced it once and forever before I reached my twentieth year.

The main causes of the vigor of my constitution and the retention of sound health, comfort, and activity, to within three years of eighty, I shall point out as I proceed. First and foremost, it was my good fortune to derive my existence from parents descended on both sides from a vigorous stock, and of great longevity. I remember my great-grandmother, an old lady of nearly ninety; my grandmother, of nearly as great an age. My mother lived to eighty-five, and my father to the same age. They were both of them temperate in their habits, living a fresh and healthy country life, and in enjoyment of that tranquillity of mind which is conferred by a spirit of genuine piety, and which confers, in return, health and strength.

The great destroyers of life are not labor and exertion, either physical or intellectual, but care, misery, crime, and dissipation. My wife derived from her parentage similar advantages, and all the habits of our lives, both before and since our marriage, have been of a similar character. By-the-by, though this has nothing to do with health, I may remark that your correspondent says my wife dresses like a Friend. It is a mistake. She dresses as any other lady of her years who is simple and unostentatious in her tastes.

My boyhood and youth were, for the most part, spent in the country; and all country objects, sports, and labors, horse-racing and hunting excepted, have had a never-failing charm for me. As a boy, I ranged the country far and wide in curious quest and study of all the wild creatures of the woods and fields, in great delight in birds and their nests, climbing the loftiest trees, rocks and buildings in pursuit of them. In fact, the life described in the "Boy's Country Book" was my own life. No hours were too early for me, and in the bright, sunny fields in the early mornings, amid dews and odor of flowers,

I breathed that pure air which gave a life-long tone to my lungs that I still reap the benefit of. All those daily habits of climbing, running, and working developed my frame to perfection, and gave a vigor to nerve and muscle that have stood well the wear and tear of existence. My brain was not dwarfed by excessive study in early boyhood, as is too much the case with children of to-day. Nature says, as plainly as she can speak, that the infancy of all creatures is sacred to play, to physical action, and the joyousness of mind that give life to every organ of the system. Lambs, kittens, kids, foals, even young pigs and donkeys, all teach the great lesson of Nature, that to have a body healthy and strong, the prompt and efficient vehicle of the mind, we must not infringe on her ordinations by our study and cramping sedentariness in life's tender years. We must not throw away or misappropriate her forces destined to the corporeal architecture of man, by tasks that belong properly to an after-time. There is no mistake so fatal to the proper development of man and woman as to pile on the immature brain, and on the yet unfinished fabric of the

human body, a weight of premature, and, therefore, unnatural study. In most of those cases where Nature has intended to produce a first-class intellect, she has guarded her embryo genius by a stubborn slowness of development. Moderate study and plenty of play and exercise in early youth are the true requisites for a noble growth of intellectual powers in man, and for its continuance to old age.

My youth, as my boyhood, was spent in the country, and in the active exercise of its sports and labors. I was fond of shooting, fishing, riding, and walking, often making long expeditions on foot for botanical or other purposes. Bathing and swimming I continued each year till the frost was in the ground and the ice fringed the banks of the river. As my father farmed his own land, I delighted in all the occupations of the field, mowing and reaping with the men through the harvest, looking after sheep and lambs, and finding never-ceasing pleasure in the cultivation of the garden.

When our literary engagements drew us to London, we carefully avoided living in the

great Babel, but took up our residence in one of its healthy suburbs, and, on the introduction of railways, removed to what was actual country. A very little time showed us the exhausting and unwholesome nature of city life. Late hours, heavy dinners, the indulgence of what are called jovial hours, and crowded parties, would soon have sent us whither they have sent so many of our literary contemporaries, long, long ago. After an evening spent in one of the crowded parties of London, I have always found myself literally poisoned. My whole nervous system has been distressed and vitiated. I have been miserable and incapable the next day of intellectual labor. Nor is there any mystery about this matter. To pass some four or five hours in a town, itself badly ventilated, amid a throng of people, just come from dinner, loaded with a medley of viands, and reeking with the fumes of hot wines—no few of them, probably, of very moral habits—was simply undergoing a process of asphyxia. The air was speedily decomposed by so many lungs. Its ozone and oxygen were rapidly absorbed, and in return the atmosphere was loaded

with carbonic acid, carbon, nitrogen, and other effluvia, from the lungs and pores of the dense and heated company; this mischievous matter being much increased from the products of the combustion of numerous lamps, candles, and gas-jets.

The same effect was uniformly produced on me by evenings passed in theaters, or crowded concert or lecture-rooms. These facts are now well understood by those who have studied the causes of health and disease in modern society; and I am assured by medical men that no source of consumption is so great as that occasioned by the breathing of these lethal atmospheres of fashionable parties, fashionable theaters, and concert and lecture halls; and then returning home at midnight by an abrupt plunge from their heat into damp and cold. People have said to me, "Oh, it is merely the effect of the unusual late hour that you have felt!" But, though late hours, either in writing or society, have not been my habit, when circumstances of literary pressure have compelled me occasionally to work late, I have never felt any such effects. I could rise the next day a little later, per-

fectly refreshed and full of spirit for my work.

Another cause to which I attribute my extraordinary degree of health has been, not merely continued country exercise in walking and gardening, but, now and then, making a clean breach and change of my location and mode of life. Travel is one of the great invigorators of the system, both physically and intellectually. When I have found a morbid condition stealing over me, I have at once started off on a pedestrian or other journey. The change of place, scene, atmosphere, of all the objects occupying the daily attention, has at once put to flight the enemy. It has vanished as by a spell. There is nothing like a throwing off the harness and giving mind and body a holiday—a treat to all sorts of new objects. Once, a wretched, nervous feeling grew upon me; I flung it off by mounting a stage-coach, and then taking a walk from the Land's End, in Cornwall, to the north of Devon. It was gone forever! Another time, the "jolly" late dinners and blithely-circulating decanter, with literary men that I found it almost impossible to avoid altogether without

cutting my valuable connections, gave me a dreadful dyspepsia. I became livingly sensible of the agonies of Prometheus with the daily vultures gnawing at his vitals. At once I started with all my family for a year's sojourn in Germany, which, in fact, proved three years. But the fiend had left me the very first day. The moment I quitted the British shore, the tormentor quitted me. I suppose he preferred staying behind, where he was aware of so many promising subjects of his diabolical art. New diet, new and early hours, and all the novelties of foreign life, made his approach to me impossible. I have known him no more, during these now thirty years.

Eighteen years ago I made the circumnavigation of the globe, going out to Australia by the Cape of Good Hope, and returning by Cape Horn. This, including two years of wandering in the woods and wilds of Australia, evidently gave a new accession of vital stamina to my frame. It is said that the climate of Australia makes young men old, and old men young. I do not believe the first part of the proverb, but I am quite certain that there is a great deal in the sec-

ond part of it. During those two years I chiefly lived in a tent, and led a quiet, free, and pleasant life in the open forests and wild country, continually shifting our scene as we took the fancy, now encamping in some valley among the mountains, now by some pleasant lake or river. In fact, picnicing from day to day, and month to month, watching, I and my two sons, with every new interest, all the varied life of beasts, birds, and insects, and the equally varied world of trees, shrubs, and flowers. My mind was lying fallow, as it regarded my usual literary pursuits, but actually engaged with a thousand things of novel interest, both among men in the Gold Diggings, and among other creatures and phenomena around me. In this climate I and my little party enjoyed, on the whole, excellent health, though we often walked or worked for days and weeks under a sun frequently, at noon, reaching from one hundred to one hundred and fifty degrees of Fahrenheit; waded through rivers breast high, because there were no bridges, and slept occasionally under the forest trees. There, at nearly sixty years of

age, I dug for gold for weeks together, and my little company discovered a fine gold field, which continues one to this day. These two years of bush life, with other journeys on the Australian Continent, and in Tasmania, and the voyages out and back, gave a world of new vigor that has been serving me ever since. During the last summer in Switzerland, Mrs. Howitt and myself, at the respective ages of sixty-eight and seventy-six, climbed mountains of from three to five thousand feet above the level of the sea, and descended the same day with more ease than many a young person of the modern school could do.

As to our daily mode of life little need be said. We keep early hours, prefer to dine at noon, are always employed in "books, or work, or healthful play;" have no particular rules about eating and drinking, except the general ones of having simple and good food, and drinking little wine. We have always been Temperance people, but never pledged, being averse to thraldom of any kind, taking, both in food and drink, what seemed to do us good. At home, we drink, for the most

part, water, with a glass of wine occasionally. On the Continent, we take the light wines of the country where we happen to be, with water, because they suit us; if they did not, we should eschew them. In fact, our great rule is to use what proves salutary, without regard to any theories, conceits, or speculations of hygienic economy; and, in our case, this following of common sense has answered extremely well.

At the same time, it is true that many eminent men, and especially eminent lawyers, who, in their early days, worked immensely hard, studied through many long nights, and caroused, some of them, deeply through others, yet attained to a good old age, as Lords Eldon, Scott, Brougham, Campbell, Lyndhurst, and others. To what are we to attribute this longevity under the circumstances? No doubt to iron constitutions derived from their parentage, and then to the recuperative effect of those half-yearly flights into the Egypt of the country, which make an essential part of English life. To a thorough change of hours, habits, and atmosphere in these seasons of villeggiatura. To vigor-

ous atheletic country sports and practices, hunting, shooting, fishing, riding, boating, yachting, traversing moors and mountains after black-cock, grouse, salmon, trout, and deer. To long walks at sea-side resorts, and to that love of continental travel so strong in both your countrymen and women, and ours.

These are the *saving* causes in the lives of such men. Who knows how long they would have lived had they not inflicted on themselves, more or less, the destroying ones. There is an old story among us of two very old men being brought up on a trial where the evidence of the "oldest inhabitant" was required. The Judge asked the first who came up what had been the habits of his life. He replied, "Very regular, my lord; I have always been sober, and kept good hours." Upon which the Judge dilated in high terms of praise on the benefit of regular life. When the second old man appeared, the Judge put the same question, and received the answer, "Very regular, my lord; I have never gone to bed sober these forty years." Whereupon his lordship exclaimed, "Ha! I see how

it is. English men, like English oak, wet or dry, last for ever."

I am not of his lordship's opinion; but seeing the great longevity of many of our most eminent lawyers, and some of whom in early life seemed disposed to live fast rather than long, I am more than ever confirmed in my opinion of the vitalizing influences of temperance, good air, and daily activity, which, with the benefits of change and travel, can so far in after life save those whom no original force of constitution could have saved from the effects of jollity, or of gigantic efforts of study in early life. For one of such hard livers, or hard brain-workers who have escaped by the periodical resort to healthful usage, how many thousands have been "cut off in the midst of their days?"

A lady once meeting me in Highgate, where I then lived, asked me if I could recommend to her a good doctor. I told her that I could recommend her three doctors. She observed that one would be enough; but I assured her that she would find these three more economical and efficient than any indi-

vidual Galen that I could think of. Their names were, "Temperance, Early Hours, and Daily Exercise." That they were the only ones that I had employed for years, or meant to employ. Soon after, a gentleman wrote to me respecting these "Three Doctors," and put them in print. Anon, they were made the subject of one of the "Ipswich Tracts;" and on a visit, a few years ago, to the Continent, I found this tract translated into French, and the title-page enriched with the name of a French physician as the author. So much the better. If the name of the French physician can recommend "The Three Doctors" to the population of France, I am so much the more obliged.

I remain, dear sir, with sincere wishes for the prosperity of your journal, and the spread of the true principles of health and long life,

Yours, faithfully,

WILLIAM HOWITT.

ROME, 41 VIA DI PORTA PINCIANA,
May 20, 1871.

XX.

THE LATE REV. JOHN TODD.

My Dear Sir: You ask me to describe, briefly, my Workshop, and its value in promoting health of the brain and nerves, for sedentary workers. I do this the more readily because I have received so many similar requests from different quarters that I am satisfied they originate from something better than curiosity.

You must know, then, that when, some forty-five years ago, I married the fairest and best woman on this continent, and went to housekeeping, we were very poor. I soon found a thousand little things to be done or conveniences needed about our new home; this led me to buy a hammer, and a gimlet, and a few nails; then I needed a saw, and a square, and a plane. About the first feat I accomplished was to make and paint and hang the outside blinds for every window in our house. This was a great achievement for a novice, and, if the blinds were not the most elegant, they made up in strength what they lacked in beauty. They remain on the house

to this day. Then we needed pins on which to hang our clothes, my harness, bridle, etc., and this led to my getting a clumsy wooden *lathe*, every part of which but the two centers made of wood. I added power to the wheel by boring holes in the outside of the driving-wheel and pouring in melted lead. The whole concern cost me but *seven dollars*. Now some foot-lathes cost as many thousands. My wife encouraged me by giving me a little chamber for my shop. And few men ever accomplished much that is good without the encouragement of their wives.

I have made it a rule never to buy a tool till I actually needed it, nor until I could use it, and then never to buy a poor tool if I could help it. Another rule has been to preserve, carefully, every tool I procured.

Now, then, let us go into my shop. It is a chamber just back of my study—my mental workshop. It is a room sixteen feet square, with two north windows. (It is always desirable, if possible, to have a northern light for the shop.) As you enter the door you see every side of the room is covered with tools, each tool hung in place, and

the nicer, more valuable ones in large glass cases. The room contains over 1200 tools, upon any one of which I can lay my hand in the dark, and any one of which my eye would miss in a moment were it out of its place. Why so many? Because I have three lathes, and the tools that accompany them, besides chisels, planes, drills, glues, polishing liquids, and a multitude of things and tools, which none but an old workman could comprehend. On one side of the room you see the name of "Woolsey," another, "Aspinwall," "Bigelow," "Hoadley," and the like. The English of it is, that all the tools on that side of the room were given me by Mr. Woolsey of Astoria, Mr. Aspinwall of Barrytown-on-Hudson, Mr. Bigelow of New Haven, or Mr. Hoadley of Lawrence. That beautiful little steam engine and its complete boiler came from the latter gentleman. The fact is, that my friends, seeing me using and taking care of my tools, have sent me many most beautiful specimens of the skill of Paris and London. My entire stock of tools could not be bought for a thousand dollars. But you must recollect how long I have been in

gathering them and what kind friends have aided me. That overhead apparatus to my lathes gives me speed and nicety of work, so that I can alter the position of a box an inch in diameter three hundred and sixty times, and alter my tool the four-hundredth part of an inch, and at a speed of five thousand a minute. For *nice* work, you need the mandrel true, the motion still and *very* quick, and such tools or appliances as the eccentric chuck, universal cutter, eccentric cutter, elliptical cutter, ornamental drills, rose engine, not forgetting the compound slide-rest, etc., etc. With the proper tools, you can make very beautiful work—but, while others admire it, you will never see any that, to your eye, is not imperfect. You want, also, the fret saw and the circular saw attachment, though the latter is best to be run as a machine by itself with an angular adjustment, so that you can saw any angle. This is fine for making picture frames.

As to materials for the lathe, I could write a chapter on woods and materials. Ivory is the most beautiful material. Wild boars' tusks for very small work, the black-

thorn among the woods—a native of Africa—is the most preferred. Boxwood the most common. As to glues and varnishes, they, too, need a chapter.

Now for the advantages of a workshop for the sedentary man.

1. It enables him to have a thousand little conveniences about him which he can never otherwise have. He can mend a lock, cover and recover a trunk, fix his disordered clock, mend tin, and almost anything except to put a bottom in a frying-pan, which I have been asked to do.

2. It creates and develops mathematical taste and skill. I don't think I had, by nature, any mechanical skill; but now, my friends think I might have made a good tinker, and my appreciation of what is nicely executed is greatly enhanced.

3. The workshop is a wonderful promoter of health. Once having it, you will ever have some little job on hand. When you are weary at your writing-table, when the brain reels or muddles, when the thoughts stagnate, jump up and run into your shop, and there, on your feet, in a different air,

your mind turns at once to the thing in hand. You leave the chain of thought which you were trying to carry on, you at once are absorbed in a new train of thinking, and your mind is refreshed and invigorated. You are compelled to give all your attention to the thing in hand. Sometimes it will be soldering, or brazing, or tempering a tool, or polishing a bosom-pin, or contriving how to use a tool in a new way. My lathes are all very unlike in form and size, and yet there is not a tool among them which I have not contrived to use on any one of them. This change of the position of the body, and this turning the mind into a channel so unlike that of the study, so results that in half an hour, or even fifteen minutes, the mind is wonderfully refreshed, and you go back to your books quite a new man. I consider my workshop an invaluable aid to health. I make everything—beehives, trunks, delicate ivory boxes, with the lid screwed on forty threads to the inch, bosom-pins, and almost any nick-nack. But I make no boast of great skill; compared with Mr. Aspinwall, I am a coarse bungler.

Now for a few hints to young, professional men.

1. Begin and move slowly. Buy a very few tools at first. Learn to use, skillfully, before you buy more, those on hand.

2. Never buy a poor tool, however cheap.

3. If you get a foot-lathe, get a good one; the "swing" should not be less than five inches—six is better. The lathe is the center of the shop, and that will eventually call around you all the tools you can want or use. Let it not call too fast.

4. Let your room be as *dry* as possible; keep your tools bright and the handles good, if not beautiful; use the best of olive oil, very little at a time, but quite often.

5. Keep your tools *sharp;* the great comfort of your shop will depend on your doing that; the lathe abhors a dull tool, and the nicer the tool, the more need of care on this point.

6. Buy the Ceylon ivory, if possible, and the best ornamental woods in our large cities. You can find them nowhere else.

7. Don't expect you can become an expert in a day. You will need patience and

perseverance, and they will bring you great rewards.

8. What I have said seems to imply the lathe or nothing. I do not mean this. You may have a valuable shop and save hundreds of dollars and fill your house "with all pleasant things," and never have a lathe. I made book-cases, the very same I use now for myself and children, before I knew how to use the lathe. Indeed, the lathe is only the culmination of the good things you want, and I have dwelt upon it because I was describing *my* shop just as it now is. But hundreds of men have a very valuable shop and tools who have no lathe and no desire for one. This to me is unaccountable. Don't wait for any one thing before you begin. Tools make you independent.

9. Keep your shop locked, so that no one can handle your tools but yourself. This is very essential to your comfort. Others will be sure to break or dull your tools, and annoy you beyond measure.

10. If you have a lathe, learn to *grind* your own tools on your lathe; finish at the

oil-stone, and the nicer tools on leather, covered with crocus, *i. e.*, rouge.

11. Learn to *temper* your own tools, which you can soon do. You can hardly buy them tempered aright—usually they are too soft.

12. Keep your shop clean and neat, so that you rather feel proud to have your friends visit it.

Yours very truly,

JOHN TODD.

XXI.

THE LATE REV. CHARLES CLEVELAND.

My Dear Sir: I, with much pleasure, reply to your request that I give you some account of my habits of life. Should I live to the 21st of June, I shall have passed ninety-nine years on earth. My habits have, under kind Providence, been uniformly on the scale of temperance. Intoxicating drinks and the use of tobacco have been denied. My diet hath been simple, avoiding whatever bordered on luxury. You ask at what age I could accomplish the most work? I never, from

youth, ate idle bread; always found that the physical powers were benefited by constant regard to useful labor, in one direction or another, and in keeping the mind free from anxiety. When employed at the desk, I have felt the importance of taking time for exercise of the limbs, in walking, as often as my duties at the desk would permit. The shortest days of the year I am up at 7, the longest days at 4. I can not remember the time, from youth, when it was my pleasure to lay in bed after the sun was up. Again, as a matter essential to my health of body and soul, I have many years avoided party festivities, convinced that multitudes of persons' lives are sacrificed from keeping late hours, seeking a happiness they can never find while in pursuit of worldly pleasures, to the utter neglect of the living oracles, teaching us to place our "affections on things above." Again, although daily feeling my deficiencies in the performance of duties, I am happy in the assurance that my heavenly Father, who knoweth my infirmities, remembering I am dust, will accept me, and at

the end of my pilgrimage take me to Himself, through the mediation of his beloved Son, to whom then I shall be alike *pure*, and see Him as He is, never more to part.

I have found it a very *important* object to keep the body *open*, never allowing matters of business to interfere with this essential regard to the preservation of health.

1. My time of retirement is at an early hour, not beyond 10 o'clock; and of rising, as soon as awake, and before the sun, *throughout the year.*

2. At meals my food is simple and nourishing, avoiding whatever may be regarded as luxuries.

3. My drink at the table is "Adam's Ale."

4. I taste no spirituous liquors.

5. Tobacco I abhor in all its forms as I would poison, persuaded its use hath been as an harbinger to "strong drink," which has slain its thousands and tens of thousands.

Thus, dear philanthropist, I have given you my "habits of living," and would just add that, preserving a conscience void of offense

toward God and man, my sleep in its season is undisturbed and refreshing.

I am, respectfully, yours,

CHARLES CLEVELAND.

(Born in Norwich, Conn., June 21, 1772.)

BOSTON, June 1, 1871.

XXII.

W. A., M.D.

Sir: After an experience and observation of life extending over 73 years, I have come to the conclusion that the state of mind in which we allow ourselves habitually to remain determines very largely, for good or for evil, our mental health. There are two states which I will mention as favoring a healthy nervous system, or the reverse. The one is what I call a positive state, in which the mind resists and throws off unfavorable mental impressions, so that they do not gain a foothold in the brain. The other is the negative state, that does not throw off bad mental states, but harbors them until they occupy the entire thought, to the exclusion of everything else. Such people have the blues, are easily

discouraged, become despondent and low spirited, imagine the worst is to happen, find fault with their best friends, and are the most miserable creatures on earth. To them, their troubles are real, not imaginary. It is of no use to tell them the world is not going wrong; there is no room in their brains for such a thought. Such patients cannot be cured by medical treatment of the ordinary kind. They can, however, easily cure themselves by working out of the negative state, which leaves them the prey to their fancies, into the positive state, that actually compels these fancies to flee away and leave the brain in a condition to produce agreeable sensations. Let such persons every morning, when they get out of bed, assert in the most positive manner that they will not once during the day harbor a disagreeable thought, but the very instant it arises they will drive it from the mind, as they would a viper from their beds, and be very sure it will go. Understand me. Every species of uncomfortable mental sensation must be driven out, no matter what it is. If the effort is strong enough, even bodily pain can be driven out too. I know what I say from

my own experience. No amount of bathing, dieting, or drugging will cure the man or woman who continues in the negative frame of mind. When the positive condition has been attained permanently, under no circumstances fall back again.

Well do I remember the day and the hour when I made this, to me, great discovery. I had suffered for a month the most intense mental pain because my business did not go to please me. I found fault with my wife and children, and nothing suited me. Things were getting most uncomfortable for all of us. I got up one morning as usual and expected to have a bad day, when all at once an impulse seized me as if it had come from the other world, and, straightening myself up to full height, I said to myself emphatically, "By the Eternal, these miserable feèlings have got to go; not once to-day will I tolerate one of them in my mind for an instant." I kept my word, and have done so till now, and find it is easy enough to hold them at bay. Indeed my mental condition now is a positive one, and not easily am I thrown into that

state which for many years made life more or less miserable.

I may add that this principle is applicable to a large number of mental processes. The man in the positive instead of the negative condition will have untold advantage in whatever he undertakes. I may also say that many persons will find much aid in this matter through music, if they are musicians, through humorous stories, through occupation, and by reading from books of the highest order of moral and religious writers, such as inspire faith, hope and courage. Of course the laws of health must be observed.

W. A., M.D.

XXIII.

SARAH J. HALE.

Dear Sir: I have not been in my usual health for some days, and am not now able to give you the information you desire. I am sorry to disappoint you, but having entered my ninetieth year my age must be my excuse for inability to comply with your request.

I enclose my "Farewell" to the readers of the *Lady's Book*, which will show you what I have attempted to do in my fifty years of literary life. During those fifty years my health has been so good that I have but once failed in preparing the "Editor's Table" at the appointed time. I attribute this continued health in part to a naturally sound constitution, and very much to regular and temperate habits of life, early rising, and my invariable rule of doing all literary work by daylight, especially in the morning.

With sincere wishes for your success in the work you have undertaken,

I am very truly yours,

SARAH J. HALE.

1413 LOCUST ST., PHIL'A,
Nov. 19, 1877.

XXIV.

HORACE AND MARY MANN.

My Dear Sir: In regard to my husband and myself, both of highly nervous and sanguine temperaments combined—perfect steam-engines in energy—it is my conviction, after living

seventy years, that what has been most beneficial to us has been *good diet* and *rest*—the latter even more than the former. With all his wisdom, however, my husband did not know how to spare himself, and died, as I think, prematurely, of *fatigue*. He undertook what no man could accomplish with impunity, and gave himself *no* rests. Mr. Combe warned him twenty years before, but it did not avail. He wanted him to live and watch over the growth of his work, and not to die prematurely. I have heeded the warning, and, although I have been a great sufferer for the last two years, I have rallied and am improving enough to enjoy life again, a pleasure I had utterly lost.

My family relations have been all I could wish, and therefore I have been happy and have lived down other trials. A good biologist once said to my husband, "You are mistaken in thinking you need so much exercise: what you need is *sleep*." He turned to me and said: "Mrs. Mann, do all you can to procure him sleep—at all times, short sleeps and long sleeps—but sleep." I think he sub-

mitted to what he considered the loss of time much better after that, and I did my part faithfully. But in that last great extremity, I was much occupied with my children, who were all ill, and had not so much time as I wanted to help him—there never was a time since I had been married when I could do so little for him. If it had not been for that stress of care, the effects of that Western climate would, I am persuaded, have lengthened his life. It is a painful subject to dwell upon when one feels that a dear friend need not to have died.

My oldest son had very much the same history—a young man of rare promise, but with his father's intenseness of temperament, which made him the victim of science. I do not believe in people dying for science: I believe in their living for it, for it will not hurt the world to wait a little while.

Yours with regard,

MARY MANN.

CAMBRIDGE, MASS, April, 1878.

XXV.

JULIA E. SMITH.

Dear Sir: As you wish me to write something about my health habits, having lived to the age of nearly ninety years, I will do it. Of late I have attended but little to the dead languages, my time being mostly taken up in replying to letters from all parts of the country, upon the usage we have received from the officials of our native town, and also from correspondents concerning my literal translation of the Bible. I have all my life been in the habit of rising early; in winter at five o'clock, and the rest of the year at half-past four, or as soon as I can see. I have never made it a practice to study evenings, and when a student at school I always learned my lessons at early morn. I have exercised much in the open air: being the fourth sister—and the youngest sister a good deal younger than I—I was made a sort of errand boy by our father. Having no son, he called on me to assist him in driving his cattle to the east lots, more than a mile from home, and sent me to drive the cows home

and put them back in the morning. I do not remember when I did not know how to milk, to ride on horseback, or to drive a horse before a carriage. Our mother, who was quite unwell while we were children, had a room to herself and could see to us but very little, so we were left to do many things she knew nothing about. We would chase about the lots, walk in the water, climb trees and jump over fences in the spring when school was out. My sister, next older than myself, once wanted to find out the length of the brook in our pasture. It was very crooked and measured a mile within a quarter of a mile's distance. She took me along with her early one morning in April, and we took off our shoes and stockings and waded, the water being deep in places, until we got tired and hungry, when we came to the conclusion that there was no end to it, and wended our way back. When we arrived home it was three o'clock in the afternoon.

The district school was more than a half mile from us, and no matter how deep the snow, I would trudge through it. My father was a lawyer and almost always away from home,

so I could never ride. As there were no rubber boots in those days, I often sat away from the fire all day with wet feet. I have been in the habit ever so long of washing my feet daily in cold water. I cannot see that it tires me more now to walk than formerly. I often walk to our post office, one and a quarter mile and back, without sitting down until I get home. I have been in the habit for many years of bathing in cold water every morning. Indeed, I can truly say that I have never felt the infirmities of age, not often thinking whether I am old or young. I have thought more of it this winter than I ever did before, for while I was in Washington I was put in mind that I must be helped at almost every step I took. It would not do, they said, for so old a person to walk up stairs and down, or even go down the steps, without a kind friend on each side for support. If these people could see me run after my pet calves Taxie and Votie, or, rather, run to get away from them, since I got home, I think they would be convinced that I could step a foot forward without assistance. We were all healthy children. We were not pro-

vided with many pennies, having to earn our own pin money, which we did by picking up walnuts, as we had a goodly quantity of trees near by, and the Glastonbury walnuts had a good name in market. We were allowed all the money for the sale of what we gathered, and there was so great strife among us to see who could get the most, that when there came a blowing storm we would get up at midnight before we could discern a single nut, and trudge off after them. No doubt this was healthful work, but it never entered our heads to do it for that.

As to diet, we were brought up on bread and milk. Our parents loved it, and they generally permitted their children to have what they liked themselves. I usually take one meal a day of milk now. I never use a stimulant of any kind, except sometimes a cup of coffee; I drink no tea at all; I have had but one hard cold in thirty years, for when I feel one coming on I go without eating till it leaves me; generally one meal suffices, but if not I continue the starving plan until I am cured. I never was a good sleeper, though I generally keep my

bed about eight hours in the twenty-four. I never thought bodily exercise did much good unless for some purpose. I was at the Troy Seminary when young, to learn mathematics, as figures were always my forte. I could not sleep, and thought I was almost sick. Mrs. Willard told me that I did not take the exercise I did at home, and if I would take a long walk every morning as soon as I could see to go, I would be much better. I tried it, and I think it weakened me, for I had no object in view but to get better, which fixed my mind upon myself, and I consider that we enjoy the best health when we think the least of ourselves. Had I been obliged to go because I must attend to something necessary to be done, I have no doubt these long walks would have helped me. Working in the open air is without any question excellent for the health of those who are sedentary in their habits, as I was during the seven years I was translating the Bible from the original languages five times. I then found it necessary to take active exercise, and I set to raising calves, which amused me much, as they would follow me anywhere.

I never sat at my desk very long, as every fifth week my sister and I took turns about seeing to the kitchen affairs, and I did not quit housework, though absorbed in my translations. I have not often indulged in eating to my hurt. I have been regular in my meals, eating three times a day, but never late in the evening, using scarcely any meat, but a good deal of fruit, especially at breakfast. As to confectionery, I have made use of very little all my days, as we were not supplied with much change when children unless we worked for it, and we took more pleasure in buying a good book with the money than in eating it up.

JULIA E. SMITH.

GLASTONBURY, CONN.

XXVI.

MARY J. STUDLEY, M.D.

NERVOUSNESS IN GIRLS.

Dear Sir: It gives me great pleasure to comply with your request for a page of my experience in the direction of lessons upon the "Hygiene of Brain and Nerves" among

the young women of the various schools to which I am, from time to time, welcomed as a teacher of the laws of health, and if, among the many rays which shall combine to shed a purer light upon so important a subject, my one little ray can contribute its modest glimmer, I shall be glad to have sent it forth.

It has been my privilege, for more than twenty-five years, to be intimately associated with young women, either as teacher in the school-room, in the earlier years, or as medical practitioner or teacher of Hygiene during the later ones, and every day's added experience only confirms me in the position I have occupied from the first relative to the various forms of nervousness which characterize us as a sex. That position affirms that the best possible balance for a weak, nervous system is a *well-developed muscular system.* Weak, shaky, hysterical nerves always accompany soft, flabby muscles, and it is a mournful fact that the majority of the young women whom I meet in schools are notably deficient in muscular development. The well-rounded and plump bodies are not, as a rule, mus-

cular bodies, as may be easily seen by the style of walking, but are rather the result of an excess of adipose tissue, which is so apt to pass current for good flesh, of which it is the poorest counterfeit. The excessively thin and the excessively thick are the figures which develop hysteria; the former because they are all brain and nerve, and the latter because they are all fat and no muscle. Both types are highly emotional, and can develop an attack of hysteria on the slightest provocation. Both are prone to worry and fret, and the more the one frets the thinner she grows, while the other frets and grows fat.

Both are house-plants. The thin one drinks strong tea and passes sleepless nights. The thick one puts tight bands around her stomach and liver to make herself look like the thin one, and when the heart asserts its crowded condition by a "palpitation," due to the gases of indigestion in a cramped stomach, she is sure she is going to die with heart disease. Neither the very thin nor the very thick one can ever be relied upon for good mental work, for how can a healthy mind make its

home in a sickly body? Neither has the hue of health in her cheeks, nor its lustre in her eyes, and both promise, only too surely, to swell the ranks of women with some one of the protean forms of "female weakness" when they leave school.

I need not describe the non-historical, ruddy, vigorous, self-sustained, comfortable, non-fretting third type. We all know her by her elastic tread, her easy carriage, her composure, and her grace of form and motion. We can count upon her just as surely as we count upon each day's sun. She is the *natural* young woman. She has inherited a sound body from healthy parents, and they have taught her to treat it as a temple for the indwelling of the Holy Ghost, instead of a frame for the display of dry goods. You can tell, by her motion, that she has good muscles, and that every individual one of them is just as free to act as were the muscles in those beautiful Greek figures which the thin girl pretends to admire, but refuses to imitate. Her dress is light, simple, clean and comely, and does not fetter her body at any point, for she is *dress-reformed.*

I think it is "Jean Paul" who says: "Half the sorrows of women would be averted if they would repress the speech they know to be useless—nay, the speech they have resolved not to utter;" and according to the best medical authority, the other half would vanish if they would put off the fetters they know to be worse than useless in the way of bones, steels, bands and strings and let their bodies maintain the shape which nature intended they should have. So long as women tie and bind and lace up their muscles, whether it be those of the body or its extremities, thus forbidding the free circulation of the blood, which is the one essential for healthy nerves (for what is pain but the report of the nerve that the blood is either in the wrong place, or else dirty for want of air and exercise?), just so long will the nerves run away with the muscles, and women will pine and fret and worry themselves and all their friends with their ever-recurring neuralgias and hysterias. Plain food, no tea, plenty of milk, no late hours, no love stories, a skin kept active by daily contact with cold water, plenty of outdoor exercise, and a dress which

allows every muscle and every organ to do its allotted work—this is the hygienic regimen for our young women—this their safeguard against all forms of women's diseases, provided they come from healthy parentage. I am more and more convinced, with every fresh contact with the various forms of uterine disease, which lie at the root of most neurotic manifestations, that the abominable manner in which women have so long abused their bodies by misapplied dress has done more than any one thing to swell the ranks of sickly, nervous, hysterical and unhappy ones, and that the dress-reform is one of the greatest reforms of the century.

MARY J. STUDLEY, M.D.

(Resident Physician and Teacher of Natural Sciences, State Normal School, Framingham, Mass. Also, author of "What Our Girls Ought to Know.")

XXVII.

ELIZABETH OAKES SMITH.

HEADACHES.

Dear Friend: It being your mission to help on healthful and æsthetic methods of life, allow me to say a word about headaches,

about which I can speak with some emphasis. In the course of our pleasant pilgrimage in this part of the universal spheres, we sometimes have the heart-ache, as our human and humanizing sensibilities have play, but it seems to me utterly needless to have the headache. I never have had it, unless combined with the above exception. I attribute my exemption to a habit of mine, inaugurated early in life, never to eat a second time an article of diet that had once made me conscious of a physical organ, or, in other words, had disagreed with me.

This would seem a natural law to any of us, at all advanced beyond our Cousin Anthropoids, but it is far from being generally practiced. I by no means place this abstinence among the virtues, because so utterly void of reason is the opposite practice, of indulging an unwholesome appetite. It is true I come from the austere Pilgrim stock, generally devoid of an undue proclivity to table-luxury. I see people going about with hand upon the stomach, gaunt and cadaverous, and actually extorting and defrauding us of our sympathies as Dyspeptics. They are not

ashamed to be known as such, as if there were no disgrace attached to organic disease; nothing nauseous in letting the world know that you, exceptionally, have a stomach; that is, that something is the matter of it, because the laws of life have been violated. Then come the crooked back, the bars under the eyes, the *untidy* yellow tongue, if we must talk with them—all the result of an abuse of the table; but worst of all racking headaches, that totally unfit the unhappy possessor for any active duty, or for the ordinary amenities of life. People have to go about on tiptoe where they are, and little children must smother down the laugh native to childhood.

I do not acknowledge the right of one sinner to compel innocent persons around him to do penance for his sins. His selfishness and gluttony are an abomination. Gluttony is an ugly-sounding word, but it is the only one that will convey the idea; for all these headaches—that is, with the exception that I have named (and I would like to say even this will disappear as we enter more fully and believingly into the great relations of exist-

ence)—are caused by a derangement of the digestive organs, brought about by indulgence of the table. "A good Trencher man," characterized old vikings and warriors; but our civilization contemns that aspect, and the use of the brain, rather than brute force, necessitates a more refined method at the table. Scholars at least somewhat covet that Paradisical sleep of which the great Milton tells:

> "Light and airy, pure digestion bred,
> And temperate vapors bland."

Shakspeare had a delicate sense of the sweetness of digestion, and the refinement of an esthetic diet, when he made the sensitive, though voluptuous, Cleopatra recoil from her possible experience should she be carried in triumph to Rome, and she resolves upon death sooner than be

> "Uplifted to the view; in their thick breaths,
> Rank of gross diet, shall we be enclouded,
> And forced to drink their vapor."

We of the Union are a dainty people, fond of *nice things*, varieties, one dish supplanted by another at our tables, thus unduly stimulating the appetite and taxing digestion. We do not thrive well on the coarse

fare which will satisfy the peasantry or soldiery of European nations. It may be that we shall be compelled to adopt the same method that renders it necessary to give the man who is suffering from delirium tremens a stimulant occasionally, before he can, without death, be let down to the platform of total abstinence; and thus our people, to be rid of our national disease, will need to go gradually to work and reject piecemeal our too luxurious diet.

I often am amazed at the patience, forbearance, and sweetness of Nature, her long-suffering, before she lets loose the sleuthe hounds of palsy or indigestion upon a man who piles his plate with such vast quantities and such incongruous materials of diet. Sometimes, not always, she forbears with him, and simply allows him to pet himself into corpulency, and fat men will even boast that they "have not seen their feet for twenty years."

No brain of any magnitude can endure this, and, presto, a vein snaps and the man is

"Felled, as butcher felleth ox,"

and we call it apoplexy, when another name would be nearer the truth.

A distinguished writer once asked me, "What do you write on?" I did not quite understand, and floundered about somewhat as to subjects, table, etc.

"No, no; what stimulant?"

Now, I never, in my life, prepared myself for writing or speakiug by any such extraneous method. My ordinary, somewhat plain, meal—not much meat, with one cup of tea or coffee—suffices for all occasions. From childhood I have been accustomed to fruit, both native and tropical; highly flavored dishes are repugnant to me. I like to have an orange, apple and grapes, with a dry biscuit, before me, as the most effectual and delicious stimulant to appetite. I have always assimilated kindly, with little waste, and as I grow older I require perhaps a little less food—not much less.

I have never seen the time when, with a coarse cracker or baked sweet apple, my brain did not take pleasantly to its task. I do not mean to say I have always lived in this way—I mean only to say that it is my way, when I can choose without disarranging the methods of those about me, and I

have always been telling people whose hospitality I shared in my long career as a lecturer: "Do not make any cake or pastry or rich dishes for me—I am happier and better without them."

You will see from this, dear friend, why I think it unpardonable to have headaches, and how fully I sympathize in the simpler modes of diet which you recommend, and which I have practiced whenever possible, and in a fuller degree than most of our people.

Yours truly,

ELIZABETH OAKES SMITH,
Pastor Independent Church, Canastota.

CANASTOTA, MAD. CO., N. Y.

XXVIII.

REBECCA B. GLEASON, M.D.

Dear Sir: I advise women to keep off nervousness and the fidgets by more out-of-door exercise. The range of their recreation lies too exclusively in the house. Fancy work, giving and receiving calls and company, constitute little change of thought and less muscular exercise than they really need. If they would

walk, ride, and picnic with their children, they would give much healthful pleasure to the little folks and gain for themselves wholesome diversion. These outdoor excursions are easy, if the dress be plain and the food simple. Open air will give the relish.

A moonlight ramble is much better than an evening party for securing sound sleep. Delicate bodies with sensitive nerves fail early from too much indoor life. Such persons have their troubles, as we all do, but for want of change of scene cherish them so continuously that they become nervous and supersensitive. Active exercise has great power to put to flight morbid mental conditions. But women say, "I have not strength to walk or work." Why? Because they have exhausted their nerve-force in thought, in feeling, in emotion, and have little left for the muscles. They can change the current by change of habits. Many think there is no diversion for them because they cannot go to the seaside, the mountains, or to some mineral spring, when there is within easy reach many a pretty view of hill, of meadow, of river, or ravine, which has seldom been visited, and

never studied so as to be remembered and appreciated. The Infinite Father has spread an unlimited feast in the open country, before every eye; and, if what we see is really appropriated, by head and heart, we shall be refreshed and strengthened for our work.

Yours truly,

R. B. Gleason, M.D.

Elmira, N. Y., Nov. 20, 1877.

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