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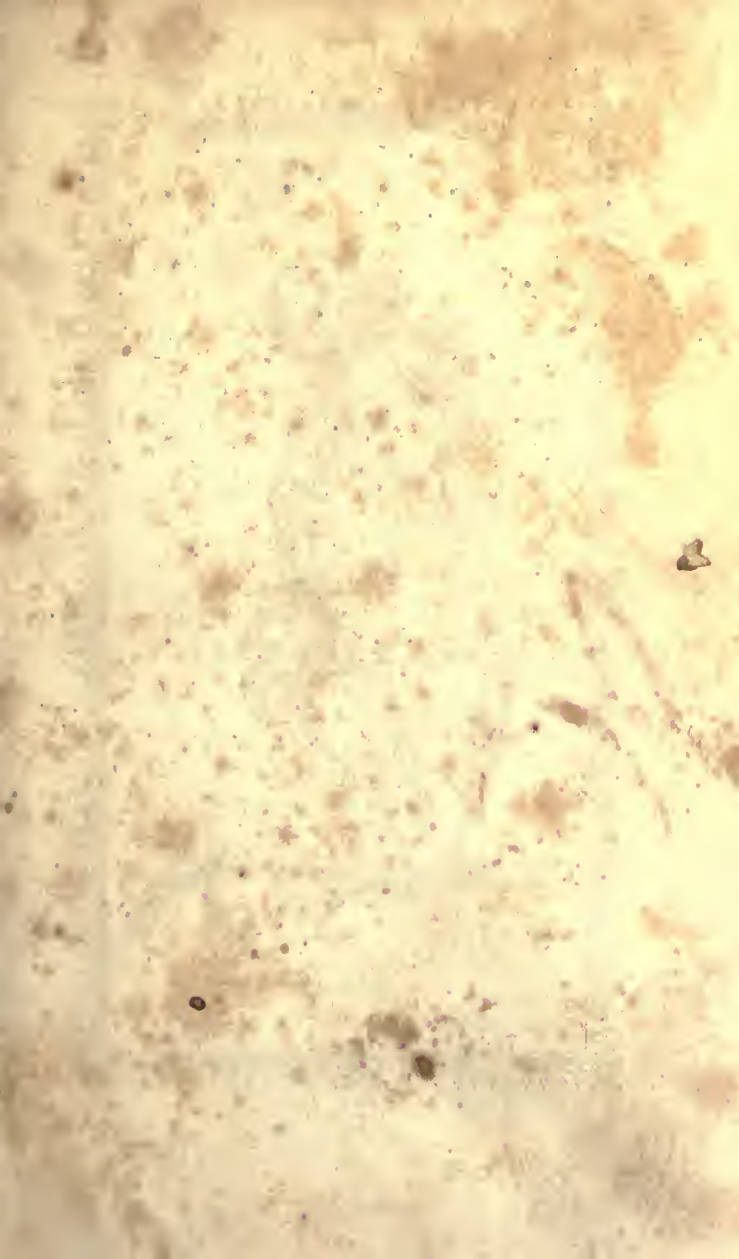


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LECTURES TO LADIES

ON

ANATOMY AND PHYSIOLOGY;

BY

MRS. MARY S. GOVE.

“God is paid when man receives;
T' enjoy is to obey.”

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P R E F A C E .

THE question has often been asked, why I should deviate so far from what is considered the appropriate sphere of woman in our country, as to meddle with those studies which form the subject of this little volume. Firmly believing that all things are under the control of the Divine Providence, I will mention a few of the circumstances which have induced me to give attention to these studies.

From infancy I have never known health, and very early in life the foundation of a pulmonary complaint was laid, by close dressing, which must, before many years, consign me to a premature grave. Under these circumstances, it is not strange that my attention was turned toward medical works.

When about 18 years of age, I commenced reading on Pathology, and continued for several years reading Medical, Anatomical, Physiological, and Pathological works, as they came in my way. I concealed my *penchant* for this kind of books as much as possible, as I did

not like to be ridiculed and censured for reading works which females seldom read, and I did not myself see that much use could result from such a course of study.

In 1837 I attended several lectures given by Sylvester Graham, in Lynn, Mass., the town where I then resided. The knowledge I obtained from Mr. Graham gave vitality and consequent usefulness to what I had before acquired. It was comparatively unimportant for me to know the mechanism of the human stomach, whilst I knew nothing of the causes which deranged its functions and produced disease.

Those who have heard my lectures know that I regard Mr. Graham as one of the greatest benefactors the world ever had. For most of what is practically valuable in this work, I am indebted to his teachings directly, or to principles upon which I have reasoned, which have been derived from him.

To medical men I am under great obligation. They have kindly assisted me in every way in their power. They have loaned me books; they have admitted me to their museums; they have permitted me to see dissections. Besides, wherever I have lectured, they have endeavored to correct the misapprehensions of the people, and to encourage me to disseminate knowledge.

What I have learned through their kindness, I have tried to make useful to the world. How far I have succeeded, I leave others to determine.

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LECTURES

ON

ANATOMY AND PHYSIOLOGY.

LECTURE I.

THE IMPORTANCE OF THE STUDY OF ANATOMY AND PHYSIOLOGY.

WHOEVER shall convince mankind of the necessity and importance of the study of Anatomy and Physiology, and those laws which govern life and health, will do more toward promoting the general good and happiness of our species, than he would if he gave us priceless gems and gold without measure. Man came from the hand of his God a noble being, made in the image of his Creator. That he is not that godlike being now, we have most of us a perception of some kind. I know there are those who say man's tendencies are to good, rather than to evil. Those who say this, must nevertheless feel that he is weak, that he is often turned aside. We may have faith in humanity, we may believe that man can be elevated — will be; and we may labor in this blessed faith for

the race ; still the crime, the wretchedness, that exist on every hand, speak most truly, that man is depraved, fallen, perverted. I care not by what term men designate the moral and physical disorder with which our world is cursed. Man is here in his degradation. We see it, feel it, in ourselves and others, unless we have lost all of true humanity. To Phrenologists and Physiologists, I need not undertake to prove this doctrine. The first sees in the organization of man a want of true balance—the last sees in it disease.

Says the Phrenologist, “ If a man has a deficiency of perceptive power, he cannot always judge of the true. If he have too large acquisitiveness, he must have large conscientiousness, or he will clutch his neighbor’s money,—and so on of all the other organs of the brain.” According to Combe, a man with deficient moral organs, and the organs of the animal propensities large, needs a moral guardian, as much as a man who wants the organ of number needs a ready reckoner, in business transactions.

According to the Phrenologist and Physiologist, the balance of healthy action is lost in our race ; and according to these, hospitals should be erected for the sinful, as for the sick. This is certainly taking a benevolent view of poor erring humanity. I come not so much to advocate this doctrine, though I confess it has charms for me, as to lay it

before you. It will not hurt thinkers to think of it ; to turn and examine it on every side ; dive into its depths ; sift it thoroughly ;—that if there be any truth in it, they may find it. It is a contemptible ignorance, nay, more, a hopeless ignorance, that will not examine.

Let us for a moment take a view of the evils that overspread our world, that are the legitimate consequence of ignorance. We need not turn to the right hand or to the left, to demonstrate the evils that result from a want of knowledge. They cluster around us in awful fruitfulness. They enter into every ramification of civic life as it now is. It is idle to attempt reformation by ordinary means, in the present state of things. We must strike at the root ; and I am so charitable to poor human nature, poor as it is, that I believe a vast, an incalculable amount of suffering is the result of ignorance, not of wilful error ; consequently to remove this ignorance, is to strike at the root. I do not say that knowledge, followed out in all its bearings, would save the present generation. Many have been born with feeble constitutions, in consequence of the errors of their parents. They have been trained in a manner most destructive to health. There are many, who, let their course be ever so judicious, could never attain a state of health, and cannot hold on to life many years. Still their lives might be

lengthened and rendered vastly more comfortable, did they know the laws that govern life, and had they moral courage to act in accordance with them. And they would save their children a vast amount of suffering; for it is a fact, physically speaking, that the errors of the parents are visited on the heads of their children. When the mother's whole system is diseased, and under a vitiating influence, we cannot expect that she will give health to her child. I need not attempt to demonstrate to you the truth of this assertion; your own good sense will lead you to assent to its truth at once. In no case do the effects of physiological ignorance appear more lamentable, or more fatal, than in children. There seems to be something more revolting, in destroying the innocent, than in committing suicide. Infants are committed to our care; we are their natural guardians. But thousands of these little innocents are destroyed every year, — literally "killed with kindness;" and it is a wise, a benevolent law of Providence, that the poison should thus quickly do its work; for if they are spared, it is but to endure protracted suffering. The miseries of infants commence even before birth. They are born with deteriorated constitutions, and predisposition to disease. Their hold on life is often so slight, that but a breath will break the attenuated thread. O that I could speak to the heart and the understanding

of every mother. I would persuade her to let the life of her child be precious in her sight. But how can this be, when she is all the time laying suicidal hands on herself; and during the time she nurses her child, it is a part of her being. What mother does not know, if she is ill, her nursing infant will be ill? Milk is formed of such materials as are put into the stomach. If good materials are wanting, it is formed of such as there are. We know that medicines affect the milk. When it was fashionable to drink wine and strong drink, the deadly draught passed almost unaltered to the lips of the little innocent who hung at its mother's breast, from which nought but the pure streams of life should ever flow. But alcohol is not the only deadly substance, and when the food of the mother is improper, it induces a train of evils, that have a reciprocal influence in aggravating each other. The stomach of the mother becomes diseased. The delicate lining membrane is inflamed, perhaps ulcerated; digestion is imperfectly performed; the temper of the mother is continually irritated by the morbid condition of her system. A host of sympathies are excited; the unhappy, because unhealthy mother, has many cares beside her fretful child. She thinks she has a "cross infant." People should learn to call things by their right names: we should say a *diseased infant*. My heart has long been

pained at beholding the ignorance of mothers. I rejoice that a spirit of inquiry is awakened, that the laws of life and health are beginning to be investigated and understood. I am persuaded that the long night of error is about to be chased from our land, by the glorious sunlight of truth. The conscience should be awakened on the subject of health. It has too long been lulled asleep by the opiate of indulgence. The table has been made a snare; men have made a god of appetite, and received in themselves that recompense of their error which was meet. From the cradle, we have been taught to go astray. The appetites of children are vitiated, and their systems predisposed to disease. All this is done through ignorance, which in many cases is unavoidable. I have seen a mother muffle her new born infant as closely from the air, as if some deadly miasm were floating in every breath of the pure element. Thus the poor infant is rendered susceptible of disease from what should be its vital nourishment. Mothers in their ignorance poison the very fountains of life and health. The infant is not only muffled closely when carried out, but its nursery is often so contrived as to exclude pure air.

Another contrivance to vitiate the air, is that mischievous invention, a cradle with a head. It is surprising that mothers will use these, apparently

without reflection, when they know that air once breathed is unfit for respiration a second time ; and that they will throw a piece of muslin, a silk handkerchief, or a heavy cloth, over the open part of the head, and thus keep the child, during the time of sleep, immersed in poison, and at every breath inhaling it ; at a time too when the powers of resistance possessed by the system lie in a measure dormant. I have uncovered an infant, who had two or three blankets and a quilt over its face, in one of these cradles. What would be the feelings of one of these mothers, if she should see her child swallowing corrosive sublimate ? And yet she pursues a course as irrational, as wrong, as if she introduced poison into the stomach of her child. The poison may be more slow, but it is not the less deadly and sure. The frequent occurrence of fits in children, would prove it to the anxious mother, had she her eyes but half open to the cause — though impure air is far from being the only cause of fits. “Darkness has covered the earth, and gross darkness the people,” in natural as in spiritual things. The mother looks upon the babe which her ignorance, her mistaken kindness, have destroyed, as the victim of some special providence. I admit it is a providence that takes her child away, and a merciful dispensation that removes the little creature from suffering ; but it is an effect that follows a cause, as

much as hanging is a cause, and death an effect. I am no advocate for hardening children by improper exposure. I would have a judicious course pursued by every mother, to invigorate her child; then no injurious consequences will result from an exposure, that in other cases, under ordinary management, would be death. What this judicious course is, I shall endeavor to show hereafter.

The exclusion of pure air from the lungs and bodies of children, is only one evil arising from ignorance.

The ignorant mother says, "I always wean my child when '*the sign comes right.*' I feed it as soon as I can make it swallow. I don't have to learn my child to eat when I wean it. I always give it every thing that I allow myself to eat. Then the child will get used to it, and such food will not hurt it." This is almost as bad as "getting used" to *hanging*. Can the infant stomach, which has only the capacity to hold a glass, "get used" to hold half a pint, without violence? Can the delicate lining membrane of the infant stomach, which is far more delicate and susceptible than its external skin, bear the stimuli of spice, pepper, flesh, &c., mingled in that very injurious compound, "mince pie," without injury, when it would produce a sore if applied to the external skin? Yet how many mothers give their children "mince pie," and bring forward the plea

that "such food will not hurt children, if they are only *used* with eating it." I have seen a mother feed her child, whose age was four months, with *pork, hog's fat*, and potatoes, when the little sufferer had whooping cough. It was agonizing to witness the convulsive throes of the poor child, as the outraged stomach rejected, with loathing and abhorrence, the deadly and unnatural injesta.

I would that I were not under the necessity of sullyng my pages with a notice of the abuses of civic life. The necessity that these errors should be brought to view and corrected, must constitute my excuse for bringing subjects before my readers, disagreeable to them and to me. The child above mentioned, after being fed in such an improper manner, was enveloped in blankets, the head as closely as the body. At the first stopping place, when allowed again to breathe the pure air, the child's face was discovered to be a deep purple, as if it were in the last stage of strangulation. The mother, though as sensible and accomplished as most women, owing to the lamentable want of physiological information at this day, had no idea that impure air caused the deathly appearance of her child. She had covered it from the air, to prevent its taking cold.

In view of such abuses, it is cheering to reflect that light is beginning to break in upon us. Many see that they have been steeped in error to

the very lips, and are making praiseworthy efforts to escape from the evil influence. Many people seem to think that all diseases are immediate visitations from the Almighty, arising from no cause but his *immediate* dispensation. Many seem to have no idea that there are established laws with respect to life and health, and that the transgression of these laws is followed by disease. In this sense disease is a visitation from the Almighty. People complain of being ill, and seem to think it no more necessary to ascertain the cause of their illness, than to determine why the sun shines to-day, when it was cloudy yesterday. Let any one suggest the idea that their habits are wrong, and he is met at once with, "I am no Grahamite, I eat and drink, as other folks do. I take snuff, because my physician recommends it, for the catarrh, or weak eyes; and I smoke, because my food hurts me. I drink tea, because I have the sick headache. I drink coffee, because I *love it, and will drink it*; and I always have the headache, when I don't drink coffee in the morning."

It is in vain to attempt to get these persons to adopt correct habits, without knowledge. They will listen to you, and perhaps determine to adopt what you tell them is right. But long habit has depraved the appetite and the functions. These cannot be corrected in a day, a month, or perhaps

a year, or years. They are impatient. They wish for rapid results. They do not know the laws which govern life. They are at the mercy of every wind that blows. They must contend with their own depraved appetites, the fears and solicitations of friends, and often they have an oracular warning from some pretender to medical knowledge, who may have intruded into the profession. And these persons have a blind confidence in medicine, often equal to the Arab's confidence in amulets and charms. They may not have confidence in the regular medical profession. No matter; they place a blind confidence somewhere; perhaps in botanic medicines, perhaps in calomel or lobelia, or in the last advertised quack nostrum; and if the practitioner promises them indulgence, or in other words that they may eat and drink what they choose, and pay no attention to their habits, they will have so much the more confidence.

With such people, habits are nothing, medicine is all. They would willingly go through a course of druggings, when they could hardly be persuaded to relinquish one hurtful indulgence. Could they be induced to give up dosing, and adopt correct habits, they might add years to their lives. I am far from decrying the regular and rational practice of medicine. That physician who has sense and science, who knows all that he can learn of human

anatomy and physiology, who will enlighten people with respect to hygienic laws, and administer medicine judiciously, when it is a less evil to give than to withhold it, is a blessing to society.

Physiology, were it understood, would make people tremble at the idea of dosing continually, or even occasionally, with purgatives and other medicines. Did people know the danger of introducing poisons at hap-hazard into the system, under the name of medicine, they would beware. A little reflection would convince you that medicines which you have been accustomed to consider harmless, are in reality poisons. Why should the system be in such haste to reject these substances, by vomiting, purging, and deathly perspiration, if they are not poisonous. Terrible intestinal disease is induced by this dosing with purgatives and other medicines. Do not think you are safe, because you have a vegetable medicine. There are active and deadly poisons in the vegetable, as in the mineral kingdom. You may say, "I do not poison myself or my family with *minerals*." Prussic acid, henbane, cicuta, &c. are deadly poisons, and yet they are vegetable productions.

The end at which physiologists aim is prevention. They do not make war upon this or that medical school, which is honestly endeavoring to benefit the race. But the general resort to quacks and their

nostrums, is a great evil. We should live in such a manner as not to need medicine of any kind. But if from past errors, or a vitiated constitution, we need medicine, let us have the best possible help, and let not our habits counteract all a physician's efforts. Who would think of resuscitating a drowned man, whilst he was under water? Just as vain is the attempt to restore permanent health to persons whilst they are indulging the very habits that made them sick.

It is surprising, that people will trust their lives in the care of those who are not even pretenders to medical knowledge; who denounce the study of Anatomy and Physiology as useless, and who would fain persuade us that they have found a shorter road to the healing art than rational, laborious study.

Whilst I plead for the regular study and practice of medicine, if mankind will so abuse themselves as to need medicine, I detest ignorance and quackery, when found in the medical profession, as much, or more, than when found elsewhere.

The rage for quack medicines has become almost as general as the demand for water. If ever Anatomy and Physiology, and those laws which govern life and health, come to be generally understood in the world, a vast amount of money will be saved, and a vast amount of misery escaped.

I do not say how far men will be faithful to

these laws, when understood. All history furnishes lamentable proof that knowledge is not virtue. Genius, knowledge, mental cultivation of the highest order, have been disgraced by the commission of crime, the darkness of which was in proportion to the blaze of intellectual light. But with many in our land, knowledge of the laws of life is alone wanting, to insure obedience to them ; and it is to be hoped that when physiological knowledge is generally diffused, quacks of all kinds will have to seek some other employment than batten- ing on the life blood of the community. Lest any one should misunderstand me, I will here state distinctly what I mean by the term quack : " A boastful pretender to knowledge he does not possess." Consequently, being a member of a medical society, does not hinder a man from being a quack. Knowledge is what we want. It should be diffused, not locked up in any profession.

It is much to the credit of the medical faculty, that they are striving to diffuse knowledge. With many, every thing in Physiology is to be learned ; for nothing, or next to nothing, is known. Many people who have much information about many things and many books, appear to have less knowledge on the subject of health, than a poor black woman I once met, who came from Africa, and had been deprived of most means of acquiring infor-

mation. Said "Achaby," (that was her African name,) "I *thinks* people *disgests* their food better, when they *chaws* it well." Observation had taught her this truth, and she was wiser than many of her superiors in knowledge. Some people seem never seriously to consider why their teeth were given them. They do not use them properly, and they are soon taken from them. Reason and Physiology teach that the teeth might last to old age, as well as the other bones, did we not abuse them by neglect, through the medium of the stomach, and other means.

The doctrine of sympathy between the different parts of the system, needs to be better understood. Many parents, for trifling ailments, dose themselves or their children with powerful medicines, whilst the most skilful physicians rely on abstinence, and correct habits, for the cure of slight disorders, and resort to medicine with caution for the cure of those which are more serious. I am fully impressed with the value of medicine in the hands of a skilful physician; but I am as fully impressed with the value of good habits, or in other words, of prevention. Terrible evils result from the indiscreet use of medicines, especially purgatives and emetics. Medicines often induce much more serious disorders than those they are administered to cure. The frequent use of drastic medicines causes inflammation of the

mucous membrane that lines the stomach and intestines, piles, and many other evils.

Think of this, ye mothers, who dose yourselves and children with salts, or with calomel, or with you know not what, in the "Brandreth's pills," and the thousand and one quack medicines with which the ignorant are abused. That person who shall enlighten people with regard to the indiscreet use of purgatives alone, will deserve the thanks of the community. I have seen parents who would boast of curing their children of various disorders by the use of powerful medicines, unaided by a physician. The children had *lived*, notwithstanding they had been most injudiciously treated. The parents little knew the evils they were creating and perpetuating, by these "*cures*." Should diseased action be established in a part of the system not at first attacked, they know nothing of the vital economy, they consider it the consequence of the disorder, not of the drugs they have ignorantly administered. Should a child after passing through a period of illness, and a course of domestic practice, appear as though some deadly mildew or blight had struck it, the disorder is uniformly considered the cause. "My child," says the mother, "had the measles," or scarlet fever, as the case may be, "and the disorder did not leave him well, and he has been unwell ever since." With all the abuses that surround us, is it

wonderful that the mortality among children is so great? Is it wonderful that there is so much disease and imbecility of body and mind in after years? Is it wonderful that there is a precocious and unnatural development of animal instincts and passions, and that ruin, in many instances, is the consequence?

I have glanced at a few only of the evils that are the result of ignorance. I have not yet noticed that fruitful source of death, tight lacing, upon which so much has been said within the last few years. I do not say knowledge would reform all who indulge in this ruinous practice; but let knowledge be disseminated, and we have good reason to believe that we have moral principle enough in our land, when influenced by knowledge, to work wonders for our race. Those who are not influenced by a sense of duty, will fear and tremble, when made sensible of the dreadful effects resulting from compression.

Mothers should teach their children to regard tight lacing as dishonorable and criminal, and that it is as much at variance with beauty and proportion as it really is. But mothers not only neglect to learn their own anatomy, and thus neglect to teach their children, for the plain reason that they cannot teach what they do not know, but they lace themselves in a deadly manner, and make the clothing of their children, from infancy, so tight as

to obstruct the circulation. Thus they commence the work of death from the cradle. I have known an ignorant, yet in many respects amiable mother, who made the clothes of her little daughter, only three years old, so tight that she could not bear to have them hooked, *only when in company*. Think ye this mother would wilfully murder her child? Far from it. But fashion was the mother's tyrant; and though this child was her darling, the object of her unceasing care, yet she dared not do otherwise than yield obedience to fashion. Let us not condemn her until we examine our own habits, and see if we are not in some way the slaves of this unmerciful deity that the world has exalted.

People should be awakened to a consciousness that there are duties that they owe to themselves as well as to those around them. Some of the more obvious causes of injury are carefully avoided. We would not stand in the way of a falling building; we would not swallow corrosive sublimate; but we see numbers drawing suicidal cords, till the blood labors on its course with the greatest difficulty, so imperfectly oxidized that the lips and face of the victim are often purple. These are objects of pity and blame to those who are producing not less fatal results, by the use of deadly narcotics. They will perhaps take the pipe or the cigar from the mouth, to inveigh against tight lacing, whilst their prostrated

energies, their deathly weakness and trembling, ought to warn them that they are as surely committing suicide, as the victim of vanity and fashion.

The evils of civic life cluster before me in such a manner, that I can glance only at a few of them. Females are more particularly victims than males, as the customs of society deny them out door exercise, and make them in many instances mere dolls and pretty things. During the day, and often a large portion of the night, they are loaded with clothing of a fashion the most absurd and ridiculous. Weak and exhausted from the excess of clothing, when they retire to rest, they sink in the enervating feather bed, loaded with the absorbed miasm of perhaps an hundred persons, who have before slept on it. The insensible perspiration or transpiration, which is continually thrown off from the human body, loaded with waste and hurtful particles, is thrown back upon us when we are sunk in a feather bed; and thus the body is immersed, through the night, in a vapor bath, saturated with the health-destroying effluvia of our own bodies. The system is thus enervated, and rendered susceptible of injury from changes. Those who are always fearful of taking cold, almost always have a cold. Can the delicate female, who loads herself with an excess of clothing in hot weather, be aware that she is weakening her whole system, laying herself open to

disease, and even inviting it — and all for fashion's sake? The belief that it is not moral obliquity, but want of information, that causes the many abuses we see in society, is a great consolation.

I have surveyed but a small part of the vast field before us. The advantages of knowledge become more apparent as we investigate, and the overwhelming woes, that are the consequences of ignorance, are presented with awful definiteness to our minds.

LECTURE II.

THE FORMATION OF BONE.

THE first step to be taken in the pursuit of science, is to discipline the mind. It is no child's play, to learn and understand the wonderful mechanism of the human system. When we consider the importance of this knowledge, I trust we shall all be willing to give the subject that patient attention and investigation which insures reward.

I once saw a young lady whose beauty, accomplishments and general knowledge made her quite fascinating; and yet she was so ignorant of anatomy, that speaking of one of her friends, who had

spinal disease, she said her friend was "dreadfully afflicted with the *spine* in her *back bone*." What lady would not shut herself up and study anatomy for months, rather than make such a ridiculous blunder!

The frame work of the body, that is, the bones, will first claim our attention; not because the bones are independent of the other parts, but because we must have a starting point. The bones form the basis of the human system — they support, defend, and contain the more delicate organs. Some may suppose the bones destitute of life, and hardly organized, and not liable to disease and death; but anatomy explains to us the structure of the bones, and shows their vessels. These vessels are full of blood, which nourishes the bones. The bones grow and decay, and are at times the subjects of terrible disease. The formation of bone is a very curious process. The bones of the infant, before birth, are cartilaginous. The bones of young children are soft and yielding; and it is a wise provision, as they meet with many falls that would endanger hard or brittle bones. I once saw an Irish woman holding her insensible babe in her arms, which had fallen from the top to the bottom of a long flight of stairs. The mother was comforted and relieved from her fears of a fractured skull, when she was assured by a physician, that her child's skull would bend an inch before it would break.

According to Bell and others, the cartilage that supplies the place of bone in the infant is never hardened into bone. These cartilages have their blood vessels, and the first mark of ossification is an artery running into the centre of the jelly, in which the bone is to be formed. By an artery is meant a blood vessel, which carries blood, that is capable of forming, nourishing and renovating the different parts of the body. By ossification is meant the formation of bone: *os* being the Latin for *bone*, and *ossify* meaning to form bone. This artery, which runs into the centre of the cartilage or jelly, carries particles of bony matter, which are deposited, and a minute speck of bone appears first; then particle after particle is carried and deposited, the jelly being carried away by another set of vessels to make room for the bone. Thus the work goes on, till the jelly or cartilage is carried away, and bone laid in its place. Some anatomists have said that the cartilage is not removed, but that the bony matter is impacted into its interstices. This may be true in some degree, but we have the best authority for believing that most of the cartilage is removed. You now see that bone is made from blood, as are all parts of the body. This is the vital fluid, that nourishes and renovates the body. You can now see why a bad state of the blood should affect the bones. I wish you to understand that there are organs whose business it is to take from the blood those particles

that are to form or renovate any organ or part of the body. Thus the organs select, with what seems almost living instinct, those particles which are to form bone, and they are deposited. This is regularly done, in a healthy state of the organs; and what will form bone is not alone selected, but the material for hair, skin, nails, muscles, and indeed every part and particle of the human body.

In order to the formation of good blood, you will at once see the necessity of good food. As every part of the body depends on the blood for nutrition, how important that this fluid be not only perfect in its kind, but properly manufactured, without injury to the vital organs. We know that a skilful workman will, by much labor, make a pretty good article of poor materials. So it may be of the blood, whilst the eliminating organs remain in a tolerably healthy state. But it does not hence follow, that good materials are not better than poor. And besides, we should remember that this unnecessary labor is wearing out the vital organs.

The blood may be bad from being made of bad materials, or from a deranged state of the organs of assimilation. A good workman may become, by loss of power, either of body or mind, incapable of making good work, even of good materials. It may be said, we cannot detect any difference between blood made from good materials and that made from

poor. I answer, we can read an author through his doings. The body is imperfectly nourished, and becomes diseased, when the blood is not good.

It is a truth, that in order to have perfect bones, and to keep them in a state of health, the organs whose business it is to convey nourishment to the bones, should be in a healthy state, and they should have the best materials from which to extract this nourishment. And it is certain, if the vital organs are continually disturbed and troubled by improper substances from which to eliminate nourishment, they will become jaded and deranged, and finally the whole regularity, harmony and economy of their action will be broken up, and all will go wrong. The assimilating organs cannot suffer alone. There is a sympathy between all the organs of the body; however great, complex, or minute, "all are but parts of one stupendous whole." If one wheel in a clock is injured, all will go wrong, because all the parts are dependent on each other.

You now perceive that all parts of the body are formed from the blood, and that all parts are formed by means of vessels, of organs whose business it is to eliminate particles from the blood, that will form, nourish or renovate the several tissues and organs.

If we take improper food, or food at improper times, or in improper quantities, we cannot have good blood formed, because there is not suitable

materials, or because the organs that make blood are rendered capable of working only in a lame and crippled manner.

Bone is formed of earthy matter — phosphate of lime — and gelatine. Where these parts are duly balanced, we have proper bone.

There is so much sympathy and relation between the different parts of the body, that good habits, and temperance in all things, are necessary to preserve all parts in health. “If one member of the body suffers, all suffer with it.” It is not the due observance of one thing, or two things, that will make us healthy or happy.

You see that bone is composed of earthy matter (phosphate of lime) and gelatine. Now if there is an undue proportion of gelatine, you will at once perceive that the bones will be too soft, and here comes to view that terrible disease called *mollities ossium*, or softening of the bones. Instances have occurred in this disease, where the bones of the miserable sufferer might be bent so that the heels would touch the back of the head. The bones are at times so soft, in this disorder, that they may be cut through with a knife. Numerous cases are on record, of such softening of the bones. An eminent writer, speaking of the cause, says, “It appears frequently to consist in a morbid state of the digestive organs; but it is seated, perhaps, as often in

the assimilating or secernent vessels, that is, the vessels that separate and appropriate those parts and particles that go to make up the bones.”

Now if people will abuse themselves, their digestive organs, or the other organs in the vital economy that are laboring for parts of the great whole, they must expect, as a consequence, the derangement of the functions. They must expect disease. It may be of this kind, it may be of some other.

Another disease of the bones is that familiar to you under the denomination of *ricketts*. Here let me observe, as a proof of the degeneracy of man, of his having left right habits, and come under the dominion of wrong habits, the fact that *ricketts* and its varieties are comparatively of modern date, and cannot be traced back farther than the seventeenth century. It is the opinion of the most eminent pathologists, that ricketts may be traced, in most instances, and bating the predisposition inherited from diseased parents, they might have said in all instances, to the want of a pure air, a warm and dry atmosphere, regular exercise, nutritious food, and cleanliness; and the severity of the symptoms is very generally in proportion to the extent or multiplicity of these concurrent causes.

Proper exercise, a dry, pure and temperate atmosphere, plain, wholesome food, cleanliness, and cold bathing, have often wrought a cure, without a

particle of medicine, though medicine may be necessary at times. No mother or nurse should for a moment admit the idea that she pays proper attention to cleanliness, without bathing the whole surface of a child's body daily.

It is believed rickets is not as common now as it was several years since, because people see that a rational course will save them from the evil. People are beginning to be aware that a regimen that will cause them to recover from illness, will preserve them in health. They are beginning to learn that they bring suffering and disease upon themselves and their offspring, by indulgence in habits which are only pleasant, or even tolerable, because we are depraved, or because they are *habits*. People suppose themselves the victims of some dire disease, which has come upon them, they know not whence or wherefore. They seem to have a kind of vague idea that they are afflicted with sickness for their sins; but they have not the shadow of an idea that it is for sin against the laws of life. I have heard Christians gravely arguing about the origin of diseases. I have heard them attribute sickness to the fall of man; but not one word was said about eating and drinking *every thing*—nothing of uncleanness, and of the thousand and one abuses of civic life.

I will here give a brief notice of a terrible disease, in which the bones and brain seem to suffer

most. I allude to the disorder called *Cretinism*, found mostly in the valleys of Switzerland, among the Alps, and also among the Pyrenees. This disorder resembles *ricketts*, though generally more severe, and more to be dreaded, as the organs of the brain share the fate of the diseased body; and there is an almost total obliteration of the mental faculties. "In Cretinism, the body is stunted in its growth, and the organs in their developement. The abdomen swells, the skin is wrinkled, the muscles are loose and flabby, the throat is often covered with a monstrous prominence, the complexion is wan, and the countenance vacant and stupid. The cranium [skull] bulges out to an enormous size. Their blunted sensibility renders them indifferent to the action of cold or heat, and even to blows and wounds. They are generally deaf and dumb. Their organs of sight, smell, taste and feeling are very limited in their operation, and of moral affections they seem wholly destitute."

The causes of this terrific malady, are, first, a close, humid and oppressive atmosphere. Their valleys are surrounded by high mountains, that shield them from fresh currents of air. They are thus continually steeped in a poisoned atmosphere, as their natural situation makes them the victims of the same contamination that people in civic life bring about by means of closed carriages, close,

unventilated rooms, crowded assemblies, where veils are often drawn before the face to further contaminate the already poisoned air. Every young lady ought to know that air once breathed is unfit for respiration a second time. Though I shall speak more particularly of air hereafter, I can hardly avoid saying, here, that though veils are bad enough in the open air, yet in a close room or crowded assembly, they are so great an evil, that every lady who wears one over her face, is verily *guilty*, whether she knows it or not.*

Though Cretinism may not be the result of a confined atmosphere, yet experience demonstrates that disease and death are its legitimate fruits. Other causes contribute to form Cretinism — improper food, indolence, uncleanliness, and hereditary taint, often of many generations. In this disorder we see the lamentable effects of many deleterious influences combined. Each of these influences would separately work an amount of mischief; but when combined, their effects become apparent to all, even to the most careless observer. If we would be free from each and every disorder, we must avoid each and every cause of disorder. The causes of disease are not as obscure as many are disposed to believe,

* I by no means wish to condemn veils, when the severity of the weather makes them necessary; but this was written when it was the fashion to wear veils close drawn in church and other assemblies.

and the causes of our many trials and difficulties in this world, lie more at our own doors than people are willing to acknowledge.

There is in the human system a continued waste and renovation. One set of particles are continually being thrown out of the system to give place to a new set, so that the entire system is continually being formed, wasted and renovated. There are vessels or organs whose business it is to cast these particles out of the system, that they may give their place to fresh particles, just eliminated from the blood. Now it is obvious that if there be a torpor of the secernents, or those vessels which separate particles from the blood to make any particular part, whether it be bone or brain, or whatever it may be, if there be disorder or torpor of these secernents, the part will not be properly nourished ; and if the excernents, or those vessels which separate and throw out particles from the system, keep on their work, the balance of healthy action will be lost, and disease will ensue,—and the reverse of this is equally true. For instance, the bony matter which the excernents should throw out of the system, is at times left in the bones, and they become impacted and brittle. There are cases of debility and functional derangement of the excernents, where the bones become brittle instead of soft. There seems to be in these cases a deficiency not only of

gelatine, but of one or more of the constituents of healthy earth of bones. I know an individual who has twice broken the fibula (the smaller bone of the leg) when walking deliberately along the street :— the bone snapped like a pipe-stem. The limb was set, and in due time, by perfect rest, united. After a few years, that bone, or the bone of the other leg, (I do not recollect which,) broke short in precisely the same manner. Be it remembered, this good man was a free liver, and though he ate no more of what are termed good things than many others, and though his manner of living, perhaps, caused no greater amount of suffering, in the aggregate, than others endure, yet he received a part of his punishment in a little different manner. I say a *part*, as he had almost continual rheumatism ; and this is by no means a novel complaint, and will not be, so long as men tempt their appetites, and, as a natural consequence, eat much more than they need, and make all their habits fruitful sources of mischief.

There is sometimes a sluggishness or debility in the vessels of the system, and hence their work is often improperly done. Bony matter is sometimes left to stagnate in the blood vessels, and they are thus rendered rigid and even ossific. They are even at times converted into bony tubes. As the arteries carry bony matter, and are in fact the instruments by which ossification is performed, there seems

great danger, if their healthy action is disturbed, that they will cause extensive mischief, either by carrying and depositing bony matter where it does not belong, or in consequence of debility and a deficiency of action, the earthy particles are left to stagnate in the sides of the vessels, and thus convert them into bony tubes. Instances of this kind have frequently occurred.

There is also at times a deranged and erratic action of those vessels which carry bony matter. It is thus often carried to, as well as left in, the wrong place. Bony matter has thus been found in perhaps every organ of the body — in the brain, in the heart, in the kidneys and glands; and even the ball of the eye has been found changed to bone, or, as we say, ossified; and in one comparatively recent instance, the whole body was ossified or changed to bone. It may be said, it will frighten people to know all this: I would that they might be frightened out of bad habits into good ones; for sooner will the sun again stand still, than any be thus afflicted, who obey the laws of nature. But disease, and suffering, and unnatural death, will ever await those who live in rebellion against these laws.

We have thus briefly noticed some of the diseases of the bones, and it may here be remarked, that generally, those parts of the body that are the slowest to become sensible of disease and distress, are sub-

jects of the keenest anguish when aroused to diseased action ; as those persons who bear a great deal of maltreatment without having their anger aroused, are usually very spirited when they are provoked.

Every bone has, like the soft parts of the body, its arteries, veins, and absorbent vessels ; and each bone has nerves — although the sensibility of bones, unless diseased, is very slight. Bones have no feeling, that is, they convey no sensation to the brain, when cut in amputation ; yet no pains are more severe than those of the joints and bones, when they are diseased. The bones serve as the basis of the soft parts. They also support and direct motion, and some of the bones have even a higher use, as the bones of the skull, which protect the brain. The ribs and sternum, or breast bone, which protect the lungs and heart, are often made the instruments of mischief, by means of compression upon the viscera within. I cannot now go out of my way to speak of that worse than heathen abomination, tight lacing. Truly, it is far more to be deprecated than the hook with which the wretched inhabitants of Hindostan pierce their flesh, and thus suspend themselves and swing in the air, the victims of a cruel superstition. The suffering and death produced in this way, are not to be compared with the misery and death which are the consequence of

compression. Injuries to those bones which guard the heart and lungs, are almost as fatal as injuries to those which guard the brain. The breast bone may be made to press inward upon the heart in such a manner as to burst it. But more commonly the poor sufferer dies a slow and miserable death, worn out by anxiety and oppression, fainting, palpitations, anxious breathings, quick and interrupted pulse,—still more frequent faintings, and death. I trust I shall hereafter convince the most incredulous of the truth of what I have just said : but one thing at a time.

It may be well here to speak of the teeth. There are three periods in which dentition, or the breeding and cutting of teeth, takes place uniformly—in infancy, in youth, and adult age; and sometimes teeth are produced in advanced life.

The teeth of man are composed of two distinct sets, differing both in number and structure. The first, or smaller set, consist of ten for each jaw. These are usually cut between the ninth and twenty-fourth month after birth, and are shed between the seventh and fourteenth year. These are called the milk teeth. The second, or larger set, consist of fourteen, fifteen or sixteen for each jaw. These, with the exception of the farther grinder, are usually cut by the eighteenth year. This generally appears after the twentieth, and sometimes as late as the thirtieth year; and they are hence

called the wisdom teeth. The rudiments of the teeth lie in the jaw bone, like little lumps of jelly. They are surrounded by a peculiar membrane, and a bony socket. This socket shoots up from the jaw bone, as the teeth advance. It accompanies the growth of the tooth, and at first entirely surrounds it, in consequence of its being secreted and hardened with more rapidity than the tooth. By this admirable contrivance a firm support is given to the gums, from the time of birth, and the infant is enabled to make sufficient pressure to nurse, without interfering with the form which the teeth are destined to receive. In due time, however, the socket yields its upper surface, and the tooth is forced through, and cuts not only the socket, but the gum.

When the first set of teeth has answered its temporary purpose, it has its roots absorbed, and the teeth are shed. The sockets also are absorbed, at the same time, and disappear. This change is wonderful, and shows us clearly the nice adaptation the different parts of the body have to the condition of the body.

The large, permanent teeth, with their appropriate sockets, are produced when they are needed. Before the first set of teeth are shed, there are two sets in the jaws. With children there is often much irritation and functional derangement during the period of breeding and cutting teeth. To

enable a child to pass safely and comfortably through this period, such a course should be pursued as will invigorate the child, and render its health firm previous to this time of trial. The whole surface of an infant's body should be bathed every day, from its birth, with cold or slightly warm water. It should not be kept from the air; its nursery should be thoroughly ventilated. I do not like the term nursery; it implies too much confinement. Children and infants should not be confined; they should have air; they should have exercise. Few people are sufficiently sensible of the importance of air and exercise. The blood will not be good, unless we have pure air. This I shall fully demonstrate in another place. But good blood will not circulate freely without exercise.

Whatever renders the general health of the child good and firm, in the first months of its existence, will diminish its danger in the period of dentition. Indeed, were children rationally managed, there would be little trouble experienced at this season. There is sometimes considerable inflammation, when the teeth shoot upward rapidly, and the membrane that surrounds them does not readily give way. This can be immediately removed by cutting down to the tooth. When the imprisoned tooth is thus set at liberty, the inflammation ceases as by a charm. Some object to cutting the gum, fearing that the

tooth will not readily come forward, and that the cut edges will unite, and form an indurated substance above the tooth, and thus render it more difficult for the tooth to protrude. Experience does not justify these fears, but shows conclusively, that it is best to set the tooth at liberty. Life has, no doubt, often been saved by resolutely cutting the gums.

There is often much local irritation in teething. The grand point to be gained is to moderate this irritation. A diarrhœa, or excessive flow of saliva, is nature's method of doing this; but how many mothers are excessively alarmed at the diarrhœa, as if this were the disease, and not a relieving process.

And here comes in that dreadful practice of drugging the little sufferer, often to death. Laudanum, paregoric, "Godfrey's cordial," and many more deadly mixtures, are in their turn resorted to. Happy is the child who is hardy enough to live in spite of these abuses. My heart aches when I see innocent children thus abused by kind parents, who would do them good, but who are ignorant. I can hardly restrain my indignation, when I contemplate the disease and misery and death which are caused by quacks, and their detestable compounds, which are sold by men whose only aim is to get money. Many who will not give their children opium, will not hesitate to give them cordials and elixirs, the bases of which are opium.

A most distressing circumstance came to my knowledge, not long since. A young woman had a lovely babe. This darling was slightly ill, and of course demanded more care than ordinary. The mother was told to give it paregoric to quiet it. She did so; but she gave it so large a quantity, that her child slept the sleep of death. A friend of the miserable mother told me that she often went to the grave of her child, and threw herself upon its ashes, to weep, and upbraid herself with its murder.

O may mothers be persuaded to let these deadly drugs alone. What is poisonous in large quantities, is poisonous in small quantities. Its effects may be less obvious, but though slow, they will be *sure*. The practice of dosing children with narcotics, or indeed any medicine, is a practice fraught with danger.

Dentition is often attended with pain and functional derangement, in the adult. I recollect reading in a medical work, of a lady who was extremely ill, and who was thought to be far gone in a decline; and the cause was, all the while, one of the wisdom teeth was struggling to cut through the membrane and gum that bound it. A slight touch of the lancet set the tooth free, and all the alarming symptoms of disease and decline rapidly disappeared.

LECTURE III.

NUMBER AND POSITION OF THE BONES.

THE bones of the head, which contain and defend the brain, are eight in number. The frontal bone forms the forehead and fore part of the head. The parietal or wall bones, from *parietes*, the Latin word for wall, form the sides and upper part of the head. The *os occipitis*, or occipital bone, is named from *occiput*, or back of the head, from its forming the back part of the head. The *ossa temporum*, or temporal bones, form the lower parts of the sides of the cranium or skull. They are called temporal, from *tempora*, the Latin word for times; as the hair first turns grey on these bones, denoting the time of life. The ethmoid and spheroid bones are hidden in the base of the skull. The ethmoid bone is perforated with holes. Through these holes it transmits the olfactory nerves. It takes its name from these holes, *ethmoid* or sieve-like bone. It forms an important part of the nose. The *os spheroid* lies in between the occipital bone and the ethmoid bone. It lies at the top of the throat, forms the back of the nostrils, supports the centre of the brain, and transmits several of its nerves. All

these bones are joined together by seams, which have indented edges, much like saw teeth, which shut into each other. These seams are called by anatomists *sutures*.

The spine, or back bone, which supports the head, is a long line formed of twenty-four distinct bones, named *vertebræ*, from the Latin *vertere*, to turn. Each bone has a hole through its centre, and when put together, they form a long tube, which contains and protects the spinal marrow. The bones of the spine are very free in their motions, and yet very strong. The spine is flexible enough to turn quickly in every direction, and yet it is steady enough to protect the spinal marrow, the most delicate part of the nervous system. The atlas is the uppermost bone of the vertebral column, so called because the head rests upon it. The second is called *dentatus*, because it has a tooth-like process, upon which the atlas turns. Where the head is joined with the atlas, there is a hinge joint, by means of which we can move the head backward and forward, and up and down. The turning motion is obtained by means of the tooth-like process of the *dentatus*. When we nod, you see we use the hinge joint. When we turn the head, we use the *dentatus*. This tooth-like process is separated by a broad flat ligament from the spinal marrow. It is completely shut up from the spinal

marrow by this ligament. All the vertebræ joined together make a canal or tube of a somewhat triangular shape, in which the spinal marrow is contained, which appears to be a direct branch of the brain. The whole course of this canal or tube is rendered smooth by delicate lining membranes. The spinal marrow lies safely there, moistened by an exudation from the membranes. All the way down the spine, this medulla, or spinal marrow, is giving off nerves to the different parts of the body. There is a notch in each vertebra, and when they are put together, two notches coming together form a hole; through these holes twenty-four nerves are given off on each side of the spine. Between every two bones of the spine a cushion of a firm, elastic substance is interposed. It is called intervertebral substance, and somewhat resembles India rubber. This substance is powerfully elastic, for though it yields easily to whichever side we incline, it returns to its place again in a moment.

This elasticity is of very great importance; it enables us to perform all our bendings and turnings, and in leaps, shocks and falls, its elasticity prevents harm to the spine. During the day, these elastic cushions yield by continual pressure, so that we are a little shorter at night than in the morning. And in old age people are shorter than in youth, and the aged spine is also bent forward by the yielding of

the intervertebral cushions. Any undue inclination to either side will cause distortion of the spine from the yielding of this elastic substance on one side, whilst it rises on the other. At last the same change happens to the bones, and the distortion becomes fixed and not to be changed.

The importance of a knowledge of these facts concerning the spine will soon be apparent. Just think of a child sitting in a cramped and unnatural posture during six hours of each day, in our ill-constructed school houses, allowed little time for relaxation or exercise, and obliged to hold the head down and study, or pretend to study, when the body is often in excruciating torment.

Is it wonderful that distortion of the spine, with all the distress and anguish it brings in its train, is so common? The yielding bones of children are more easily distorted than the bones of older persons. When the frame is yielding, and the whole system most susceptible of hurtful impressions, children are cramped and confined, and exposed to moral and physical influences eminently calculated to ensure moral and physical destruction.

Such is the infatuation of many under the old system of school government, that many parents and teachers wish their children to sit perfectly still during school hours, without a smile, a whisper, or even an inclination to the right hand or left, to

obtain any thing like rest. I rejoice that this iron system is giving way to the more rational, humane and life-preserving social system.

Under the old method, little or no interval or recess must be allowed. Children must be like posts or blocks in school, and they must not relax out of school. I have seen a good lady, who was visiting a school, manifest great impatience toward a little girl, because she moved her hands when reading, and I have more than once had my dress tugged by little hands, when company was present, (who might have been a delight and a treat to the school by unbending a little, as they would in a family,) with "When will they go away?"

Such unnatural constraint ought not to be imposed. It makes children unhealthy and unhappy. They learn to hate, rather than love their teacher. They hate school—they hate often an amiable teacher, merely because that teacher has not understanding or independence enough to pursue a right course. Many have understanding enough; but they have not independence. They dare not face public opinion. I would not counsel any one to go against public opinion, unless it be wrong to go with it. We all love the good opinion of our fellow creatures; but when we have a duty to perform, public opinion will never exonerate us from blame, if we are such slaves that we dare not discharge

our duty. True, we should ever act with prudence, and much may be done silently and without ostentation, which could not be done in a different manner.

Exercise is by many considered romping, especially in schools. It is considered worse than lost time, and if the teacher exercises with the scholars, as every teacher will who regards the moral, physical and intellectual improvement of children and youth — for all these are closely connected — such a procedure is regarded by many as highly improper and even vulgar.

An intelligent teacher once said to me, in reference to my joining in the exercises of my pupils, "I don't love to see teachers *romp* with their pupils." She was ignorant of anatomy and physiology, and she revolted at the idea of mingling in the sports of her pupils, not reflecting that it is highly important in a moral as well as a physical point of view. By mingling in the exercises of a school, a teacher can control and direct them — can see that the exercise is neither too violent or too long continued — can by well-timed caution and reproof keep unkindness and ill feeling in check — and by encouraging innocent mirth and cheerfulness, add greatly to the common stock of health and happiness. And the love and respect children feel for instructors who thus teach them how to exercise

and develope their bodies, as well as their minds, are very great. And if a teacher is a Physiologist, as every teacher ought to be, the pupils will thus learn much of Anatomy and Physiology.

It will be evident to all, that when scholars, young or old, are confined in school to uncomfortable benches, the evil is greatly increased, if their clothes are too tight: and how few dress sufficiently loose for the purposes of health and comfort. More of this, however, hereafter. But who that for one moment contemplates the abuses to which our species is subjected, would not exclaim, in bitterness of spirit, Alas, for outraged humanity!

There are many other methods for procuring distortion of the spine. One is to sit at embroidery. Any steady, trying, sedentary labor may produce distortion. Young people whose frames are hardly developed, and whose bones are yielding, sit much in this manner, with their dress fitted tightly to their forms, or rather their forms fitted to their close dress, in a manner most destructive to health.

O that the customs of society would let females out of prison. O that they might be allowed to rid themselves of the torment and torture of a style of dress fit only for Egyptian mummies. And will our countrywomen ever be such servile slaves to customs they might reform? Will they always ape the wasp, when the freedom of grace

and ease are within their reach? The free, full and swelling waist, the graceful folds of the floating robe, with its true Roman elegance,—must these ever be mere ideal goods? Will not American females rise in the full vigor of intellectual majesty, and hunt from society constraint and compression, and the untold anguish they produce?

But what avails the Roman style of dress, if our waists must be cramped beneath its swelling folds? I have no patience with the world: man, on whom the noble gift of reason was bestowed to improve his condition, makes himself more wretched, more to be pitied than the lowest animal. Why is it so? It is because, though made “upright, he has sought out many inventions.”

The ribs are twenty-four in number—twelve on each side. They are joined to the vertebræ by regular hinges, which allow of short motions. They are joined to the sternum or breast bone, by cartilages. Seven of the ribs are called true ribs, because their cartilages join directly with the sternum; three are called false ribs, because they are joined by cartilage with each other, and not directly with the sternum. There are two called “*floating ribs*,” because they have no connection by cartilage or otherwise with the sternum. The sternum is the breast bone. It completes the cavity of the chest, defends the heart, forms a place of attachment for

the ribs, and a fulcrum for the *clavicle* or collar bone to roll on. The sternum in youth consists of several pieces, which unite in after life, so as to leave but three pieces, and one of these is a cartilaginous point, called the ensiform cartilage. This cartilage in youth is easily bent out of shape, and a permanent displacement of it, with very injurious results, may take place from leaning much against the sharp edge of a bench or desk at school, lacing the clothes too tightly, &c.

The clavicle or collar bone is placed at the root of the neck, above the breast. It extends from the tip of the shoulder to the upper part of the sternum. It is named clavicle, from its resemblance to an old fashioned key. It is useful as an arch or brace, to keep the shoulders from falling in. The scapula or shoulder blade is a very curious bone. This bone is merely laid upon the chest, connected to the clavicle by its acromial process, and by a capsular ligament with the humerus. It is bedded in the flesh and moves and plays freely by means of muscles. The socket where the head of the humerus or upper bone of the arm fits in, is quite shallow and allows of free motion. The whole scapula is covered with broad flat muscles, [by muscles you will understand flesh,] which move the shoulder in various directions. This freedom of motion depends on a construction of the joint, which renders the shoulder

more liable to dislocations than the other joints. The joint of the shoulder slips out more easily than the other joints, yet it is often very difficult to be set, and it sometimes requires much skill and great strength to set the shoulder when dislocated.

Were people fully aware of the wonderful and intricate machinery of all parts of the human frame, they would be cautious, they would be more than cautious, they would revolt from the idea of employing quacks and "natural bonesetters" to wrench their limbs, even though by a happy accident these should at times succeed in getting a bone into place. Who ever heard of a *natural watch-maker*, or even a *natural basket-maker*? These trades require practice. Men must be educated in them, before they can become skilful. Yet such is the gullibility of mankind, that people will submit to have their bones operated upon by men who know not their number or position, any more than the quack who attempted to set an old lady's shoulder. I have forgotten whether it was or was not dislocated. Be that as it may, he undertook to set it. After sundry severe wrenchings he told her he had succeeded in getting three of the bones into place, and he thought he should soon set the *remainder*. Now if this woman had known the number and position of the bones, she would have told the quack that he might have the care of all the bones in her shoulder

over three, but of no others. But so people are gulled and abused, because they have not knowledge. With what pleasing and joyous anticipations do the friends of science look forward to that period when this black night of ignorance shall be chased from our beloved land, and light be poured in, even to every dark corner.

How can the dawn of this day be hastened? I answer, by the efforts of woman: let woman use her energies, let her attain that moral and intellectual elevation which is her right. Let her attain that height where men *cannot* look down upon her, if they *would*. Let her repudiate at once and forever those sickly tales of fiction that enervate the mind, without informing or improving. Let her nobly resolve that she will have science, that she will be no longer a plaything, a bauble. When woman thus arises in the greatness of her intellectual strength, then there will be a new era in the history of our world.

The bones of the arm are three in number. The upper or *os humeri*, or humerus as it is commonly called, has at its upper end a round knob or head, which fits into the socket of the scapula or shoulder bone. Though this socket is shallow, yet the acromion and coracoid processes keep the arm bone or humerus in its place. These two processes alone must impress the mind with the idea that wisdom

and design made us what we are. Between the elbow and the wrist are two bones, the radius and the ulna. The radius is so called from its resemblance to the spoke of a wheel, and the ulna from its having been used as a measure.

The radius is connected with the wrist, and turns along with it, in all its rotatory motions. The ulna belongs more especially to the elbow joint. So you see that the bending motion of the arm is provided for by the ulna, as that forms a hinge joint at the elbow, and the turning motion by means of the radius, which is joined at the wrist and then is laid on the ulna, where it turns. The radius belongs entirely to the wrist, and the ulna entirely to the elbow, yet they have never been known to be separated in the living frame by any accidental force, however great.

The carpus, or wrist, consists of eight bones, all movable, yet closely packed in. The metacarpus, or bones of the hand, are five; the remaining bones of the hand are fourteen. Much has been said of the importance of the human hand. Little do we ordinarily realize of its immense value. Man is born naked, yet capable of clothing himself. But how would he clothe and feed himself without hands? It is difficult to conceive, at once, how superlatively wretched the human race would be without hands, and how soon the race would become extinct.

What a blessing is the human hand ! Let us realize the greatness of the gift, and never employ our hands in any evil or useless work ; but let the works of our hands ever be such, that the great Giver of every good can look upon them with approbation.

We now come to speak of the bones of the pelvis. It is a circle of large and strong bones standing between the trunk and the lower extremities. It is called pelvis, perhaps, from its general shape, which somewhat resembles a dish — pelvis being the Latin word for vessel. Perhaps it may be from its containing so much in its cavity, that it is called pelvis or vessel. It is formed of four large bones, the *os sacrum* behind, the *os coccyges* below, and the *ossa innominata* at the sides. The *ossa innominata*, or nameless bones, have sockets to receive the hip. The *sacrum* forms the lowest point of the back bone. It is perforated with holes : through these holes are transmitted a bunch of nerves.

The thigh bone, or *femur* as it is called, is the largest bone of the body ; it supports the whole weight of the body. The body is seldom so placed as to rest equally on both the thigh bones. Commonly it is so inclined as to throw the whole weight on one side. You see then the necessity that this bone should be very strong. It may well be said that the human frame, as a whole, and in all its parts, is a masterpiece of design and contrivance.

The head of the thigh bone or femur is the most perfect in the human body. It is completely received into a deep socket in the *ossa innominata*. It is naturally, without the help of ligaments, the strongest joint in the body. But, as a farther security, there is a very strong ligament attached to the round head of the femur, and this grows fast to the bottom of the socket, and thus so firmly secures the joint that it is seldom dislocated. You see how this joint might be slipped out of its place, by some of our varied movements, were it not *tied in*.

In the leg, between the knee and ankle, are two bones called the *tibia* and *fibula*. The knee joint is very curious. It is not a ball and socket joint, neither is it a proper hinge joint, guarded on either side with projecting points, like the ankle. The bones at the knee are merely put together and then secured by means of ligaments. These constitute its strength, and by means of these it is the strongest joint in the whole body. In those who abuse themselves by improper living and habits, these ligaments are diseased. You are aware how terrible diseases of the knee are, and by preventing exercise, they cause many other truly distressing disorders.

The *tibia* is a very large bone, and needs to be, as it bears the whole weight of the body; the *fibula* being placed by its side, to strengthen the leg and form the ankle joint.

The *patella*, or knee pan, is a curious little bone, which is a kind of pulley, that enables the muscles to act with great power.

There are seven bones in the ankle, five in the metatarsus, and fourteen phalanges in the foot. The bones of the foot are fastened together very strongly, by means of a gristle. This gristle yields so as to enable us to tread with equal ease on level or uneven surfaces. The arching of the foot has been regarded as a very curious contrivance, and it is indeed curious. For a moment let us suppose our feet made of one piece of bone, or that we had wooden feet. How very difficult we should find it to walk! And how very difficult many do find walking, from the fancy they have taken to imitate the Chinese ladies! Why do our females wish to be heathens, while living in what is called a Christian land? Why mar the fairest and most useful part of Heaven's grand mechanism, by such ridiculous fashions?

A great physician once said that "snuff would never injure any one's brains, because any one who had brains would not take it." But we know better than this; we know that sensible people are as often the slaves of bad habits as those who are deficient in sense. Sensible ladies will pinch their feet, under the false notion that it is genteel to have small feet. Genteel!—Is it genteel to have corns,

to have a shapeless mass of a foot, that would frighten an anatomist, or that he would at least set down as a nondescript? Is it genteel to have impeded circulation, and all its train of horrors? Oh, when will ladies of sense "come to their senses," and leave off tight shoes, and the thousand torments which they inflict upon themselves, at fashion's bidding? In the present mode of dressing, or rather compressing feet, we have something very analogous to wooden feet. Ladies who wear fashionable shoes, would be very unwilling to have wooden feet. They would decide at once, that there would be no elasticity in such feet.

Then, in the name of common sense and common humanity, why squeeze the feet till they are well nigh as inefficient as the foot of a Chinese, or a wooden foot? Ladies, think me not too severe upon this wicked fashion; I realize at least a part of its evils. I know something, to say the least, of the injurious effects of impeded circulation, and you would know, if you would tie a cord round a limb so tight as *wholly* to stop the circulation of the blood. You would be satisfied that the death of the limb would be the consequence. Now by compressing the feet, we produce bad effects in proportion to the pressure applied. But you will understand this more fully, when you have become acquainted with the blood and its circulation. But

trust me, ladies, this fashion of pinching the feet is cruel, unnatural and dangerous; besides, it destroys elegance in the walk, and makes our ladies totter and hobble along like a cripple, or a fettered criminal. Let us have more room in this world.

All parts of the human system bear marks of wonder-working power and design. You will recollect that in speaking of the joints, I have often spoken of the ligaments which help to form the joints. These ligaments are of different kinds. There are tendons, which are short, strong cords, fastened to the ends of the muscles, and then to the bones. Had the muscles been continued and fastened to the bones, our joints would have been unseemly and misshapen masses, and would not have had the strength they now have. There are other ligaments which arise from the membrane which surrounds the bones, which is called the *periosteum*. These ligaments form bags, which completely shut up the joints. These, from a peculiar fluid which they exude, and which lubricates the tendons, muscles and bones, are called *bursæ mucosa* or mucous bags.

The *bursæ* or bags and the capsules of the joint are much the same thing. They pour out a fluid called *synovia* upon their inner surface, which not only keeps them moist and supple, but as it were oils the joints, and prevents their wearing out. It

is very evident dry bones would soon wear out: but such wonderful provision is made for our numerous motions, that our joints last as long as we last to use them — unless people abuse themselves by taking improper food and drink, and by other improper habits, so as to bring upon themselves that disease which is characterized by a deficiency of this synovia or lubricating fluid. In this disorder the bones grate as the heads of the joints rub together, and those who thus suffer resort perhaps to doctors, perhaps to quack medicines, to get cured of what they should have known how to prevent. But it is to be feared that some will not try to prevent these evils, even when taught. I once saw a man climb with much difficulty into a stage coach. He had the gout, and could with difficulty get up the steps of the coach. But as soon as he was seated he commenced a tirade against plain food. He declared himself temperate with regard to drink. By this he probably meant that he drank no ardent spirits. But he had managed to get the gout, without ardent spirits. He declaimed against a plain way of living, talked of Grahamism, saw-dust bread, &c. A lady who sat next him, cast a significant glance at his swollen limbs, and remarked, in substance, that plain food was excellent for lameness. He replied that he would not live on such food, if he knew it would prolong his days. He was for a

“short life and a merry one.” I confess I thought I could not be very merry if I had been afflicted with gout as badly as he was. But it is a solemn thing that men should think they have a right to squander life because it is theirs. They would think it wrong to commit suicide, by hanging, or drowning, or severing the jugular vein ; but they seem to have no idea that they are as verily guilty when they indulge in those habits and that manner of living that will assuredly shorten life. When will people be aroused to view these subjects as they ought? When will they consider that as great an amount of guilt is attached to the man who gluts or poisons himself to death, as to one who cuts his throat or hangs himself? I need not to go into a labored argument to prove that temperance is a virtue. You all believe it — it is no new doctrine. It is inculcated in the Holy Scriptures ; it has been recommended by great men in different ages of the world. The greatest medical writers have insisted on temperance. I do not use the word temperance in its popular or technical sense. I mean moderation in eating as well as in drinking and in all things.

Sir Isaac Newton, when he applied himself to the study, investigation and analysis of the theory of light and colors, to quicken his faculties and fix his attention confined himself to a small quantity

of bread, during all the time, with a little sack and water. Many instances might be given of great men who have thus lived.

But let us return again for a few moments to the bones. The long bones are hollow, and their cavities contain marrow, which is solid oil. Authors have differed about the use of this. Some have thought it intended to lubricate the bones. One eminent anatomist seems to think it more of an accidental deposition than others allow. Some think it intended to support the body in seasons of privation, when no food can be obtained, or in sickness, when no food can be taken. I have heard it called by an excellent anatomist, "a granary for the support of the body in seasons of sickness and privation."

We have abundant reason to believe, that whether we understand its uses or not, it is indeed a wise provision, and answers a valuable end. It consists of bunches of globules arranged on a kind of stock, and when shaken out resembles a cluster of grapes on the stem. These globules, when seen by a microscope, are round and white, seeming like little pearls. Each stalk is an artery, and a twig of the artery goes to each little globule. Each artery secretes and fills the cell of its globule with marrow.

It may now, perhaps, be well to review a little what we have learned. We have considered, first,

the formation of bone. We have seen how it is deposited at first, particle by particle, by means of arteries. We have attended to the shape and uses of many of the bones, and have seen how they may become diseased, and what are the causes of disease in them. The whole head above the neck consists of sixty-three bones. The spine or back bone, contains twenty-four separate bones; these are called vertebræ. At the bottom of the spine are four more. There are twenty-four ribs — twelve on each side. Then there is the breast bone or sternum. A complete human skeleton contains two hundred and forty bones. The study of the nature and structure of bones is called osteology. The study of the muscles only is called myology. The study of all parts of the body, bones, muscles, tendons, nerves, brain, blood vessels, heart, lungs, skin, &c., is called anatomy. Physiology is the study of the living animal, and the uses of all these parts, and how they act.

LECTURE IV.

MUSCLES, EYE, EAR AND NOSE.

WE now come to speak of muscles. Muscles are the lean part of flesh — what is often called lean meat. They are red, owing to the blood that circulates through them. You can soak or boil the blood out, so as to leave the muscles nearly white. The muscles are the instruments of motion. Perhaps many of you are not aware that your bones are clothed with flesh or muscles, to enable you to move. You could not move a finger, a hand, or even open your eyes, without the help of muscles. Sometimes the muscles grow into the bones directly. They seem to be glued on, by means of the periosteum, but generally they end in short tendons, which grow to the bone, and thus fasten the muscles. These tendons are short, strong straps, and you are familiar with them in flesh, though not by this name. They are sometimes called “whit-leather,” or “packwax.” The tendons in a turkey’s leg above the knee have hardly escaped your attention, for they are almost as tough as leather. I once saw a lady offended for life, with a gentleman, because he helped her to a turkey’s leg. She thought the offer

of such a bundle of tendons an insult. The muscles usually terminate in these tendons, and these grow on to the bones; but sometimes the muscles grow directly to the bones. Motion is performed by the contracting or shrinking of the muscles.



Being fastened to the bones at each end, if they shrink, you will at once perceive that they will draw one bone up towards the other. Thus the biceps

muscle, as it is called, is fastened to the shoulder and one of the bones of the forearm, and you can see how it must by shrinking draw up the arm toward the shoulder. So it is with the muscles of the leg. We wish to lift our feet, and the muscles shrink, and we are enabled to do it. So it is with every motion ; we are enabled to perform it by means of muscles — even to raising the eyelash, or contracting the brow.

There is a story in that excellent little work on anatomy, called the “ House I Live in,” which so admirably illustrates the action of muscles, that I cannot forbear repeating it, even though familiar to many of you. “ In front of St. Peter’s church at Rome, stands an obelisk of red Egyptian granite, 124 feet high. It was brought from Egypt to Rome, by order of the Roman Emperor Caligula. However, it lay partly buried in the earth, where it was laid down, till about 250 years ago, when Pope Sixtus V., by the help of forty-one strong machines, eight hundred men, and one hundred and sixty horses, succeeded, in eight days, in getting it out of the ground. But it took four months more to remove it fifty or sixty rods farther, to its present situation. When they reached the spot, the grand point was to raise it. They erected a pedestal, or foot piece for it to stand on, shaped like four lions ; by means of powerful machines, strong ropes and tackle, they succeeded in placing the bottom on the

pedestal. Then they began with their machinery to raise it. But when it was nearly up, so that it would almost stand, the ropes, it is said, had stretched so much more than the master workman had expected, that it would go no farther. What was to be done? Fontana, the master workman, had forbidden all talking, and they now stood holding upon the tackles, so silently, you might have heard a whisper. Suddenly an English sailor cried out, 'Wet the ropes.' This was no sooner said than done; when, to the joy and surprise of every one, the ropes shrunk just enough to raise the obelisk to its present place, where it has stood nearly 250 years."

At first thought, this story may not seem to you to have any thing to do with the action of the muscles. But the muscles shrink to draw up or move a limb, or any part of the body, much as these wet ropes did, to move the obelisk upward, so that it stood upright on its pedestal. Muscles contribute much to beauty. They clothe the bones, which without the muscles seem unshapely and almost frightful.

It is thought by some that fat contributes to beauty. Some fat may round the form, and make it look better; but much fat is a sign of disease. The ideas of ill health and fat are so associated in my mind, that I dislike very much to see fat people. A strange

ignorance pervades community upon this subject. People are not aware that fat in excess, is a disease, as much as dropsy ; and that it is ranked among diseases by medical men.

I am not prepared to say how much fat belongs naturally to the system in a state of health ; but I believe the quantity which is usually taken as the standard of health, is very far from it. A child may be fed on improper food so that an excess of fat may be generated. At the same time proper exercise may be neglected ; this will increase the deposition of fat. Bathing the whole surface of the body may also be neglected. The pores thus become closed, and the dissolved oil, or fat, has no chance to pass off with the perspiration. Thus the child becomes diseased, loaded with fat, and is regarded by those around as a "very healthy child, else how could it be so fat?" The child may have very ill turns, and even at times be dangerously ill, but the friends console themselves with the idea that it is *natural* for children to have ill turns. "Why," say they, "all children have *sick spells*." And then the child looks so fat and healthy, this is surely a comfort. It may be a friend who is a physiologist, and consequently a plain liver, has a very healthy child, but it is not fat. Plain vegetable food will not make much fat. "What a miserable looking child!" says one, "How poor the little

creature is!" says another, sorrowfully. "Starvation, Grahamism!" says a third, in no very gentle tones.

Fat often concretes on the surface of the skin, becomes mixed with hardened mucus, and forms those little pimples so common on the face. A plain, simple diet, and frequent ablutions, will in time wholly cure this disagreeable eruption. I knew a young man, who was a very gross liver, whose face was one continued cluster of these pimples, with their disgusting yellow heads. He was so proud, he could not endure the sight of his face, and he determined to abjure his gluttony, to improve his countenance. He succeeded, by plain diet, and bathing the whole surface of his body, in getting quite a smooth, handsome face. But in the mean time, he lost a large amount of fat, and became quite lean. But the best of the story remains to be told. He had very little mind previous to this alteration; or rather, such was the state of his body, that his mind was weighed down and cumbered, and had no chance for action. He was a dull, poor scholar, and his friends despaired of his ever becoming useful to himself or others. But after this change in his habits, he became as studious as he had before been dull and idle. He made rapid progress in study, and his whole being and character seemed altered.

Fat is a bad conductor of heat. It keeps the body warm. Those who have much fat perspire easily, and are almost always too warm. Where the secretion of fat is beyond a moderate quantity, say about one-twentieth part of the whole frame, the play of the different organs is impeded; the size of the blood vessels is diminished; the pulse is oppressed; the breathing becomes hard and difficult. There is an accumulation of blood in the head and heart, because it is with difficulty that the blood can flow through the oppressed and compressed vessels. There is a general tendency to drowsiness and palpitation, and there is always danger of apoplexy. Fat sometimes overloads one organ, sometimes another, and sometimes the whole system. It is regarded by medical men as a dropsy of oil instead of water.

John Mason Good, the justly celebrated author of "The Study of Medicine," "Book of Nature," &c., says, with regard to the cure of obesity, or fat, "that as a life of indolence and indulgence in eating and drinking is highly contributory to obesity, the remedial treatment should consist in the use of severe, regular and habitual exercise, a hard bed, little sleep, and dry and scanty food, derived from *vegetables alone.*"

"Generally speaking," says the same great author, "the diet and regimen just recommended,

with a spare allowance of water, will be sufficient to bring down the highest degree of adipose corpulency." "Of this," says Good, "we have a striking example in the case of Wood, of Billerica, in Essex. Born of intemperate parents, he was accustomed to indulge himself in excessive eating, drinking and indolence, till in the forty-fourth year of his age, he became unwieldy from his bulk, was almost suffocated, labored under very ill health from indigestion, and was subject to fits of gout and epilepsy. One would think all these enough for one person to bear. Fortunately a friend pointed out to him the life of Cornaro. He instantly resolved to take Cornaro for his model, and, if necessary, to surpass his abridgements. With great prudence he made his change from a highly superfluous to a very spare diet, gradually — first diminishing his ale to a pint a day, and using much less animal food, till at length finding the plan work wonders, in his renewed vigor of mind as of body, he limited himself to a simple pudding made of sea biscuit, flour, and skimmed milk, of which he allowed himself about one and a half pounds, about four or five o'clock, for his breakfast, and the same quantity for his dinner. Besides this he took nothing, either solid or fluid, for he had at length brought himself to abstain even from water, and found himself easier without it. He went to bed about eight or nine o'clock,

rarely slept for more than five or six hours, and hence usually rose at two o'clock in the morning, and employed himself in laborious exercise of some kind or other, till his breakfast. By this regimen, he reduced himself to a middle-sized man of firm flesh, well colored complexion, and sound health."

This course, or something analagous to it, Dr. Good recommended to the famous Lambert, of London, of whom it was facetiously said, that he was the greatest man in England. He weighed seven hundred and thirty-nine pounds. But Lambert did not try the experiment of curing himself by this simple, self-denying course, and he died in about three years after consulting Dr. Good.

It is presumed those who wish to become lean will not despair of accomplishing their object, after hearing the case of Wood of B llerica. If they will add bathing to their abstinence, they may be sure of success in time. Bathing keeps open the pores, and gives the dissolved oil a chance to pass off with the perspiration. Many people seem to suppose fat people and fat children are healthy. I have heard the remark made of fat persons, "They complain a great deal, but they look well;" and children, too, who are fat, are called "pictures of health." People ought to be better informed on this subject. I would have no one get the idea that all fat people are gluttons, or that all gluttons

are fat. Some people have a peculiar tendency to grow fat, even on a very small quantity of poor food. Let such bathe the whole surface of the body often, and use active exercise. Others will remain poor, when they take large quantities of food. When food is taken in excess, it breaks down the powers of the stomach, and disables it from assimilating nourishment sufficient for the body. Hence great eaters are sometimes very poor and thin.

We now come to consider the skin. This is compressed cellular substance. By cellular substance I mean a membrane composed of little cells. The skin consists of several layers. The outermost is the *cuticle*, or *epidermis*. It is a dry thin membrane, a little like gauze, and is, as far as we know, insensible. This is the thin skin that is raised by a blister, only it is very much thickened by the inflammation. This outer layer is a protection to what is beneath. It is described by physiologists as full of pores for the passage of hairs, and for the orifices of exhalent and absorbent vessels.

The *rete mucosum*, or mucous web, is next beneath the scarf skin. In this the coloring matter seems to be placed. It is white in the European, and black in the African, &c. It is seen through the cuticle, as easily as a red cheek is seen through a white veil. Beneath this is the *corpus papillare*.

This is formed by the extremities of nerves and blood vessels. Innermost of all is the *corium*, or true skin. This forms a firm layer, and makes the whole of the necessary solidity. If this true skin is destroyed by any means, such as a burn or an injury, it never grows again. So should any of you hear of an ointment that will heal a burn, without a scar, you may be sure it will be of no use, if the true skin is burned through ; and if it is not destroyed, the burn will of course heal without a scar, whether you apply the ointment or not. Many people believe that an ointment made of white clover blossoms will heal a burn, however deep, without a scar. But this belief shows their ignorance.

Some people are much troubled by slight scratches and cutaneous injuries. "I have a dreadful humor," says one ; "my flesh will not heal." Now it is a fact that is independent of any human testimony for or against it, that plain temperate living, with bathing, has a tendency to cure the very worst of what are called "humors." There may be a constitutional taint, which it may be difficult to eradicate, but this, if taken early enough, may be eradicated by proper regimen. Those who are thoroughly temperate in their food and drink, as to quality and quantity, who daily bathe the whole surface of the body, and who take proper exercise, need not fear

“humors.” They will not long have a “terrible humor” to prevent their flesh from healing, when injured. But those who indulge in warm slops of whatever kind, whether poisonous or otherwise, take much animal food, oil and butter, &c., and allow their pores to become closed, by neglect of bathing, must expect humors, and they will have them, whether they expect them or not. I once saw a gentleman who was terribly afflicted with a cutaneous eruption, which rendered his life extremely disagreeable. He was a gross liver, and at one time it was aggravated to such a degree as to become intolerable, by the use of *dough nuts*. He was quite fond of this very objectionable kind of food, and took them freely at almost every meal. But his “humor” became so troublesome and distressing, that he was obliged to pay attention to it. He was induced to try the Graham system of living. He left the use of greasy food, and practised bathing daily. He confined himself, with very little exception, to plain vegetable food, and in less than a year the cutaneous eruptions disappeared, and his skin was as soft and fair almost as that of a babe. This gentleman has since returned occasionally to his former manner of living, but the use of oily food *always* induces a return of his humor.

Cutaneous eruptions sometimes appear, when bathing is first commenced, where they have not

before existed. The person may be frightened at the idea that bathing causes humors. I have no doubt but the bathing produces the eruption, by opening the long closed pores, and causing a determination toward the surface of hurtful particles that had been festering in the system, or seeking an outlet some other way. But the eruption will not long continue. Healthy and natural action will soon ensue, and the humor will disappear. I know very well that physicians have been found ignorant enough to say that animal food, oil, butter, &c., should be eaten by those afflicted with scrofula and other humors; but this doctrine is so repugnant to common sense and common observation, that it does not need a serious refutation.

A word upon the use and abuse of the hair. The skull is clothed with hair, which serves a very important purpose in shielding the head, by deadening the force of blows. The skull consists of two tables, with a net work of vessels interposed. This *cancelli*, or net work, serves to nourish the bones, and at the same time keeps the inner table of bone from feeling the full force of a blow on the outer. The outer table of the skull is more yielding than the inner, more tough and fibrous. The helmet of the Roman soldier was made of steel, and lined with leather, and had hair on the outside; without this lining on the inner side, and the pro-

tection of hair on the outer, the blow of a sword on the helmet would have brought the wearer to the ground, by the mere force of percussion extending to the brain. Now the skull is so contrived; it is lined with a soft material, and the outside is protected with hair.

The hair needs much attention, to keep it clean and soft. It is much influenced by the health of the body. You know that after a severe fit of illness, fever, &c., the hair falls off.

People are often led to *try* this thing and that thing, to keep the hair from falling off, and to make it grow, after it has fallen off. Doubtless there are many thousand pounds of hog's fat sold every year, as bear's grease, &c., to cause the hair to grow. Correct habits, and daily washing the head with cold water, and combing it with a fine comb, are the best preservatives and restoratives of hair.

If any one's hair should grow whilst putting on these quack ointments, which after all are only common oil and fat disguised, they may rest assured that it would have grown equally well without them.

It is extremely desirable that the head should be as thoroughly washed as any part of the body, and that, too, every day. When the hair is very thick, the roots can be washed without wetting the entire length of the hair. The outside of the head has

much to do with the inside, whether we know it or not; and serious mischief often results from suppressed perspiration in the head. Much evil results from loading the head with caps and hoods. We should dress the head as light and cool as we can, and be comfortable. It is of vast importance, and those who pursue a contrary course may have ague, *tic doloieux*, and even inflammation of the brain, as a reward for following absurd fashions. But may we not hope yet to see fashions in accordance with the physiological laws of our nature? A majority of the present fashions are an outrage on humanity, and many of them as repugnant to health as they could well be contrived, even had the contrivers sought after the most deleterious mode.

Let us for a moment take a view of some of the "*comforts*" of a martyr to fashion. See her head loaded with hair, natural and artificial, and over this a cap heavy with ornaments, and under it exhalations, and foreign mixtures, in the shape of hair oil, perfumes, &c. Over all is a large, heavy, hot bonnet; and drawn closely over the face is the veil, to keep out the vital air from the poor compressed lungs.

This is a sad picture to a physiologist; for he is thinking of the evils that result from these fashions. But let us travel downward. The upper portion

of the arm is often squeezed, so as almost to stop the circulation of the blood, and make the hands purple. Then there is the waist screwed as in a vice. The lungs compressed, the circulation of the blood impeded, the vessels of the lungs collapsed, and all the internal viscera displaced, tortured by compression, and thrown into confusion. Add to this the enormous load of clothes worn by almost all our ladies, and the pain of tight shoes, and we have an amount of tortures that would move a heart of stone. Should a missionary describe such cruelties as existing among heathens, we should pity them most sincerely, though we should feel that it was a disgrace, even to the darkened daughters of Hindostan. Let no one suppose I have now done with tight lacing :— by no means ; I intend to portray its horrors far more fully and particularly. I mean to show the evil in all its bearings, as plainly as I am capable of doing it, hereafter.

We now come to the examination of the eye. The eye is a bag, or sack, containing a clear, thick liquid, somewhat like the white of an egg. The outer coat of the eye, that which is exposed to the contact of the air, is the *conjunctiva*, a mucous membrane. The outside of the eye is called the *sclerotic coat*. This is a thin, white membrane. It is strong and firm, and as dense as tanned leather. It is what we call the white of the eye.

There is an opening in the centre, where the *cornea* is set. It is placed here much like a watch crystal, and is as transparent.

The *cornea* is so hard and firm, as sometimes to bend the point of the operator's knife, when extracting cataract. Beneath the *cornea* is the *choroid coat*, which is the medium for the blood vessels. Beneath the *choroids* is the *pigmentum nigrum*, or black paint; this substance closely resembles black paint, and is deposited on the inner side of the *choroid*. It can easily be washed off. The *iris* is the colored circle which surrounds the pupil of the eye. It is a membrane hung before the crystalline lens. The iris divides the liquid or humor, as it is called, into two parts; the part which is before the iris is called aqueous, or watery humor, and the part back of the iris is called vitreous or glassy humor. The crystalline lens is a small body, convex on both sides, clear like the humor, though much harder, and lies directly back of the iris, and swims as it were in the liquid or humor.

Lastly, the optic nerve is spread out at the back part of the eye. The rays of light pass through the cornea, aqueous humor, crystalline lens, and vitreous humor, and fall on the *retina*, which is the expansion of the optic nerve, at the back of the eye.

I have thus briefly given the anatomy of that

“world of wonders,” the eye. The eyes may be injured in various ways. They suffer much from sympathy with a diseased body. They suffer from over exertion, and from being exerted in too strong or too weak light, and from sudden alternations of light. Going suddenly from bright light into darkness, or from darkness into light, injures the eyes. They make great exertion to accommodate themselves to the different degrees of light, and this violent exertion injures them. Light is the proper stimulus of the eye, but when too much stimulus of any kind is taken, it is an injury.

Though we may bring ourselves to bear an excess of light, and also to see with very little, still it is better ever to keep in a medium. “It is recorded of the Emperor Tiberius, that he could see in the dark. Le Cat tells us of a young woman, who could see at midnight, as well as at noon. Persons shut in dark prisons, learn to distinguish the minutest objects, the absence of the stimulus of light causing an expansion of the pupil of the eye. In the *Journal des Scavans*, for 1677, we find the case of a musician who had one of his eyes struck with a lute string rebounding when it broke from being screwed too intensely. The eye inflamed, and the patient found, to his astonishment, that with his disorder he had acquired the power of seeing in the dark, so as to be able to read. He could only

see in the dark with the inflamed eye, and not with the other eye.”

These examples show the force of education and habit, for even the eye may be educated to see with very little light.

Looking into a fire is very injurious to the eyes, particularly a coal fire. The stimulus of light and heat united, soon destroys the eyes. Looking at molten iron will soon destroy the sight. Reading in the twilight is very injurious to the eyes, as they are obliged to make great exertion. Reading or sewing with a side light, injures the eyes, as both eyes should be exposed to an equal degree of light. The reason is, the sympathy between the eyes is so great, that if the pupil of one is dilated by being kept partially in the shade, the one that is most exposed cannot contract itself sufficiently for protection, and will ultimately be injured.

Those who wish to preserve their sight, should preserve their general health by correct habits, and give the eyes just work enough, with a due degree of light.

The eyes of infants should be guarded from strong light in the night, whether from a lamp or fire. They are fond of a light, but they should not be indulged. People are generally sufficiently careful in guarding infants from light and air in the day time.

The eyelids guard the eyes, in a degree, from the

effects of light; the eyebrows catch a part of the dust that would fall in the eye, and the tears wash out what does get in, and the dirty water is ordinarily conducted off through the nose.

We will now pay a little attention to the ear. The ear consists of two parts, the external and internal ear. The external ear is concave for the collection of sound, or rather those vibrations of air which strike on the *tympanum*, or drum of the ear. The tympanum is a thin film, or membrane, drawn tightly across the passage into the ear, like a drum head. It is about three-fourths of an inch from the external opening. This is called tympanum, because this is the Latin word for drum. The air, when struck by a sonorous body, vibrates, something like the vibrations of water when a pebble is thrown into it. You have seen wave succeed wave, till they spread to considerable distance, when a pebble was thrown into water. These vibrations of air strike on the drum of the ear, and produce sound. The opening into the ear is guarded by a bitter substance, called ear wax. This is supposed to keep out insects. No insect can get farther into the ear than the tympanum, unless there is a hole through that. People should wash their ears, and prevent accumulations of ear wax, for these will sometimes cause partial deafness. I once saw a lump of ear wax taken from a gentleman's ear, as

large as a bean, and almost as hard. This had been very troublesome to him and partially deprived him of hearing.

Many people have great fear that insects will get into their ears, especially earwigs. But as no insect can get further than the tympanum, in a natural state of that organ, and as that is only three-fourths of an inch from the external orifice, if they will wash, or syringe their ears with weak soap suds, often, they need not fear insects of any kind.

The anatomy of the nose is very curious. It has cavities to collect odors, as the ear has a cavity to collect the vibrations of air. The organ of smell is a mucous membrane, which lines the cavities of the nose. It is called the *schneiderian* membrane. It is highly probable that in a natural state of the organ of smell, we could detect what would be injurious to us. In a natural state this sense is vastly more acute, than in the depraved state almost universal amongst us. The more simple people live, the more in accordance with the laws of our nature, the more acute will be the sense of smell.

Some people are fond of scents, that are disagreeable to others. This does not prove that there is a natural difference in noses. It merely proves that the force of habit is great. Some abuse the nose, and through that the stomach and whole system, by taking snuff. This practice not only destroys

the sensibility of the olfactory nerve, but produces many evils. I can speak feelingly on this subject, having been in this hurtful, filthy and wicked habit seven years; and it is now ten years since I became emancipated. Snuff has a powerful effect upon the nervous system, owing to its deadly narcotic properties. It very much injures digestion, by being conveyed into the stomach, with the saliva. The stomach also suffers from sympathy with other parts, which the snuff more immediately affects. Dizziness, weakness, nervous prostration, trembling, sickness at the stomach, are all consequences of snuff-taking, with numerous other evils, that I have no time to emunerate. I believe snuff-takers are well aware of the injurious effects of snuff. But they will not own even to themselves the mischief it is doing them. They excuse themselves for indulging in the practice in various ways. One has a humor, and a *physician has recommended snuff*. Such a physician ought to be — I will not say in the state prison, but more *honest* or *better informed*. Another has the catarrh, and takes snuff for that. The very thing to perpetuate and aggravate any disorder of the head is snuff. Another has weak eyes, and she tries to think, and make others think, that she takes snuff to improve her eyesight. Half the time these excuses do not satisfy those who make them. But they feel so guilty for indulging

in the habit, that they want an excuse. I believe my excuse was weak eyes, but the real reason was I had got imperceptibly into this wretched habit, and had learned to love snuff. I suffered all the evils I have enumerated, from its use, and many more. I knew it was killing me, and yet, like the poor enslaved drunkard, I kept on. And knowing this, was I scarcely less guilty? I know the cases are not parallel, because the drunkard abuses others beside himself. The snuff-taker does not, except it be by peevishness, and restlessness, induced by the use of snuff. But have we a right to squander and throw away life, by indulgence in such habits? If we shorten life,—and the habitual snuff-taker will very much shorten life, even though all her other habits are correct,—I say if we thus shorten life, are we not verily guilty in the sight of the Almighty?

The sickness, the misery that result from its use are very hard to bear, and very much abridge our usefulness. To say the least of snuff-taking, it is a horrid waste of health, of comfort, of usefulness, and life; and beside the legitimate effects of the tobacco, there are other sources of mischief to be found in snuff. It is said that one species of maggot fly lays its eggs in snuff. Should these eggs hatch in the head, the consequence must be terrible.

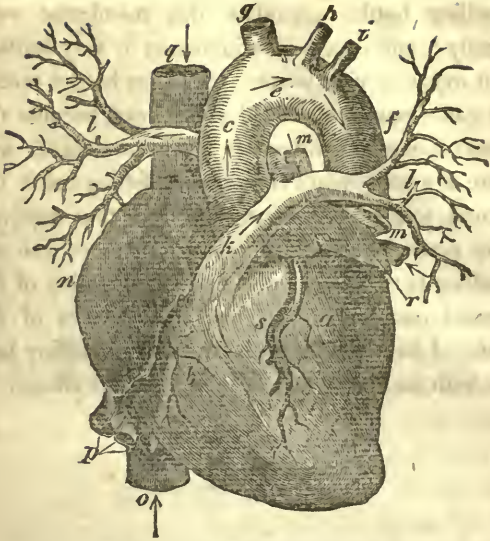
Pungent odors, of any kind, have a tendency to injure the delicate lining membrane of the nose.

Smelling bottles stimulate this membrane very greatly ; and excess of stimulation is very hurtful, as it exhausts vital power. Smelling bottles probably cause one to take cold in the head, because the *schneiderian* membrane is over stimulated, and there is a consequent relaxation, a falling below the natural tone of the organ, and it is thus deprived of its power of resistance ; and thus those who use smelling bottles have colds and inflammation of the mucous membrane, that lines the cavities of the nose. I have no doubt thousands use smelling bottles with no conception of their injurious effects.

LECTURE V.

CIRCULATION, RESPIRATION AND VENTILATION.

WITHOUT a regular and proper circulation of the blood, we fade, wither, and die, as hundreds do on every hand, in consequence of impeded circulation. This I shall demonstrate to you, in describing the circulation of the blood, and its uses. The formation of blood should first claim our attention, for a few moments.



A DRAWING OF THE HUMAN HEART.

q, the descending vena cava, returning black blood from the head and upper extremities.

o, the ascending vena cava, returning the same kind of blood from the lower parts of the body.

n, the right auricle of the heart, where both veins meet.

p, and *x*, veins from the liver, spleen and bowels, uniting with the interior cava.

The auricle being filled, contracts and forces the blood into *b*, the ventricle; next the ventricle contracts and sends it to *k*, the pulmonary artery, which branches into *l, l*, to supply the lungs in both sides of the chest. From the lungs, where a scarlet color has been given it, four veins of the lungs gather it together, and deposit it in the left auricle, *r*; that contracts, and the blood is driven into the left ventricle, *a*; lastly, the ventricle contracts and throws it into *c*, the aorta, which conducts it over and through every bone, muscle and organ.

You are aware that food is reduced by the action of the stomach, and its solvents, to a pulpy, porraceous mass, called *chyme*; that the nutritive part of this chyme is taken up by the absorbents, and is a milk-like fluid called *chyle*. The vessels which take up this chyle, gradually unite, until they terminate in one large vessel, called the *thoracic duct*; this runs in direct line up the spine, and is emptied into the left subclavian vein. It is thus carried across to the right side of the heart, where it is poured into the heart, and thus mixed with the venous blood. The heart contracts and throws this mass of venous blood and chyle into the lungs, to be vitalized.

The lungs are a delicate, sponge-like tissue, consisting of innumerable air cells. The membrane that composes these cells is much more delicate than the finest gauze. As the air is inhaled into the lungs, the blood by means of these gauze-like air cells comes in contact with it and unites with its oxygen, one of the constituent parts of the air we breathe. You are aware that the lungs are situated in the lateral portions of the chest, each side of the heart. They are surrounded by the *pleura*, a delicate membrane, and a duplicature of the pleura also covers the heart. Adhesions of the pleura to the ribs and lungs cause irritation, and great uneasiness, pain in the side, &c. You know that in the pres-

ent mode of dressing, or rather compressing the chest, pain in the side is so common, that it is considered something incident to humanity. A young lady once said to me, "I thought all persons had pain in the side, when they took much exercise."

Those of you who are acquainted with chemistry, know that the air we breathe is composed of two gases, oxygen and nitrogen.

Oxygen is the vital portion of the air, and is mixed with the nitrogen to temper, or dilute it, as it seems. As I before remarked, the heart contracts, and throws the blood into the lungs; it there comes in contact with the air, imbibes oxygen from the air, and thus becomes vitalized. It gives off carbon, with which it has become loaded, in its passage through the body, and becomes of a florid red color, by its union with oxygen. From the lungs it is carried back into the left side of the heart. The heart contracts, and throws this revitalized blood into the arteries. By these it is carried all over the body, and gives nourishment to every part. After it has thus travelled all over the body, in the arteries, it is carried back by the veins, to the right side of the heart, where it is poured into the heart, mixed with the chyle, vitalized in the lungs, and thus prepared again to go the round of the circulation and give nourishment to every portion of the body. It is of the highest importance that the

blood should be freed from the carbon, with which it has become loaded in its progress over the body, and that it be united with oxygen. No blood is fit for the nourishment of the body, unless it has passed through these changes ; nay, more, it is a poison, which stagnates rather than circulates in the vessels when it is pent, for there is no regular circulation. All the blood in the body, which amounts to several gallons, passes through the heart, on its way to and from the lungs, once in four minutes. Ladies, I cannot answer for your blood, but this *should* be the fact. My object is to make you understand the mischiefs that arise from the ruinous practice of compressing the chest. You are aware that the system is nourished by the blood ; that this vital fluid, when left at liberty, traverses every tissue of the body, and gives nourishment to every part. In order that the system be properly nourished, the blood must not only circulate freely, to every part of the body, but it must be proper blood. Yet what proper nourishment can there be in a mass of impurities called blood, which for hours does not come in contact with the air, and which consequently cannot give off carbon, or imbibe oxygen. If these pent up, poisoned streams were not set at liberty during the hours devoted to sleep, the poor sufferer would be much sooner released from *bodily* suffering. It is not my province to follow

the immortal spirit, and shall I say the immortal spirit of a suicide? I am at a loss to conceive how American women have become thus deeply involved in this absurd and ruinous fashion, a fashion a thousand times more hurtful, and more to be deprecated than that of the Chinese, who compress the feet of their females. It is vain to say it is the stupid or weak-minded alone, who are the victims of this fashion. Women of the finest minds, the deepest and tenderest sympathies, formed to love, to be beloved and to diffuse happiness to those around them, and often to thousands, who dwell with intense interest on their productions, go down to a premature grave destroyed by this fashion; and not only themselves the victims, but their corset-broken constitutions descend to their children, and thus suffering is perpetuated.

It is a melancholy error, to suppose that we can give away what we do not possess. We cannot give perfect health to our children, unless we ourselves possess it. Were the desolations of tight lacing confined to its immediate victims, I could be better content to remain silent. But when I see the race sinking beneath the evil, it seems time that a warning voice should be raised, and raised in such a manner as to startle the gifted from their slumber of security;—for the gifted are no less the victims than the ignorant. I, who have at least sense

enough to understand a part of the evils that result from compression, was, at the age of fourteen, well nigh destroyed by it. And though by great care, and a sedulous employment of all the means calculated to remedy the evil, my life is made tolerably comfortable, still I am a wreck—the grasp of death is upon my vitals, placed there by the murderous corset, at the early age of fourteen. I know that I am doomed, that I can live but a short time at the longest. I would be of the greatest use while I remain. I would awaken females every where. I would loosen the death grasp of the corset, and send the now imprisoned and poisoned blood rejoicing through the veins of woman.

If I can do this, may I not be willing to sacrifice myself to misrepresentation and abuse?—What is an individual; compared with the whole race? What is the comfort of one, compared with the health and happiness of thousands?

I am satisfied that information alone is wanting. Let woman once know her own organization, and she will tremble at the thought of sacrificing herself, for she will know that she is doing it. Many have no idea that the consequences of compression extend farther than present discomfort and inconvenience; and many have so paralyzed the muscles that hold the body upright, that they cannot support themselves in an erect posture, without corsets.

Hence the universal exclamation, "I could not live without corsets: I should fall in pieces." Such must take measures to restore the contractile power of the muscles. A variety of gymnastic and vocal exercises, suited to this end, I have taught in my vocal philosophy classes. These exercises enabled me to become erect, after I had been, for fifteen years, so much bent as to suppose that I had permanent distortion of the spine.

I have said that knowledge alone is wanting. Of a certain class of minds this is true. I know very well, that there are melancholy exceptions. I have an instance in my mind's eye. A young lady was my pupil, a few years since, when I was engaged in school keeping. She attended to the study of anatomy with the class. She laced very tightly in the morning, and in the afternoon she drew the cords of death still tighter, all the while averring she was not tight. I warned, entreated, demonstrated—but all availed not—she seemed bent upon destroying herself, though in other respects amiable. The work was soon completed; she was seized with a fever; her lungs were pronounced "much affected," by her physician. A few days, and she was a corpse,—*as much murdered as if she had drawn the cords about her neck.*

And this state of things is on every hand. So gen-

eral is the distortion of the female form, and death from this cause, that when I asked a physician in Philadelphia, if he had a female skeleton, distorted by tight lacing, "No," said he, "we have no need to save them; we can get one when it is wanted, at a week's notice." Is there not terror enough in this answer, to send woman out of what is called her *sphere*, if she can by any means draw attention to such tremendous evils?

When I have been constrained to speak to ladies of the inevitable destruction they were bringing upon themselves they would reply, "Mrs. Gove, I don't lace,—I wish you could see Julia A., or Mary B.;—they dress tight; but I am always loose. I cannot bear any thing close." And they said this, when the delicate air cells of the lungs were collapsed in such a manner as to produce inflammation; all the internal viscera deranged, the blood, refused a passage through its proper channels, was forcing its way through other vessels, and rendering them aneurismal. Physicians think there is great danger when they are obliged to tie one important blood vessel, in consequence of the distention the other vessels must necessarily suffer, from the increased quantity of blood they are obliged to transmit. But what must be the danger, when numbers of blood vessels, especially the superficial ones, are obstructed, and almost entirely collapsed, and the blood,

diverted from its proper channels, is thrown into other and deeper seated vessels. These vessels must of necessity become aneurismal. The regular pulsation of the heart and arteries is broken up, and palpitations, difficulty of breathing, and faintness, and at times even suspended animation, are the consequence. Many persons suppose that moderate compression about the chest is admissible, and even useful. If this be true, why not compress the throat, on the same principle? The lungs should be fully inflated at every breath. But how few fully inflate the lungs during the day. I hesitate not to say, that not one in fifty, I fear not one in five hundred, fully inflates the lungs during the day. If the blood cannot come in contact with the air, as it is evident it cannot, if the lungs are not inflated, then it is utterly unfit to nourish the body, even if it could circulate, which it is evident it cannot.

There is a darkness of complexion, a bilious hue, as it is often termed, about those who lace tightly, that has no alliance with beauty. The blood, loaded with carbon, and other impurities, and destitute of the oxygen, the vital principle, imparts a livid, purple hue to the lips, and a sallowness to the complexion. I have known a lady of clear, brilliant complexion, by tight lacing, to become dark, and to have a cadaverous look that was almost

frightful. She was induced to attend to the study of anatomy. The consequence was, she laid aside the corsets at once, and for ever. In a short time her brilliancy of complexion returned ; she had the glow and animation of health, and seemed like an emancipated slave. She was truly an emancipated victim of fashion.

The effect of compression in paralyzing the muscles of the chest, is not understood as it should be. It is a law of our nature, that if an organ is not used, we lose the use of that organ. The muscles of the chest are not employed in holding the chest upright, but they are so compressed that they cannot be properly nourished by the blood. They lose their healthy contractile power ; they are incapable of supporting the body ; hence the need of mechanical support. Hence, too, one cause of distortion of the spine, from irregular and deficient action of the muscles. It is owing to this paralysis of the muscles, that ladies think they cannot give up mechanical support. If they wish to perpetuate the evil, and never to remove it, they should continue their present course. They may be sure that they have greatly injured themselves, if they find they cannot keep erect without mechanical support.

In view of the delicate organization of the lungs, their proneness to rupture, when unduly compressed, and the exceeding commonness of bleeding at

the lungs, induced by compression, who would not wish corsets banished from our world? I have myself bled at the lungs, till I fell *apparently* as dead as I will ever be. Certainly, if I cannot speak scientifically upon this subject, I can at least speak feelingly. More evils to the lungs result from paralysis of the muscles, than we are aware of. The effort to speak is not made in accordance with truth and nature; unnatural labor is put upon the lungs in speaking; hence the developement of pulmonary consumption is hastened. The nervous evils attendant upon tight lacing need an abler pen to delineate. Youth is the time for brilliant hopes, and aspirations after the true, the beautiful. But the hopes of our race are cut off, the buds of genius often are nipped ere they have blossomed; and to brightness and beauty succeed the gloom of the pall, or at best a blasted existence. The buoyancy of youth, the excitement of pleasure, hopes that spring in the young heart in spite of misery, often keep our ladies from sinking under their self-imposed torture, and even make them gay and cheerful. The length of time they support life shows the power of endurance possessed by the human system; but they must fail as surely as results follow causes. I have not the shadow of a doubt that much of that nervous irritability, that ennui, that hangs over the finest minds, shrouding

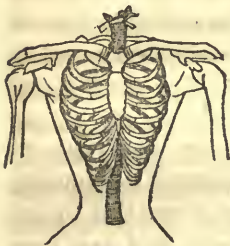
their fairest prospects in gloom, may be traced to the influence of lacing, before or after marriage, or both. The miserable victim of an absurd fashion has destroyed herself!—See her attenuated form; hear her hollow cough; see her hand placed instinctively upon her side, to ease the piercing pain; see her hanging over her poor babe, to whom she has been able to give but half an existence. Often she cannot nourish her infant. The fountains of life are for ever sealed by compression. The babe must be committed to hirelings, or brought up in an unhealthy and unnatural manner at home. The unhappy mother lives on, a prey to disease, perhaps to those moral aberrations, which are its consequence; and often she sinks with consumption, that fell destroyer, that riots, gorged to the full, with half the loveliness of earth. Terrible reflections these!

In view of all these facts,—in view, too, of the fact that numbers of the best educated females in England and America have discarded corsets,—will our ladies continue slaves of a fashion as absurd as it is ruinous? Let all those who have the least love for science, for philanthropy, or Christianity, answer, *No: resolutely, and firmly, No.*

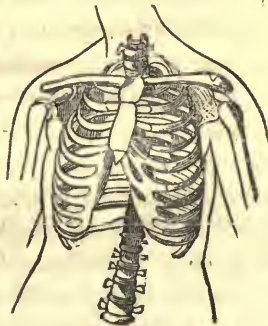
I hesitate not to say, that tight lacing is doing an amount of mischief in our land, fully equal to that wrought by alcohol. Then let public sentiment be

equally aroused against it. To do this we must enlighten, which depends on woman. But woman, unaided, can never accomplish this great work. There is a unity in the race, and unless they act in unison, little can be done on any great question. Would our own loved land have been discovered, had not the energies of Columbus been assisted by Isabella. Would our independence have been achieved, had there not been many mothers beside the mother of Washington? We may strive to be good or great alone, but we strive against fearful odds, and it will only be in isolated cases that we shall succeed. Masses will never be elevated in this way. Men should every where express their disapprobation of this cruel fashion. What avails a woman's reason, or her determination to consult health and comfort, if she is sure of being called a "dowdy," by the man she admires? I grant some women have independence enough to *survive* even such a remark: but most of the sex would choose to be sacrificed. I know many men of worth, and science, have raised a warning voice, and that with many tight lacing is considered as vulgar, and as much opposed to true elegance of form, as it really is. Still, it is little more than three years, since I heard a lady called a "dowdy," who had given up corsets, and that too by a gentleman who has lectured on Anatomy. I would fain believe that all

gentlemen have correct taste as respects the female form. But I know many who are fine scholars, who are exceedingly ignorant of anatomy. They learn to admire what they see daily, and they see every day, what should make them tremble and grow sick at heart.



COMPRESSED CHEST.



NATURAL FEMALE CHEST.

Perhaps these two drawings might with propriety be left to speak for themselves. But we would ask attention to the free, full and natural outline of the one, and the cramped, contracted, unnatural angles of the other. [The illustrations accompanying this lecture are from that excellent work, "The Class Book of Anatomy," by Dr. J. V. C. Smith, — a book that ought to be in every family.]

Works of fiction, sickly tales that make clay wasps of their heroines, foster the false taste of the com-

munity. Not long since, I took up a newspaper and cast my eyes over the first page, which contained a story. I read this sentence, "Rising, she displayed a delicately slender waist, rather smaller than ordinary." Let the dissecting knife display the ulcers in the lungs, within that waist, and it would not seem desirable, to the most vain and sickly sentimentalist.

"Oh! my Nora's gown for me,
That floats as wild as mountain breezes,
Leaving every beauty free
To sink or swell as heaven pleases."

I have now demonstrated the importance of breathing freely. Next in importance is the quality of the air we breathe. You are aware that we are continually throwing out carbonic acid gas, from the lungs, and taking up oxygen. I believe it is estimated that we render a gallon of air unfit for respiration, every minute. Ventilation must be in proportion to this expense. No one is safe, unless it is. You are aware that carbonic acid gas destroys life suddenly, when we are exposed to it in its undiluted state. We ought to know that when mixed with the air we breathe it destroys as surely, though more slowly. I need not call your attention to cases where this gas has proved fatal, such as wells, cellars, and rooms where charcoal is burned. You are familiar with these examples. You know

that this gas is produced by combustion, as well as by breathing. And knowing this, we act as if we had no knowledge on the subject. Our rooms are heated, and seldom aired. Our schools, our lecture rooms, our steamboats, cars, coaches, and other means of conveyance, even our churches, are so many manufactories of death, from the fact that pure air is excluded, and what remains is robbed of its oxygen, loaded with carbonic acid gas, and the impure exhalations continually arising from the human body. The lungs are forced to receive the poison. The consequences must be obvious, if we will but reflect for a moment. The amount of injury done by impure air, in our schools and churches alone, is enough to make us tremble, if we were but alive to it. But how greatly is the injury increased when the lungs are compressed in the manner we see at church, and at school.

The manner in which ventilation is neglected at schools, is more painful from the fact that the young creatures who are there confined six hours in a day, without any regular and systematic exercise, are less capable of resisting hurtful impressions, than those who are older. Children fail often at school and sink under illness, or the seeds of consumption are sown there, to be developed in after years. Yet few parents ever suspect that the impure air of the school room has any thing to do with the ill-

ness of their child. Few inquire whether the school room is ventilated or not. I know that other causes are continually undermining the health of our youth. The process of educating our children by steam, if I may be allowed the expression, does them great injury. Bad air is only one cause of evil. Compression is only one cause. Still the evils to which they give rise, may well be called "Legion," for they are many. I have a school-room now in my mind's eye, where for many years about one hundred scholars attended. I never knew it ventilated but once. Then I went into it to make preparation for a lecture. The air was so bad, that I found it difficult to remain till the windows could be raised. Had not the room been wanted for use, it would have remained close shut till the next day, when the children and teacher would have again inhaled the poisonous air.—The teacher was a friend of mine, and an intelligent lady. I called on her to warn her of the fatal consequences of breathing such an atmosphere. I found her with her large school immersed in poison. Her little son, some four years old, appeared as if some deadly blight had struck him. I told the mother he must die, unless removed from that school room. He sat on a low bench, and as you know carbonic acid gas is heavier than air, consequently he was more exposed to its influence, than the

larger scholars. To my earnest warning, the mother returned this answer, "I suppose he would be better out of school." My words seemed to fall on her ear, "like drops of rain upon a glossy leaf." I however solemnly repeated the warning. The lady was herself very strong. In about two months, the child died, and in a very short time after, the mother sunk and died also. But no alteration is made in the treatment of that school. No one inquired the cause of the teacher's death, or that of her child, or why their own children were like drooping or withered lilies in consequence of disease.

LECTURE VI.

ANATOMY AND PHYSIOLOGY OF THE STOMACH.

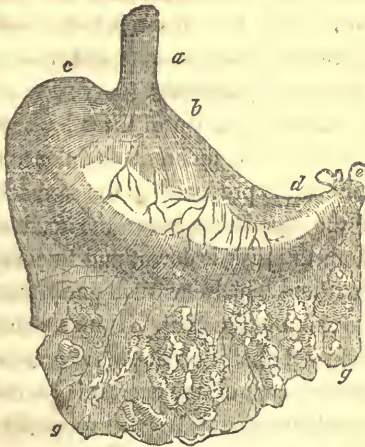
(THIS world is emphatically a world of change.) This truth has been beautifully commented on by various writers.) But as a truth with which we have much to do in the present lecture, I introduce it here. Every thing is continually changing. Not a leaf, not a plant, not a flower, not even a blade of grass is the same to-day, that it was yesterday.

They are changed. They are giving off one set of particles, and assimilating or taking up other particles. These plants must have nourishment. They must have earth, they must have water, to supply the place of these particles that are thrown off. Deprive them of this support, and they wither and die. So it is with man ; our bodies are continually changing. With man there is constant waste and renovation. One set of particles are thrown out of the system, and another set is at the same time supplied by that vital fluid that nourishes all parts of the body. I mean the blood. Now the great laboratory for the elimination of particles that go to make up the blood is the stomach. You know that you put food into the stomach, and that it is reduced by the action of the stomach and its peculiar solvents, to a pulpy mass, and that from this mass the materials that go to make up the blood are eliminated. But more of this, by and by. I am desirous that you should first understand the anatomy of the stomach and organs immediately connected with it.

The stomach of man is a membraneous, muscular bag, lying on the left side, under the ribs. It reaches toward the right side, a little beyond what we call the pit of the stomach.

The stomach consists of three membraneous layers or coats. It has numerous glands, blood vessels and nerves.

The outside of the stomach is a tough, shining membrane, which lines the abdomen, and constitutes the outer covering of all the intestines. This membrane strengthens the stomach, and binds down the intestines and other organs in their places.



THE STOMACH.

The human stomach somewhat resembles, in shape, the bag of the Scottish instrument of music called the bagpipe. It lies directly across the body, just under the edge of the ribs, and in such close contact with the diaphragm or floor of the apartment which contains the lungs, that the latter seem to rest directly upon it. The place where the food pipe enters it is called the cardiac orifice, and the termination or outlet of this spacious saloon is called the pylorus or pyloric orifice. — *House I Live In*, by Dr. Wm. A. Alcott.

a, œsophagus. *b*, cardiac portion. *c*, great or left extremity. *d*, small extremity. *e*, stomach tied at the pylorus. *f*, great anterior curvature. *g, g*, omentum or caul.

The middle and muscular coat of the stomach consists of a layer of fibres. These traverse the stomach longitudinally. The internal layer of this middle coat consists of circular fibres. The uses of the muscular coat have a distinct reference to the function of digestion. By the joint action of the longitudinal and circular fibres the stomach is enabled to contract and lessen its size, so as to adapt its capacity to the volume of its contents.

By the successive action of these layers of fibres, running as they do in different directions, a kind of churning motion is produced in the stomach. This motion of the stomach agitates the food and contributes both to break it down, and to mix it with the peculiar fluid which has such an important part in the process of digestion. I mean the gastric juice, of which I shall tell you more presently.

The internal coat of the stomach is called the mucous or villous coat. It is a velvet-like membrane, of a pale pink color. The extent of this layer is greater than the others, and it is consequently wrinkled.

The upper aperture of the stomach is called the *cardiac* orifice, from *cardia*, heart, because it lies near the heart. The lower orifice is called *pyloric*, or *pylorus*, from door-keeper, because when any thing improper has been admitted into the stomach, this orifice is closed upon it and refuses to let it pass into the intestines, thus acting as a door-keeper to

prevent what is improper from passing. These improper substances are either ejected from the stomach by vomiting, or after repeated trials they are at last allowed to pass through the pyloric orifice.

The stomach is nourished by numerous blood vessels. It also has nerves, of which I shall speak by and by. Many curious facts respecting the stomach and its functions have been made known through the medium of an accident that happened to the person of Alexis St. Martin, in the year 1822.

“At the age of eighteen he was accidentally wounded in the stomach by the discharge of a musket. The charge, consisting of powder and duck shot, entered the left side of the youth, he being at a distance of not more than one yard from the muzzle of the gun. The contents entered posteriorly and in an oblique direction, forward and inward, literally blowing off integuments and muscles of the size of a man's hand, fracturing and carrying away the anterior half of the sixth rib, fracturing the fifth, lacerating the lower portion of the left lobe of the lungs, the diaphragm, and perforating the stomach. The whole mass of materials forced from the musket, together with the fragments of clothing and pieces of fractured ribs, were driven into the muscles and cavity of the chest.

“Dr. Beaumont saw him twenty-five or thirty minutes after the accident occurred, and on exam-

ination found a portion of the lung as large as a turkey's egg protruding through the external wound, lacerated and burnt, and immediately below this another protrusion, which on further examination proved to be a portion of the stomach, lacerated through all its coats, and pouring out the food he had eaten for his breakfast, through an orifice large enough to admit the forefinger. Subsequently the integuments sloughed off, and left the opening into the stomach much larger. The coats of the stomach protruded through the aperture, and finally adhered to the *pleura costalis* and external wound. In one year from the time of the accident, the injured parts were all sound, with the exception of the aperture. The perforation was about two and a half inches in circumference, and the food and drinks constantly exuded, unless prevented by tent compress and bandage. In 1825, Dr. Beaumont commenced a series of experiments with him at Fort Mackinaw, Michigan. From that time till 1833, Dr. B. at different intervals continued to experiment upon this man. It appears that during that time, he was possessed of considerable health and vigor."

Dr. Beaumont says that he enjoyed *general* good health. But directly afterward he says, "For the last four months he [St. M.] has been unusually plethoric and robust."

Now plethora, or inordinate fulness of the ves-

sels, is disease, and though very many have this habit of body, who have perhaps much vigor, still it is disease. I know many persons think a full red face indicative of health. But I have learned to look upon such a countenance with pain. I know that there is plethora, or congestion; that the blood is unduly accelerated; that it is driven on its course in a manner, to borrow the simile of another, very analagous to the high pressure steam engines. To carry out this borrowed simile,—for I know of nothing that will so aptly illustrate the case,—we may take pleasure in seeing the proud boat cut her way, amid sheets of foam, through the waves; but we see not her danger. Every inch of her boiler is strained to bursting,—and anon, timbers, planks, and all parts of the fair fabric are flying in fragments through the air, and mangled limbs and dead bodies are mingled in the dreadful ruin. Now that person who is stimulated till his whole system is on the verge of acute disease and death, though he may have the appearance of health, and like the over-worked steam engine, may have vast power, has this accession of power at a like risk.

But to Alexis St. M. The belief that he was in a degree diseased, does not affect many of the facts observed by Dr. Beaumont; it only renders us cautious about receiving all his deductions as facts and true scientific conclusions. It is doubtless

true that Dr. B.'s observations and conclusions respecting the gastric juice, are of more value than those of any other physiologist, because no one ever had such an opportunity for observation as Dr. B. Though a few cases have occurred in which direct access has been had to the interior of the stomach, and though Richerand, and other physiologists have availed themselves of these opportunities to get information respecting the digestive process, yet the patients generally have been but a short time under the care of these observers, and have never had that degree of health that St. M. had. In this case the patient was a series of years under Dr. B.'s care, and there was consequently ample time and opportunity for a very great variety of experiments. Dr. B. also carried on his experiments with much judgment and care. One point that is of immense importance is completely settled by the experiments of Dr. B. It is, that the "gastric juice does not continue to be secreted between the intervals of digestion, and does not accumulate to be ready to act upon the next meal." You are doubtless aware that the gastric juice is that fluid that is secreted and poured into the stomach to digest our food.

This gastric fluid is a powerful solvent, and will digest food out of the stomach by keeping it warm, that is if the food is first finely divided.

In the aperture of St. Martin's stomach a valve

formed, which shut up the opening. By pushing aside this valve the cavity within became visible to a considerable extent. When St. M. lay for a time on his left side a portion of the internal villous or velvety coat of the stomach was protruded through the aperture. Owing to this circumstance Dr. B. could see what changes occurred, both when food was swallowed, and when it was introduced into the opening. On examining this internal coat of the stomach with a magnifying glass, he perceived an immediate change of appearance ensue, whenever food of any kind was brought in contact with it, very fine nervous and vascular papillæ could be seen arising from this villous or velvety internal coat of the stomach, from which distilled a pure, colorless and slightly viscid fluid, which collected in drops on the points of the papillæ, and trickled down into the stomach, and mingled with the food. This fluid was the gastric juice, which was mingled with the food by the peculiar churning motion of the stomach, till every part of the food was brought in contact with it, and was dissolved by it.

It is recognized as a law of nature that all things are continually undergoing change. Well has it been said, "Not even a breath of wind can pass along the surface of the earth without altering in some degree the proportions of the bodies with which it comes in contact; and not a drop of rain

can fall upon a stone without carrying away some portion of its substance.”

Now though every one is aware that change is continually going on amongst dead and inanimate matter, yet perhaps comparatively few reflect, that still greater changes are going on in the vegetable and animal kingdoms. We know that a dress will wear out, though the process of removing particle after particle of it is slow and imperceptible. We know that furniture and dwellings are continually changing, and wearing out. But are we equally aware that far greater changes are going on in living bodies, and that every exertion we make, every breath we draw is attended with waste of the particles that go to make up our bodies, so that the same particles that make up the body to-day will not all be present in it to-morrow, and so on, till the whole body is changed? Now if this waste goes on without renovation, we shall soon be entirely wasted, or so far as not to be able to sustain life. This principle is seen in those who are deprived of food, and thus are starved. One great distinguishing characteristic between living bodies and inanimate matter is this:—though in the living animal a continual waste of substance is kept up, by exhalations from the lungs, the skin, the bowels, and the kidneys, and though not a movement can be made without increasing the circulation, and thus

adding to the general waste, yet there are organs whose business it is to supply all the demand thus made. This is one great distinguishing characteristic between dead and living bodies. When dead bodies undergo changes there is no renovating power. The human system throws out each day several pounds of substance by the ordinary organs of excretion. This waste, without the power of repairing the loss, would soon reduce us so low that the system would be incapable of supporting life. Three quarters of the substance of the body have been lost before death ensued. Now the stomach is the storehouse where are put materials for repairing the waste of the body. And the Creator has given us hunger and thirst as watchful monitors to inform us when we need food to repair the waste of the body. The intention of taking food is to support the body; to supply the waste induced by action. We should eat in order to live. But how few do this. How many live to eat instead of eating to live. Sensual gratification in eating, in drinking, in every thing, seems to be the ruling motive with very many in our perverted and depraved world. "These things ought not so to be." We should come to that state, where, "whether we eat or drink or whatever we do we should do all to the glory of God." People should not inquire what will best please a depraved and perverted

appetite, but what will be best for them. They should inform themselves on these subjects, learn their organization and what is best for them, and then resolutely do what appears to be duty. However unpleasant it may be at first, it will become pleasant by habit. I know people think they cannot live on plain food. They say they have no appetite for it. They want something that will "*relish*." But if a person by habit can get so as to love the taste of tobacco, that nauseous weed, or the smell and taste of rum, that "liquid fire," as it has been often and aptly denominated, I ask, need we despair of being able yet to relish plain food.

Hunger and thirst are given us to notify us that the system wants a supply of nourishment. That is, true hunger and thirst advertise us of this fact. But there are in this world, and especially in this age, a vast number of counterfeits — and perhaps a natural appetite is as rare as almost any thing. An old dietetic writer defines a natural appetite thus — "The natural appetite which is as well stimulated, and satisfied, with the most simple dish, as with the most palatable." How many such appetites think ye there are? How many of you would be satisfied to make a meal of bread, of fruit, of rice, of potatoes, and nothing else? I do not say that it is right, or proper that any of you should come, at once, to such diet as this. But I do say, were the

appetite natural and unperverted, you would be perfectly satisfied with such food. The same writer who thus defines a natural appetite, speaks of artificial and habitual appetite in this manner. "The artificial appetite, is that excited by stomachic elixirs, cordials, pickles, digestive salts, &c., which remains only as long as the operation of these stimulants continues." "The habitual appetite, or that by which we accustom ourselves to take victuals at certain hours, and frequently without an appetite." Now I have a terrible fact in reserve for those who eat too much, either from habit or from an artificial appetite, induced by the use of stimulants.

When the stomach is excited, it pours out the gastric fluid, much as the salivary secretions are poured into the mouth. We know that by chewing cloves, or other stimulating substances, we excite the secretory organs of the mouth, and that afterwards there is dryness and inflammation of the mouth, and thirst. So it is with the stomach. It may be unduly stimulated, and the gastric fluid secreted and poured into the stomach till the secreting organs are exhausted, and no gastric fluid can be obtained by applying the usual stimulus of food. In such a state food cannot be digested; it putrefies or turns acid, and irritates and distresses and deranges the stomach and its functions, and by sympathy all other parts of the system. In disease

the gastric juice and the internal coat of the stomach undergo great changes from a state of health. Dr. Beaumont had ocular demonstration of these facts; for, unlike others, he had the opportunity of *seeing* what was going on in the stomach. Whilst attending St. Martin, he found that when a feverish state was induced, whether from obstructed perspiration, from overloading the stomach, or from fear, anger, or other mental emotions depressing or disturbing the nervous system, the internal or villous coat of the stomach became sometimes red and dry, and at other times pale and moist, and lost altogether its smooth and healthy appearance. As a necessary consequence, the usual secretions became vitiated, impaired, or entirely suppressed. When these diseased appearances were considerable, the system sympathized. The mouth became dry, and there was thirst, quickened pulse, and other bad symptoms, and "no gastric juice could be procured or extracted, even on applying the usual stimulus of food."

We see, from this statement of facts, how very important it is that no food be taken, when these symptoms are present. Some people have an idea that a patient who has fever should have food to support the strength. No food can be digested in such a state, and of course it is the height of folly, not to say madness, to give food. It was once said

by a skilful physician, that one might as well attempt to build up a house in flames, as sustain a patient's strength by food, who had fever;—and I have heard a physician say that he believed he could cure fever with no other medicine than cold water, externally and internally applied.

Now many people err by taking food when the stomach is not in a situation to digest it. If a child falls, and is hurt, or is frightened, or is crossed, and cries, how many mothers give food, or nurse the child, to quiet it. My heart is pained for mothers, because in their ignorance they destroy their children. It is often the case that children who have nothing to do, contract a habit of eating. They have a morbid, counterfeit appetite, and they tease, and the mother, with many cares, knows ^{no} ^{how} ^{to} ^{quiet} ^{them}, ^{and} ^{she} ^{is} ^{induced} ^{to} ^{give} ^{them} ^{food} ^{when} ^{she} ^{knows} ^{they} ^{do} ^{not} ^{need} ^{it}. But she does not know the tremendous consequences of such indulgence; she does not know that she is inducing disease, that she is in fact destroying her child by the course she pursues.

In the present state of society, employment is regular. Waste is consequently regular, and of course the supply should be regular. This is one reason why we should take our meals regularly. But there is another reason besides this; the stomach is a muscular organ. All muscles that act, need

rest after action. After the stomach has digested a meal, it should rest ; but when we, or our children, are continually taking luncheons, what time has the stomach for rest ? Besides, we introduce a great deal more into the stomach, than the system demands.

Many persons, and especially children, habitually take confectionary between their meals. This practice is a fruitful source of disease and death. The confectionary is hurtful, because it is taken when no food ought to be taken, and would produce disease, and very much shorten life, if it had no hurtful quality. Human life is doubtless much abridged by taking wholesome food, when none should be taken ; but confectionary is more to be dreaded, because it is itself unhealthy food, and because much essential oil, and even alcohol, are imprisoned in it, and because the coloring matter is often a deadly poison. The effect of the stimulating substances mingled with the sugar in confectionary, is more injurious than people suppose. Indeed, many who have a conscience against taking ardent spirits, do not scruple to take confectionary.

They may suppose that the alcohol is in so small quantities, that it cannot be hurtful. But let such contemplate the effects of ardent spirits in small quantities upon the stomach of Alexis St. Martin, as detailed by Dr. Beaumont. The evil attending

the use of alcohol may not be felt directly, but it is there, nevertheless. On examining St. M.'s stomach, after he had used ardent spirits, Dr. B. found its mucous membrane covered with erythematic (inflammatory) and aphthous (ulcerated) patches, the secretions vitiated, and the gastric juice diminished in quantity, viscid and unhealthy; although St. M. complained of nothing, not even of impaired appetite. "Two days later, the inner membrane of the stomach was unusually morbid, the erythematic (inflammatory) appearance more extensive, the spots more livid than usual; from the surface of some of them exuded small drops of grumous blood, the aphthous (ulcerated) patches were larger and more numerous, the mucous covering thicker than common, and the gastric secretions much more vitiated. The gastric fluids extracted were mixed with a large proportion of thick ropy mucus, and a considerable muco-purulent discharge, slightly tinged with blood, resembling the discharge from the bowels in some cases of dysentery." Notwithstanding this diseased appearance of the stomach, no very essential aberration of its functions was manifested. "St. M. complained of no symptoms indicating any general derangement of the system, except an uneasy sensation at the pit of the stomach, and some vertigo, with dimness and yellowness of vision, on stooping down and

rising again; had a thin yellowish brown coating on his tongue, and his countenance was rather sallow, pulse uniform and regular, appetite good,—rests quietly, and sleeps as usual.”

Notwithstanding all this disease, this man would probably have called himself “*pretty well.*” He had a good appetite, or rather, Dr. B. says he had a good appetite. We can hardly suppose a *healthy* appetite, where there was such extensive disease. But people who eat confectionary, have not only those evils which arise from the alcohol mixed with it, but the evils resulting from taking food at improper times, taking too much food, and of a very unhealthy kind. Besides, the coloring matter is often a deadly poison. I know many good people eat confectionary because they are ignorant. They would not eat it, did they know the mischiefs that result from its use. But I have yet hardly begun to tell its injurious effects. By unduly stimulating the system, it excites unholy passions, and the young and inexperienced, and unsettled, are often as effectually stimulated, and led to licentiousness by confectionary, as by ardent spirits.

Every one now acknowledges the degrading and sensualizing influence of ardent spirits. When people are once convinced that confectionary also is doing a great amount of mischief, though in a more concealed manner, *Christians will no more use it.*

These things need but to be understood in our land. I would as soon use, or sell ardent spirits, as confectionary. Its baneful effects upon children are not understood. Were they made known to parents, they would be shocked inexpressibly, that they had ever indulged children with the tempting poison.

It is painful to see children indulged as they are in forms of food that are doing such indescribable injury. Will not mothers be warned and entreated not to indulge their children with confectionary. It is far easier and better to prevent the evils arising from its use, than to cure them. The habit, when once formed, is hard to be broken up. Still mothers should spare no pains. Above all, never give children presents of confectionary. It is horrid! Make them intellectual, not sensual beings.

It is very necessary that children, as well as grown people, take their food regularly. They may need a lunch when small, as their rapid growth makes them need more nutrition than adults. But to deprave their appetites, to lead them astray, from the cradle, by giving them improper food, and food at improper times, is cruelly wronging the helpless, who look to us for protection. I know a family, — and who does not know such a family? — who have lost several children, and these children were lost by improper indulgence, by wrong management. Yet the parents do not dream of this. They think

they did all for their children that they could do. They did, with the little knowledge they possessed, do all they could, and much more than they should have done. They had the best medical attendance, and did all the doctor told them to do. But their children were taken away.

Still these parents have followed precisely the same course with each succeeding child, — the course of indulgence. Had those children been rightly managed in all things, I have not the shadow of a doubt, they might now have been living. But they were not rightly managed. They were allowed to eat every thing usually eaten, among what are termed good livers. They were doubtless much injured during the first months of their lives by the improper food, and habits of the mother, by impure air, &c. But as soon as the little innocents could eat, they were fed with hurtful food, at improper times, and in improper quantities. The skin was neglected. Perhaps they were never bathed a dozen times during their lives. And when, in consequence of all the abuses to which they were subjected, disease attacked them, the afflicted parents wondered why their child was the victim of disease. They did not know that the penalty of violated laws was visited upon their child. That its sickness was an effect that follows a cause.

What is past cannot be recalled ; and what was

done in the days of ignorance we should not recall to harrow the mind, but as a warning. In the future there is a redeeming power. That parent who knows not the anatomy and physiology of the stomach, should obtain information. Knowledge is more needful for the mother than gold, or silver, or precious stones. What mother who knows not the anatomy and physiology of the skin, will neglect it, both as respects herself, and her children. But if she has that information she ought to have, she will feel that it is as important to bathe the whole surface of the body, and thus keep the pores open for the transmission of waste and hurtful particles, as to take her meals and give her children theirs. Nor am I digressing here, for if the skin is not thus attended to, the hurtful particles are thrown back upon the intestines, and disease is the consequence. Many diarrhœas and bowel complaints are to be referred to this cause.

I have seen a pale sickly child indulged with fruit and confectionary, and then suffered to sleep directly, when its stomach was in such a state that all its energies were imperatively demanded, and even then the result would be bad enough; and when the child awoke with a degree of fever, and languor and restless anguish, which no language can express, it was scolded, and perhaps whipped for being *cross*. And this was done by an affectionate

mother, who would have revolted with horror from the deed, had she known what was the true situation of her child, and its danger. But in her ignorance she has caused the mischief, and we cannot expect her to cure or alleviate it.

The excessive use of stimulants in food is a very great evil. It lays the foundation for many more evils. There is no nutriment in these stimuli. The whole family of spices could not keep us from starving. They unduly excite the stomach, cause an artificial appetite, thus causing us to eat too much. They produce disease in the stomach. I knew a gentleman who lived in the usual manner, and besides took tobacco and a great many cloves. His stomach became diseased to such an extent that for several years before his death, the exercise of washing his hands "wrenched his stomach," as he expressed it, and gave him great pain. The coats of the stomach became thickened, and finally the pyloric orifice grew up, and for thirty-six days prior to his death, nothing passed out of the stomach.

LECTURE VII.

DIETETICS.

IN the last lecture I demonstrated to you that the system was continually wasted and renovated. Appetite is placed as a watchful sentinel to warn us when the stomach needs materials to supply, through the medium of the blood, the waste of the system. We have reason to believe that if men lived as they ought, they would have a natural and healthy appetite, and that they might with safety follow its dictates. But people have so long erred physically, mentally, and morally, that they can place little confidence in themselves. There is a very great degree of sympathy between the stomach and all other parts of the body. All the organs accompany the stomach in its departure from health, and the derangement of the other organs produces a corresponding derangement of the digestive functions. I recollect the case of a gentleman who had dyspepsia. At times he was tormented with distressing pain in his head. The pain was intolerable. By bathing his head, literally plunging it in cold water, the pain would entirely leave his head, and then he had the most excruciating distress in his

stomach. Thus he was continually agonized between the two. If this man could have been made sensible that medicine could never reach his case, without a change of habits, what an amount of suffering he might have escaped. But people who have by wrong habits brought themselves into such a state, or one analogous to it, seldom think much of their habits. Indeed, they are often like spoiled children, they indulge themselves, and are indulged by their friends, more, because they are sick. If an abstemious course is recommended by a physician, it is not always that his advice is followed. And too many physicians place too much confidence in a course of drugging, and very many, it is to be feared, give medicine more to satisfy the patient, than in accordance with their best judgment. Many people think if they are ill, they must take a great deal of medicine, and if they are *very* sick, they must take a *very* great deal of medicine. I once heard two ladies conversing about a certain physician whose charges for medicine were considered high; one remarked, "If I had to pay so much, I should want a good parcel of medicine." The circumstance reminded me of an anecdote I heard of Prof. Smith, of New Haven. A certain man wished to buy an emetic. The doctor took out the usual quantity and charged the usual price, which was one dollar for advice and medicine, I believe.

“What!” said the man, “so little medicine for so much money. I want my money’s worth, sir.” The doctor shook a little more from the phial. Still it was not enough to satisfy the patient. He remarked again that “he wanted the worth of his money.” The doctor shook pretty liberally this time, probably gave him as much as he dared give him. The man went away *tolerably* well satisfied with the quantity. The doctor requested him to call after the medicine had operated, and let him know how he felt. After a few days the poor man came, weak and haggard enough; he was probably satisfied that the doctor had given him the worth of his money.

The stomach is supplied with a profusion of nervous filaments, which form a kind of net work in its immediate neighborhood. The abundance of these nerves accounts for the severe and often fatal results of a blow on the pit of the stomach. A distinguished writer says, “the co-operation of the nervous system is necessary for the production of appetite,” and there is a direct sympathy between the stomach and the rest of the body, “by means of which the stimulus of hunger becomes unusually urgent where the bodily waste has been great.”

We find in children a keen appetite, as they have to repair waste, and carry on growth at the same time; consequently, a greater supply of nour-

ishment is required by children, than grown people. But here a serious mistake may be committed — parents may think children need much, to repair waste and assist growth, and they indulge them with too great quantities, and with food of an improper quality.

Another great error is committed, by people who have attained their growth, and whose occupations are sedentary, or who do not labor or exercise much, and consequently their waste is slight. These persons often indulge as much, and perhaps more in the pleasures of the table, than those whose occupations are laborious, or who use much active exercise. Dyspepsia is a necessary consequence of such a course.

The remarks of a distinguished physician upon this subject are so much to the point, that I cannot forbear introducing a quotation from his work. He says, "There are numerous persons, especially in towns, and among females, who having their time and employments entirely at their own disposal, carefully avoid every thing that requires an effort of mind or body, and pass their lives in a state of inaction entirely incompatible with the healthy performance of the various animal functions. Having no bodily exertion to excite waste, promote circulation, or stimulate nutrition, they experience little keenness of appetite, have weak powers of diges-

tion, and require but a limited supply of food. If, while inactive and expending little, such persons would be contented to follow nature, so far as not to provoke appetite by stimulants and cookery, and to eat and drink only in proportion to the wants of the system, they would fare comparatively well. But having no imperative occupation, and no enjoyment from active and useful exertion, their time hangs heavily on their hands, and they are apt to have recourse to eating, as the only avenue to pleasure still open to them; and, forgetful or ignorant of the relation subsisting between waste and nutrition, they endeavor to renew, in the present indulgence of appetite, the real enjoyment which its legitimate gratification afforded, under different circumstances. Pursuing the pleasures of the table, with the same ardor as before, they eat and drink freely and abundantly, and instead of trying to acquire a healthy desire for food, and increased powers of digestion, by exercise, they resort to tonics, spices, wine and other stimuli, which certainly excite for the moment, but eventually aggravate the mischief.

“The natural result of this mode of proceeding is, that the stomach becomes oppressed by excess of exertion, healthy appetite gives way, and morbid craving takes its place; sickness, headache, and bilious attacks become frequent; the bowels are habitually disordered, the feet cold, and the circula-

tion irregular; and a state of bodily weakness and mental irritability is induced, which constitutes a heavy penalty for the previous indulgence.

“So far, however, is the true cause of all these phenomena from being perceived, even then, that a cure is sought, not in a better regulated diet and regimen, but from bitters to strengthen the stomach, laxations to carry off the redundant materials from the system, wine to overcome the sense of sinking, and heavy lunches to satisfy the morbid craving, which they only silence for a little.”

I have introduced this long quotation, contrary to my usual practice, because the language here used exactly expressed what I wished to present to you.

I am astonished that a well educated physician can be other than a temperance man; — I use the term temperance here, not in its technical application, but in its broad sense, as applied to eating, as well as drinking. How astonishing it is, that people should overtask, stimulate, and jade their stomachs, till they are sick, and then resort to more stimulating food, condiments, and even wine and bitters, to create an artificial appetite, to enable them farther to abuse their already abused stomachs, and through these the whole system? How many persons eat without a healthy appetite! They have something to please the palate, and entice them to eat, when

they need nothing so much as rest for their tired stomachs and assimilating organs.

In my last lecture, you will recollect, I spoke particularly of the gastric fluid, and its agency in digesting our food. You are aware, that in order to have our food properly digested, it should be properly masticated. Professor Hitchcock says that a physician of distinction, whom he once consulted, said to him, "Have you ever thought for what purpose Providence gave you teeth?" If all physicians should put the same question to dyspeptic patients, they would do much good. The truth is, many people seem never to have thought why their teeth were given them. They do not use them properly, and they are soon taken from them.

It is a fact that ought to be understood more generally than it is, that if any part of the system is not used, the use of that part or organ is taken from us. We have need of every organ — we should not wantonly throw away any. When food is "bolted," as the saying is, *a la* boa constrictor, instead of being properly masticated and swallowed, two serious evils are produced. One is, the food is not divided finely, and the gastric juice cannot act upon food in masses, or it can only act upon the surface of the mass, and owing to the heat of the stomach, a very different process may be going on

in the centre of the mass. Another evil is, proper insalivation of the food is prevented. The saliva has a very important part to perform in the process of digestion. Those persons who lose the saliva, from whatever cause, experience much trouble in consequence of it. Those of you who are acquainted with the manner in which linen is spun in many parts of our country, know the truth of this statement. Those who spin the linen, cannot wet it with their saliva but a short time, without finding their health give way; while those who wet their thread with water, experience no inconvenience. You are aware, that after the food is introduced into the stomach, it is converted, by the action of the stomach and the gastric fluid, into a pulpy, porraceous mass, called chyme. It is highly important that chyme, from which the blood is made, should be good. But if food is eaten, which is wholly unfit for the human stomach, or if proper food be eaten in an improper manner, without attention to mastication, how can the chyme formed be good? In order that chymification be properly performed, and good chyme be the result, we *must* eat *proper* food in a proper manner. We must not load the stomach with an excess of food—more than the system needs to supply waste; if we do, the gastric fluid will be exhausted, and all the horrors of dyspepsia will be upon us.

When the chyme is formed, it is forced by the contractile power of the stomach into the *duodenum*. Duodenum is derived from *duodenus*, consisting of twelve; because this first portion of the intestines is supposed to be about twelve inches long. It there meets with the bile from the liver, and also with the pancreatic juice, a fluid much resembling the saliva. This pancreatic juice comes from the *pancreas*, or sweet bread. The name is derived from the Greek *pas*, all, and *creas*, flesh, it being a fleshy substance. The pancreas is a large gland that lies across the spine, a little below the stomach.

The chyle is taken up by absorbents called lacteals, and carried and mixed with the blood, and forms nutriment for the system. What is left is a yellowish mass, of more consistency, and is the indigestible or excrementitious remains of the food. This mass traverses the whole length of the intestinal canal, and is mixed with waste matter from the blood, &c., which is also thrown off through the same channel.

It would give me great pleasure to tell you more of the process of digestion, and those organs particularly concerned in it. But I cannot do this in so limited a course as this is. I can only tell you some facts,—I can only glance at subjects as we glance at objects on a rail-road. I can take no leisurely surveys of the ground over which we pass. But it is better to learn something than nothing; and here-

after we may have opportunity for more particular and scientific inquiry into these subjects.

I would urge upon all those who wish accurate and extended knowledge on these subjects, to study Graham's "Lectures on the Science of Human Life," a work which no one should neglect to read, who wishes to know himself; a work which is probably greater, and destined to be of more use, than any uninspired work ever written.

In structure, the intestines much resemble the stomach. They consist, like the stomach, of three coats, — the outer, or peritoneal; the middle, or muscular; and the internal mucous or villous, or velvety coat. The peritoneal is a white, smooth, firm membrane. It serves as a support, a medium of attachment, to fix the intestines in their places. Its smooth moist surface admits readily of the motion of the intestines, their gliding over each other, and their change of place, when we breathe, or when the stomach is distended. The motion communicated to the intestines, when we breathe, facilitates their action. You will recollect that muscles are the instruments of motion. The middle coat of the intestines, like that of the stomach, is composed of transverse and longitudinal fibres. By the alternate contraction of these two kinds of muscular fibres, the excrementitious matter in the intestines is propelled downward, and thus cast off.

It is important that the food should consist of

nutritious and innutritious matter. When thus duly balanced, the nutritious matter is separated and goes into the blood, and the innutritious matter passes off through the intestines, and keeps up the peristaltic or worm-like action or motion of the bowels. If there is no innutritious matter in the food, this motion cannot be kept up in the intestines; and, you will remember, if an organ is not used, we lose the use of it; and if there is nothing to keep up the action of the intestines, costiveness and disease are the sure results. Many take too nutritious food, and consequently the action of the bowels ceases. They resort to drastic medicine—"physic," as they term it—"to restore the action of the bowels."—They do indeed stimulate the bowels to action. These substances, usually known by the name drastic or purgative medicines, are in fact poisonous. The system, by its various organs, goes to work immediately to expel them, when they are taken. By applying the term poisonous to such medicines, I do not wish you to understand that I consider them like arsenic or prussic acid—but that they are poisonous, that they are inimical to the best interests of the system, is plain, by the labor that ensues for their expulsion, when taken into the system. We may need such medicines at times, perhaps. When something wrong is in the system, we can get it thrown off by introducing something that

the system will expel, because the recent mischief and the prior one are thus expelled or thrown out of the system together. Great judgment is necessary, to enable an individual to determine when to take medicine.

In common with the skin, the internal mucous or velvety coat of the stomach has to perform two functions, that of excretion, or throwing out, and that of absorption, or taking in. It has a great number of minute vessels on its surface, from the extremities of which excretion takes place. By these vessels much of the waste matter that ought to be thrown out of the system, is removed. This waste matter is poured into the intestines, mixes with the excrementitious matter, and is thus cast out.

Drastic or purgative medicines greatly excite the excretory vessels of the intestines. They secrete or excrete fluid with great rapidity, when these medicines are taken; they excite the excretory vessels, and these vessels pour out fluid into the intestines, often in large quantities. Those who take purgatives, think that there must be much that needs to be "physicked off," as it is vulgarly termed, merely, from the fact, that the excretory vessels are excited to undue action, and thus rapidly secrete and pour forth fluids that did not before exist in the intestines. You will see at once, that when these vessels are thus unduly excited, much

relaxation, want of tone, and often dryness, and inflammation will be likely to follow. The excretories cannot act to throw off waste matter, nor to secrete a lubricating fluid, to assist the intestines in keeping up the peristaltic action, even when the food has a sufficiency of innutritious matter. Much of that troublesome costiveness, that prevails amongst almost all classes, but particularly the sedentary, may be remedied by taking proper food, where nutrition, and innutrition are properly balanced, and by attention to exercise. I think I have plainly shown that purgative medicines aggravate the evil. I by no means wish you to understand that these medicines are never necessary. But no one should take them without the best advice. This tampering with medicines, purgative especially, is doing an amount of mischief hardly to be calculated. I have known an individual to take purgatives for inflammation of the lungs. Many do not know where the stomach is situated. They merely know they have a stomach, and if there is distress any where in the cavity of the chest, they take it for granted it is in the stomach, and forthwith take a dose of "physic." It is truly lamentable, and yet sometimes laughable, to see the mistakes they make. Some medicines stimulate the mucous membrane of the intestines to such a degree, that they are as it were burned up. The spirituous liquors distilled

from rye infected with the ergot, or "spurred rye," has this effect. A portion of the intestines of those who have died from drinking this double poison, have been found so acted upon by the poison, that they would crumble to ashes under the mere pressure of the finger of the dissector.

The regular and due action of these excretory vessels should be kept up by taking food, in which nutrition and innutrition are properly blended. Magendie found by experiment, that animals fed on substances purely nutritious, did not live much beyond forty days. If at the end of forty days their food was changed, and those substances given which contain nutritious and innutritious matter, it made no difference. Though they devoured the new food with greediness, still they fell off and soon died.

We here see how Providence has adapted the food of man to the structure of man. But when we separate the purely nutritious parts of food from those parts the Creator has designed to be used with the nutrition, we do ourselves great injury. Magendie found that a dog fed at discretion on pure wheaten bread and water, does not live beyond fifty days; whilst one fed on the coarse military bread, seems in no respect to suffer. Animal oil, one of the most difficult substances in the world to digest, is eaten by the Greenlanders mixed with

saw-dust, and by means of this purely innutritious matter, a quantity is assimilated, we can hardly say digested, sufficient to sustain life; though it is indeed a miserable existence, that is thus sustained. In some parts of the world poultry are fed on charcoal and fat. They are thus fattened, rendered greasy, by the assimilation of oil. The charcoal enables them to live, by keeping up the action of the intestines, and the fat answers the purpose of nutrition. The appetite mankind have for grease, is truly astonishing. A substance so nearly tasteless, and that subjects us to so much distress, when taken into the stomach, one would suppose would be little used.

The importance of the due admixture of nutritious and innutritious matter in our food, may be further demonstrated by an experiment of Magendie.

“He fed a dog three years old, and in good condition, solely on pure white sugar and distilled water. For seven or eight days the animal appeared to thrive well, was lively, and ate and drank with avidity. In the second week he began to fall off, though his appetite continued good, and he ate six or eight ounces of sugar in twenty-four hours. The emaciation went on progressing as well as the loss of strength. He died on the thirty-second day from the commencement of the experiment.”

Other dogs were submitted to the same experi-

ments, and with the same results. He tried also olive oil, and gum arabic, with similar results.

A distinguished physician of Philadelphia afterward fed dogs on sugar mixed with saw-dust, and they continued in good case.

Another set of vessels are spread over the internal or velvety coat of the intestines. These are the lacteals or absorbents, that take up the chyle from the chyme. The chyle is carried in a direct line up the spine by the thoracic duct. It is emptied into the left subclavian vein, and is thence carried across to the right side of the heart. It is gradually introduced, and then it is carried into the lungs, and comes in contact with the air, and undergoes those changes essential to its vitality. Breathing is considered, and justly too, the completion of the process of digestion.

Proper food may be introduced into the stomach, at proper times, and digestion may go on regularly; good chyme may be formed, and good chyle, but the chyle must come in contact with the air, or it cannot be made good blood. And if we have not good blood, the body cannot be properly nourished, the whole system will become diseased, and very soon digestion will be disturbed, and the whole machinery will go wrong. People commit a hundred mistakes, through ignorance of anatomy and physiology. I have explained to you the nature

of the mistake people make when they take purgative medicines to throw off what the medicine in reality creates. A similar mistake is made with emetics. People take emetics to clear the stomach of bile that is not there, but which is thrown up from the gall bladder and duodenum, by the inverted action of the stomach and intestines. At first, the contents of the stomach are thrown up, but this does not satisfy the patients. They want to see the bile, that is *not* in the stomach, but which they *think* is there. It is true, at times there may be bile in the stomach, nauseating the sufferer, but probably in nine cases out of ten, it is brought into the stomach, and thrown up, by the action of the emetic.

I have now shown you that digestion and assimilation take place in the stomach and intestines; that neither the stomach or intestines are adapted to very concentrated aliment. Many people are troubled with costiveness, and habitually pay much for medicine, merely because their food is too nutritious. There is no waste or excrementitious matter to keep up the peristaltic action of the bowels. There is, in fact, nothing to cast out of the system. All, or nearly all, is nutrition, and is consequently all absorbed.

A lady may think she lives very simple, and in a manner conducive to health, when she lives on

rice and milk, or flour bread and milk. But presently she finds herself under the necessity, as she supposes, of taking aperient or purgative medicines to excite the action of the bowels. She supposes, in her ignorance, that much stuff is lodged in the bowels, because little has passed off. But the truth is, the rice, milk and flour bread are so purely nutritious, that they are nearly all absorbed, and there is next to nothing to cast off. Now if this person resorts to purgative medicines, they will excite the excretories to undue action; disease, inflammation, and derangement of the internal organs, will be the inevitable consequence. Dreadful mistakes of this kind are committed every day. Oh, that a knowledge of physiology could be spread all over our beloved land, and that men and women might no longer be the dupes of quacks and impostors, and the slaves of ignorance!

LECTURE VIII.

DIETETICS.

IN my last lecture I explained the process of chymification and chyfication. We now come to a consideration of that kind of aliment which is best

suited to the constitution of man. Various opinions have been entertained and advanced, by different physiologists, with regard to what was intended as the food of man. Some consider that his organization indicates that he should feed on vegetables alone. Others consider that a mixed diet is indicated by his organization. We know life can be sustained on grain, fruits, or flesh.

We have reason to believe, as I shall show hereafter, that the health of flesh eaters is not as perfect as that of vegetable eaters, nor their lives as long. Still travellers in North or South America have been sustained in what they considered perfect health, exclusively on the flesh of wild animals. It should be remembered, however, that such flesh is not to be compared with the flesh of those animals which are diseased, corrupted and perverted by man.

Some people seem to think that they may neglect their habits, and eat any thing and every thing, if they eat no flesh. "Why," say they, "I am very temperate. I live on the 'Graham system.' I don't eat any meat." It is vain, it is useless, and worse than useless, for people to leave animal food, and run into far greater abuses than the moderate use of plain, healthy flesh meat. It is true, I do not eat animal food; but I am sure I might eat what would be much worse for me. And the excessive use of good vegetables, in many instances,

does more injury than the moderate use of flesh would do. I am far from pleading for the use of animal food, — by animal food I mean what has had life, — but I would have people rational. I believe, with that father in medicine, Dr. Cullen: — “Vegetable aliment,” says Cullen, “as never over-distending the vessels, or loading the system, never interrupts the stronger emotions of the mind; while the heat, fulness, and weight of animal food is an enemy to its vigorous efforts.”

Again, he says, “I am firmly persuaded that any man, who early in life will enter upon the constant practice of bodily labor, and of abstinence from animal food, will be preserved entirely from disease.”

I can bring quotation upon quotation from old and established writers on medicine and health, to prove that in their opinion vegetable diet was most conducive to health. I am not about to say man cannot *live* on this thing or that thing. We know man *can* live upon almost any thing; experience has abundantly demonstrated this fact. The poor inhabitant of the frozen regions can *live*, upon train oil and saw-dust: but this does not prove it is best for him. Our object is to become convinced what diet is best for us, what is most conducive to make us, physically, mentally and morally, what we should be. I know it is not admitted, or even thought of, by many good people, that diet has any effect upon

the morals of a people. I once saw a paper that advocated the doctrine that the animal propensities were unduly stimulated by stimulating food, such as highly seasoned meats, &c. "Away with such nonsense," said a good man, to whom I gave the paper. He would not even look at the sentiment, much less examine it, and condemn it afterward. From the concurrent testimony of the greatest medical writers, from the testimony of numerous individuals who have made experiments to determine the effects of animal food, we are led to conclude, that animal food is more stimulating than vegetable; that it increases vascular action; and that it is, hence, very ill suited for people of consumptive habits. But it is not to be denied, that many of the ill effects attributed to animal food, are occasioned by the condiments and oils used with it. Flesh is, I allow, more stimulating than vegetables, and I am satisfied that the animal propensities are much influenced by a stimulating diet. This sentiment may appear, to those who have not examined the subject, *ultra*. Dr. Cullen says, "it is animal food that especially predisposes to the plethoric and inflammatory state, and that food is therefore to be especially avoided." We may not conclude from this, that Dr. C. used no animal food; but if honest in his sentiments, we must be led to conclude that he was sparing and temperate in its use. I know a physician of emi-

nence in his profession, who for about twelve years almost entirely left the use of animal food. I heard him remark, "I have eaten very little flesh since I studied medicine."

Dr. William Lambe, of London, a distinguished physician and scholar, a prominent member of the college of physicians, and author of several valuable works, is now about seventy-six years of age, and has lived upon vegetable food thirty-four years. The following quotations are from a work entitled "Additional Reports on the effects of a peculiar regimen in cases of cancer, scrofula, consumption, asthma, and other chronic diseases." "We see daily examples of young persons becoming consumptive, who never went without animal food a day of their lives. If the use of animal food were necessary to prevent consumption, we should expect where people lived almost exclusively upon such a diet, that the disease would be unknown. Now the Indian tribes visited by Hearne lived in this manner. They do not cultivate the earth. They subsist by hunting and the scanty produce of spontaneous vegetation. But among these tribes consumption is common. Their diseases according to Hearne are fluxes, scurvy, and consumption."

Dr. Lambe further says, "In the last four years several cases of glandular swellings have occurred to me, at the general dispensary, and I have made

particular inquiries into the mode of living of such children. In the majority of cases they had animal food.

“It seems certain that animal food, predisposes to disease. Timoric in his account of the plague at Constantinople asserts, that the Armenians, who live chiefly on vegetable food, were far less disposed to the disease, than other people. Contagions act with great virulence upon bodies prepared by a full diet of animal food.”

The same great man says further, “The use of animal food hurries on life with an unnatural and unhealthy rapidity. We arrive at puberty too soon, the passions are developed too early, in the male they acquire an impetuosity approaching to madness; females become mothers too early; and too frequently, and finally, the system becomes prematurely exhausted, and destroyed, and we become diseased and old, when we ought to be in middle life.” Professor Lawrence, author of Lectures on Physiology, member of the Royal College of Surgeons, London, Professor of Anatomy and Surgery to the college, and surgeon to several hospitals, has the following remarks respecting the indications afforded by our anatomical character, which are, as you will perceive, decisive in favor of vegetable diet.

“Physiologists have usually represented that our

species holds a middle rank, in the masticatory and digestive apparatus, between the flesh eating and herbivorous animals, a statement which seems rather to have been deduced from what we have learned by experience on the subject than to result from an actual comparison between men and animals. The teeth and jaws of men are in all respects much more similar to those of monkeys, than any other animal. Thus we find that whether we consider the teeth, the jaws, or the immediate instruments of digestion, the human structure closely resembles that of the simiæ, (monkey race,) all of which in their natural state are completely herbivorous."

Many things are to be considered, if we would preserve health and life, beside diet. We should not neglect any thing which will preserve health and life. We have no right to throw away a particle of either. If we can, by pursuing a particular course, have more of bodily and mental vigor, and have our passions more under our control, are we not bound to adopt this course? That a course of temperance will secure us against many evils, I think none are prepared to deny. But the question is, what is temperance? I answer, what I consider temperance, is plain food, in moderate quantities. A person may be strictly temperate, and yet eat animal food. But no person can in my estimation be considered temperate who in-

dulges in large quantities of animal food, with the usual accompaniments of such food. It is surely a much greater waste of life to take animal than vegetable food, because animal food is more exciting, more stimulating; it increases vascular action. A temporary fever is the consequence of a full meal of flesh,—what the old medical writers used to call the fever of digestion. They were accustomed to see people who ate meat have this state of fever, and as probably all ate meat who came under their notice, they concluded that this fever of digestion, as they called it, was a natural state. But those who live on vegetable food have none of this “fever of digestion.” I have tried both methods, and know what it is to be thirsty, and feverish, after my meals of flesh, and other stimulating and heating food, and I know what it is not to be thirsty, and not to take fluid, or even *think* of taking it, for weeks, except the fruits that I ate with my meals, and a cup of milk, perhaps, with two of my meals in the day. Now this stimulating diet makes the vital current hurry on its course, and there is a waste of life in proportion to this excess of action. Whatever increases vascular action, in other words the circulation of the blood, wears out the vital powers, faster than they would otherwise wear out. The manner in which stimulating food, condiments, &c., wear out our vital powers, is very analogous to the effect

of ardent spirits, only it is a more gradual work. The aromatic condiments stimulate the stomach and digestive organs, and they furnish a temporary assistance to digestion, just as wine or brandy may do this ; but it is at a great expense to the stomach, and, through the stomach, to the rest of the system ; for the connection, and sympathy is very intimate between the stomach and all parts of the system, as all parts derive their nourishment from the stomach. All these stimuli, whether condiments or ardent spirits, prematurely wear out the powers of the system, and the individual who uses them dies before the time. If any live to old age, who use them, it does not prove that they are useful ; it only proves that "mankind are tough," and will live long, in spite of abuses. If they can live so long with such abuses, how long might they live, were their habits what they should be ?

Speaking of condiments, Professor Hitchcock says, those who do not use them, "will not experience that temporary glow and excitement of one whose system is braced up by a tonic diet, but he will enjoy comfort and serenity of mind, long after the other is in his grave."

The same writer, speaking of milk diet, says, "A diet chiefly of milk produces a most happy serenity, vigor and cheerfulness of mind, very different from the gloomy, crabbed and irritable temper

and foggy intellect of the man who devours flesh, fish and fowl, with ravenous appetite, and adds pudding, pies and cakes to the load."

I agree with this truly great man, with respect to milk, where the habit of the individual is such that milk agrees with him or her. Those who have a tendency to fat, will do well to abstain from milk, and those who take milk, should take it in small quantities. People err much, by thinking milk light food, and taking too much at a time. They thus overload the stomach, and produce headache and other evils, which might be avoided by taking a small quantity. Another error to be guarded against is, eating fine bread with milk. There is hardly any innutritious matter in fine bread and milk; and, as I have already told you, the nutriment is conveyed into the blood, and there is no innutritious matter to keep up the peristaltic action of the intestines; and where the diet is wholly of fine bread and milk, costiveness, and often inflammation and serious disease are the consequence.

If such bland and apparently innocuous food as flour bread and milk, will produce such results, what are we to think will be the effect of the various kinds of high seasoned food, taken hot? We are to remember that the stomach is lined with an exceedingly delicate membrane, and that this membrane is continued through the intestines. In *post*

mortem examinations, this membrane is found diseased, covered with eruptions of various kinds.

Animal food is of itself very stimulating; but this is a slight evil, compared with the compounds that are taken into the stomach. The basis may be flesh; it may be healthy, it may be diseased; but of all the flesh brought into the market, we may safely conclude that but a small portion is healthy.

In speaking of what enters the stomach, we will begin with the flesh; then there is red and black pepper, mustard, horse-radish, catsup, vinegar, pickles, peppers, and pepper-sauce. At times spirits are taken with such a dinner; but we will leave them out, as we have reason to hope that remarks on spirits will touch no one who reads these lectures. But hot coffee is taken,—so hot that it would scald, *almost*, the external skin. Here is this mixture, lying in contact with the delicate lining membrane of the stomach, at a high temperature! What must be the inevitable consequence?—for fever is immediately induced by such a meal.

If people doubt that these mixtures would produce a blister, applied to the external skin, just let them try it. Perhaps some of you have tried mustard or pepper, in case of ague or toothache. Such will not need to try it again. And I can assure you, that the mucous membrane of the stomach is far more delicate and tender than the external skin.

What then must be the situation of the stomach? Can it be healthy? *No*—it cannot. We are not left without proof positive on this subject. *Post mortem* examinations reveal tremendous facts, and show, that in cases where people called themselves *well*, there was internal disease—disease of the mucous membrane of the stomach and intestines, which must have been of long standing. The stomach of Alexis St. Martin presented proof positive of the hurtful effects of food in common use. After dining on oysters, the internal membrane of the stomach was found to have ulcerated patches, and other diseased appearances presented themselves. After eating broiled veal, fried sausages, &c., (very common articles of food, and by many not even suspected to be unhealthy,) St. M.'s stomach presented diseased appearances of a formidable character. But he complained of no sense of pain, symptoms of indisposition, or even of impaired appetite, when the mucous membrane of the stomach was inflamed, ulcerated, and even *bleeding*.

The following is an extract from Dr. Beaumont on gastric fluid:—“ August 3d, inner membrane of the stomach unusually morbid. The erythematous (inflammatory) appearance more extensive, and spots more livid than usual, from the surface of which exuded small drops of grumous blood; the aphthous (ulcerated) patches, larger and more nu-

merous, the mucous covering thicker than common, and the gastric secretions much more vitiated. The gastric fluids extracted at this time, were mixed with a large proportion of thick, ropy mucus, and considerable muco-purulent matter, slightly tinged with blood, resembling the discharge from the bowels, in some cases of chronic dysentery."

Notwithstanding all these diseased appearances, St. M. complained of little distress. To be sure, he had an uneasy sensation and tenderness, at the pit of the stomach; he had some dizziness and dimness of vision, when he stooped and rose again.

Now how many would call themselves *well*, when they had such troubles as these? St. M.'s course, to produce these diseased appearances, had been precisely similar to the course of a great many who do not dream that they are doing any thing wrong. True, they have ill turns, but then they are "*subject to ill turns.*" So they tell us, and many seem to have no idea that by pursuing a different course, they might get rid of this slavish subjection.— When I hear people say, "I have a dreadful sick headache, once a week, or once a month," as the case may be; "and I don't expect to get rid of it,— all our family were subject to sick headache,"— I think she who complains, and "all her family," were wrong in their habits. Let one who has sick

head-ache take a moderate quantity of plain food in the morning, say a slice of good bread, not made of fine flour, an apple, a pear, or any good fruit. If milk agree with her habit, let her take a small cup of milk, or she may take some gruel, or rice broth made without flesh, if she must have fluid to supply the place of coffee, which by the way does more to produce headache than almost any one thing.

Let this sufferer take such a breakfast at six or seven o'clock, (six is the best hour for summer, and seven for winter,) and let her take nothing except good cold water into her stomach till noon; then let her take a plain dinner. She may eat boiled vegetables, peas or beans, but she must not eat "pork" with these vegetables, for the oil is so difficult of digestion, that she will surely find herself in trouble if she does. There are many forms of plain food; there is an almost endless variety, instead of the starvation which many imagine, where no animal food and no oil is taken. Good bread is the main article, then boiled vegetables, peas, beans, rice, rice pudding, sago, tapioca, and fruits, baked, and cooked in other ways. O, the world is full of good things, without *eating the dead!* Let the sufferer from periodical headache, or indeed from any ache, make a selection from these good things, and not take too much variety, be guarded on this point, and

leave tea and coffee, take her meals at regular intervals, about six hours apart, and take no luncheons. Let her take exercise enough, and not too much, let her retire to bed at nine or ten, and rise at four, five, or six ; — five is the best for most people, six will do, and four for those who can receive it ; — let her bathe the whole surface of the body daily, either in warm or cold water, and rub the skin dry with a hard crash towel ; — let her regularly do this, and she may expect improved health, if there is any vital energy left to improve. Let mothers pursue this course with themselves, and with their children, with this variation ; children have to support the continual waste of the system, and growth also, and they must have food oftener than those who have got their growth. But a great mistake is committed by giving children food too often. Small children should have a lunch, midway between their meals, forenoon and afternoon, and at no other time ; — larger children should have a lunch only in the forenoon. It is an error to feed children, and put them directly to bed. How many poor children are fed with, or allowed to eat, hot fine flour bread and butter, mince pie, or some other rich pie, and rich cake, and then put to bed ; and they are blamed for being “ cross,” as it is called, after being allowed to eat such improper food. The mother knows the child is sick often, and rest-

less and uneasy nearly all the time. But she makes no alteration in its food, or in her management of it. She may have lost several children at two or three years of age, but she seems to think it was a special dispensation of Providence, and not in the least to be set to the account of her management of her child. She does not reflect that her rooms were perhaps improperly aired, and that bad air did its part toward diseasing her infant. She does not know that it is of the highest importance, in order that the functions of the skin be properly performed, that her child should be bathed daily. She does not know that very often diarrhœas are produced to carry off waste and hurtful particles from the body, that ought to be thrown off through the pores of the skin. She is frightened at the diarrhœa, and gives the poor infant some astringent, or supposed astringent, to stop it, perhaps boiled milk, or flour boiled in milk. You know how this operates; as there is no innutritious matter in the flour and milk, there is little to pass off through the intestines. But perhaps the poor child does not get off so easily. It must be subjected to a course of domestic practice. It must take tincture of rhubarb, or some quack medicine, and if the mother is bold enough, even calomel. I have known a mother give her infant calomel, dose after dose. O! that some one could speak on this subject, with

a voice that might be heard from the Atlantic to the Pacific! O! that mothers could be taught, not two or three hundred, but thousands and tens of thousands, to let deadly mixtures alone, — to substitute a warm bath for a dose of poison. When children are thus disordered, often nothing is necessary, but a rational course with respect to food, bathing, clothing, and air.

I would not have you understand that I think medicine always unnecessary, even though I consider it poisonous. But if children must be so managed, or rather *mismanaged*, as to be sick, let the parents have the best advice. Let there be no resort to regular or irregular quackery. That mother who gives her child a dose of quack medicine, or opium, or paregoric, or “Godfrey’s cordial,” or any of any of the numerous deadly mixtures now in the market, goes far toward putting a knife to its throat; and often the consequence is more to be lamented, as the poor little sufferer lingers along and suffers almost a thousand deaths.

The premature development of the passions, under a stimulating diet, is well worthy our serious consideration. I know there are many good people who are not prepared to think eating and drinking have any thing to do with licentiousness. Though I shall follow out this subject hereafter, I must glance at it now. The day has gone by, in which

it is necessary to prove that ardent spirits, even in small quantities, degrade and sensualize. But many take as hurtful injeſta as ardent ſpirits. We can look at this ſubject,—I mean the ſensualizing effects of rich, ſtimulating food. It will do no harm to examine; “truth and oil will come uppermoſt!” “Prove all things, and hold faſt that which is good.”

I once read, in a medical work, of a young tiger who was reared in a family, and was perfectly gentle whiſt he was kept on vegetable food. His maſter was taken ill, and bled. After being bled, he ſlept, and his arm bled again, by a diſplacement of the bandage. The tiger was on the bed with his maſter, and licked the blood from his arm; he became furious immediately. No meaſures could tame him, and they were obliged to ſhoot him.

The following is the teſtimony of Dr. Dick, author of the “Philoſophy of Religion,” and ſeveral other works deſervedly popular:—“To take the life of any ſenſitive being, and to feed on its fleſh, appears incompatible with a ſtate of innocence, and therefore no ſuch grant was given to Adam in Paraדיſe, nor to the antediluvians. It appears to have been a grant ſuited only to the degraded ſtate of man after the deluge, and it is probable that as he advances in the ſcale of moral perfection, in the future ages of the world, the uſe

of animal food will be gradually laid aside, and he will return again to the productions of the vegetable kingdom, as the original food of man ; as that which is best suited to the rank of rational and moral intelligence. And perhaps it may have an influence, in combination with other favorable circumstances, in promoting health and longevity.”

LECTURE IX.

DIETETICS.

I HAVE spoken, in a former lecture, of the injurious effects of grease, of any oily substance or compound, when taken into the stomach. The more I study, the more I observe, the more satisfied I am that grease or oil, in whatever form it may be taken, is one of the most powerful agents in producing cutaneous eruptions, and what are termed “humors.” Understand me, I do not think this one article alone produces all the humors and cutaneous eruptions, but that it exerts a powerful influence in producing them. Abernethy says, “The great cause of all variations in the skin is to be met with in the digestive organs.”

Some time since I gave advice in the case of a

child, who was a most loathsome spectacle, having been "afflicted with a humor," as its parents said, *from about the time it began to feed freely*. One eye seemed nearly destroyed, and, on the whole, I hardly ever saw a more pitiable object. "What is the child's food?" I asked immediately. It is worthy of note, that people almost universally know that grease, butter, &c., are bad for what are termed "humors." The mother replied, "My child craves every thing she ought not to eat, and the doctor did not tell us to make any difference in the child's diet." The fact was, the child was very sick, most of the time; it was, of course, indulged in what was improper for it, — what was *killing* it, — merely because it was ill, or because *it was being killed*. "The doctor" was drugging the child, without paying any attention to its habits. The parents had spent almost every thing they possessed on physicians, and the child was nothing benefitted, but rather grew worse. I confess I had little confidence that any thing could save the pitiable object before me. Poor little suffering innocent — my heart ached for it. I gave the mother some advice; the most important part of which was, to bathe the whole surface of the child's body in warm water thoroughly every day, and to exclude oils of every kind from its food. The consequence was, that in less than three months the child was nearly

well, and I presume that in a few months more it became perfectly well, if they continued to follow the directions. By pursuing a simple and rational course like this, how many thousands might be saved every year, that are now paid for regular and irregular quackery.

Let no one for a moment suppose that I denounce the regular and rational practice of medicine. Far from it. I honor the regular and rational profession. I respect, I revere, I prize most highly, those truly scientific and noble minded men who are an ornament to the profession. But quackery I detest, let it be found where it may, either in the medical profession, or out of it. This dosing continually with medicine, to please a patient, or line the pockets of a practitioner, deserves the severest reprobation. Medicine is a necessary evil. I have much confidence in medicine, judiciously administered. But I have learned enough of the wonderful mechanism of "the house I live in" to dread, worse than disease, the unskilful use of medicine. It is indeed "playing with edge tools," to give medicines at random. People take Brandreth's pills, and other quack medicines, at hap-hazard, for whatever difficulty they may have. It may be disorder of the heart, or inflammation of the lungs, or the stomach may have been overworked, till it refuses to work longer. No matter what may be the trouble, down

goes a dose of Brandreth's pills, or Indian Purgative, or whatever happens to be in fashion. A few years since the "*celebrated Hygeian*" pills were curing every thing; at least so said its unprincipled or ignorant advertisers. Now Brandreth's pills, or Indian Purgative, and *lastly*, if I have kept the track rightly, of which, by the way, I am by no means sure, *lastly*, comes the "*Tomatine*;" a new contrivance to gull people out of money and probably health,* for I have no belief that the inventors of the "*tomatine*" will content themselves with as harmless articles as tomatoes, or seed cucumbers, of which to manufacture quack pills, or drops, as the case may be.

But many are determined to be gulled and imposed upon. They must have medicine of some kind, and unless the physician is inflexible, they will have it. If the physician will not dose them sufficiently, they will make up the difference by taking quack medicines. Thus physicians often feel obliged to keep up the delusion by giving some harmless article called medicine, to keep the patient from taking some deadly mixture. But knowledge cannot advance in this way. To give such harm-

* Since this was written, quack doctors and nostrum makers have by no means rested from their labors. They have rather "doubled their diligence." If any one wishes for a medicine which will infallibly cure every ill which flesh is heir to, he has only to take up the nearest paper, and he will assuredly find it advertised.

less articles, is acknowledging the principle that medicine is necessary, when it is not necessary. This mode of procedure may save a life now and then, for a little while, but it is fastening down the veil of ignorance, and will eventually produce much evil. It is better, far better, to enlighten, even though it can be done but slowly. Let people destroy themselves if they will with medicines, but let not physicians aid them in the work of death. A physician may do as Professor Muzzey did, give a good lady pills made of brown bread, because she was determined to have medicine. I am not about to say Prof. M. did wrong, for after the lady had recovered, and was praising his pills, he told her what they were made of.

A physician of my acquaintance, whose mother was obliged always to take calomel pills, at a certain season of the year, substituted bread pills, and his mother assured him they had a very powerful effect, and relieved her *immediately*.

But circumstances might prevent a physician from telling a patient of the imposition, and they might want, or think they wanted more pills, and they would not often be able to get those that were as harmless as Prof. M.'s. After all, "honesty is the best policy," and if a patient needs advice, let him have it; if he needs medicine, let him have it. But let him be sure he needs it. Let him be sure

all is right with his habits. A skilful physician may do all that can be done, and a patient may *undo*, faster than the physician can do, by improper habits.

In a medical work of much value, I find the following: "Errors in diet are the great source of disease; amendment of diet is the great basis of recovery. Medicines may relieve or suspend the majority of diseases, but medicines can *never* cure, without the aid of regimen." And Abernethy says, "I say it is horribly absurd, and I have no patience to hear and see what I do, as if medicine could cure a disease. They are the means which we employ to correct faulty action in the various functions of the body." Now what are we to think of those empirics, who pay no attention to the habits of those to whom they *sell* medicine. "O!" say they, "you may eat and drink what you please, if you will take the medicine. We lay no restriction with regard to diet." And many would rather give hundreds of dollars, than deny themselves their favorite indulgences. The effect of grease, of oil of every kind, upon the stomach and system, are very far from being understood. There is no question but some oil is digested, especially in cold climates, by aid of the bile, by being made with the bile into a kind of soap; but all medical and physiological testimony shows that it is very difficult of digestion, even after being mixed with the bile. When di

gested, it is by an unnatural and unhealthy process. What is not carried through this kind of difficult and unhealthy digestion, is left to fester in the system. Often the organs carry it as far as the surface, and it there forms the basis of a cutaneous eruption. If there is not strength enough in the system to carry it thus far, we have assurance of some internal difficulty, eruption, or trouble of some kind. Many people seem to have no idea, that they lay themselves open to disease, and invite it, by a rich, stimulating and oily diet. If the small pox were at their doors, and they had never been vaccinated, they would feel the necessity of using plain, wholesome food. They would not dare load and irritate the system with oils, salt, &c. Yet they seem wholly unconscious, that a regimen that will enable them to pass with safety through small pox, will enable them to pass with safety through any other disease, or to resist its attacks altogether. Yet this is the fact. All the disorders incident to childhood have been divested of their terrors to my child, merely because she has been reared in a *degree* of temperance. I say a *degree*, for her habits have been far from right. It is a sad thing to have friends, sometimes, especially when they influence us or our children to do wrong.

I have seen a child struck down, as it were, in a moment, with scarlet fever, with a lunch of rich

cake in its hand. The child had been reared on rich, stimulating food. That fever might be described in one word. *It was death.* Whilst another child, who had been kept in a good degree of temperance, and bathed occasionally, was violently seized with this same fever, and by rational treatment passed with safety through it, never refraining entirely from play on any day of its illness, and only remaining five days in the house.

In many cases of scarlet fever, all that seems necessary is abstinence from food, pure air, cleanliness, and bathing with cold water, when the heat is great, and with warm water when the patient is chilly.

I know some children, who have not been reared in temperance, *may* pass with safety through this and similar disorders; but the chances are greatly against them, and their getting through with safety does not prove that temperance is of no value. It merely proves that the child is tough. Some years since the small pox raged in the north part of Vermont and Canada. Many families were inoculated with it. All who did not have the disorder the natural way, were inoculated. I passed some time there, some years after this. Those whose families were inoculated lived very temperately and rationally, for a time before they were inoculated. They said the disorder was stripped of all its terrors by

this course, and they dreaded it no more than measles, and they would as willingly have their families pass through it, as through measles. Yet they never seemed to think for a moment that refraining from salt, grease, &c., would give them a similar immunity in measles and other disorders, or save them entirely from many diseases. If by *tempordry* abstinence from rich food people can gain such advantages, what may they gain by temperance for years, joined with perfect cleanliness? Bathing the whole surface of the body, thus keeping up the action of the skin, and enabling it to throw off waste and hurtful particles, that would otherwise fester in the system, and cause disease, though of such immense importance, was not thought of by those who adopted a course of temperance in order to pass through the small pox with safety.

I have known several individuals who had small pox after living on the Graham system for a few years, and they did not suffer nearly as much as in ordinary cases of measles. Some were not confined to the house on any day of their illness.

It is singular that people will not reason, and and conclude rationally, with such facts before them. Because stimulating food excites, and gives present power, they conclude that it gives strength. They cannot see the analogy between stimulating food and stimulating drink. They think that animal

food gives more strength than vegetable food because it excites more, and quickens the circulation, thus hurrying on the vital current, and wearing out, by this undue excitement and stimulation, as surely as ardent spirits, though not so rapidly. "O!" say the defenders of this course of living, "our grandfathers lived in this manner, and they enjoyed good health, and lived till they were sixty or seventy years of age." Very true, they might have enjoyed a good degree of health, though their grand-children may not know at this day exactly how many "aches and pains" they had. But the question is, not how long did they live, or how much health did they enjoy; but how long might they have lived, and how much health might they have enjoyed, had their habits been exactly right; and how much vigor might we have inherited from them that we do not now possess. Besides, their habits were really much better than the habits of their children's children. They were active; they did not turn night into day; nor did they take tobacco from infancy, as it were, as many do now. A child of seven years may now be found telling how sick it made him when he *first* began to smoke. - So did *not* our grandfathers.

But the question is not, what may we eat and live? but what is best for us, physically, mentally, and morally? The physical argument is powerful

to my mind. A vegetable aliment, I am satisfied from experience, from observation, from the testimony of the great and good in different ages, is far better suited to sustain man in health, and enable him to be fully what he was intended, than animal food or a mixed diet.

“Those Brahmins who abstain most scrupulously from the flesh of animals attain to the greatest longevity.” Dr. Lambe says, “Life is prolonged, in incurable diseases, about one tenth, by vegetable diet.” He farther says, “It affords no trifling ground of suspicion against animal food that it so obviously inclines us to corpulency. Corpulency itself is a species of disease, and a still surer harbinger of other diseases. It is so even in animals. When a sheep has become fat, the butcher knows it must be killed, or it will rot and decline. It is rare indeed for the corpulent to be long lived. They are at the same time sleepy, lethargic, and short-breathed. Even Hippocrates, (that father of medicine,) says those who are uncommonly fat, die more quickly than the lean.”

Dr. Lambe farther says: “I have observed no ill consequences from the relinquishment of animal food. The apprehended danger of the change, with which men scare themselves and their neighbors, is a mere phantom of the imagination. The danger, in truth, lies wholly on the other side.” Be

it remembered, Dr. L. had lived thirty-one years on vegetable diet, when he wrote this.

The Bible Christians of Philadelphia have lived many years,—some of them between thirty and forty years,—upon a vegetable diet. They have reared families of children, who have now families in their turn, and neither children or grandchildren have ever tasted flesh, fish or fowl. With the exception of abstinence from animal food and intoxicating drinks, their habits are no better than those around them; yet they have an ordinary share of health, and I never heard of a case of scrofula amongst them; yet many believe that scrofula is a result of a vegetable diet.

“Socrates, Plato, Zeno, Epicurus, and others of the masters of ancient wisdom, adhered to the Pythagorean diet, (vegetable diet,) and are known to have arrived at old age with uninterrupted health.”

It has been truly said, by one far wiser than I am, that “that animal food is unfavorable to the intellectual powers.” I know many people have much intellectual power, who use animal food. This does not prove that they would not have more, if they used only vegetable aliment. All the senses are improved by vegetable diet.

But most especially should the consumptive abstain from animal food. The heat, the increase of

vascular action, induced by animal food, makes it very improper that such persons should take it.

Milk and vegetables are most proper for the consumptive, even if they were proper for no one else.

But to consider animal food in its influence on the mind. The mind sympathizes with the body. Whatever clogs and impedes proper action in the system; whatever raises an undue excitement, and sends a vitiated fluid careering through our veins, or brings on congestion in the brain, or elsewhere, injures the operations of the mind. It cannot be otherwise. The sympathy between body and mind is very great, and must be, so long as they are united. We cannot abuse or neglect the one, without neglecting or abusing the other.

But the moral part of our argument lies still nearer my heart. And here I would remark, that it is not against a small quantity of lean, healthy flesh, taken once a day, that I bring my argument. It is against a flesh diet, with all its stimulating accompaniments, such as spices, pepper, heating condiments of every kind, fat meats, oil, butter, &c. This kind of diet induces disease. It hurries on life with an unnatural speed. It produces a premature developement of the passions; and where they are already developed, urges continually to their gratification. Thus are men and women unduly stimulated, and consequently worn out, long before the time.

In order to indulge in animal food, man must take life, unless he does like the Abyssinian, — cut out a junk from the living animal, and eat it all quivering with life. But we kill animals before we eat them. Has not this practice a direct tendency to blunt the finer feelings of our natures? What lady would kill a lamb, a calf, or a fowl, for the sake of its flesh? Few, I apprehend, would do this, unless in a case of stern necessity, and then, surely, we should be justified both in killing and eating animals.

Sir Everard Home, a distinguished philosopher and medical man, has the following:—“In the history of man in the Bible, we are told that dominion over the animal world was bestowed upon him at his creation; but the divine permission to indulge in animal food was not given until after the flood. While mankind remained in a state of innocence, there is ground for belief that their only food was the produce of the vegetable kingdom.”

I cannot forbear quoting a sentence from Plautus, a distinguished Roman writer, who flourished about two thousand years ago:—“That man is not by nature destined to devour animal food, is evident from the constitution of the human frame, which bears no resemblance to wild beasts or birds of prey. Man is not provided with claws, or talons, with sharpness of fang, or tusk, so well adapted to tear and lacerate.”

Plutarch, the beauty of whose writings has charmed and even enraptured so many thousands, says: "It is best to accustom ourselves to eat no meat at all; for the earth affords plenty enough of things not only fit for nourishment, but for enjoyment and delight, — some of which may be eaten without much preparation, and others may be made pleasant by adding divers other things to them.

"You ask me," continues Plutarch, "for what reason Pythagoras abstained from eating the flesh of brutes. For my part I am astonished to think, on the contrary, what appetite first induced man to taste of a dead carcass."

I am free to admit that man has a perfect right to eat flesh, if he cannot get better food. Nor do I half as much object to healthy flesh, as to the manner in which it is cooked. But I want to be sure the flesh is healthy. If I must eat a piece of a dead animal, I want one that has not a pint of corruption in its liver, scattered about in some half dozen or dozen ulcers. I have myself seen an animal killed, that was supposed to be in health, and its liver was studded with ulcers of various sizes, filled with corruption. A lady whose husband was in the habit of eating broiled liver, told me he often bought those that were filled with ulcers. The flesh of the animal had not these marks of disease, but it was just as much diseased. And think ye all the

cookery in the world could tame such an abominable mass, and make it healthful food? It is diseased, and however stuffed, spiced, peppered, or buttered, it is still the same loathsome lump.

Professor Hitchcock gives numerous instances of the effects of temperance in lengthening life. "Old Parr," says Prof. H., "who died at the age of one hundred and fifty-three years, was a farmer of extremely abstemious habits; his diet being solely milk, cheese, coarse bread, small beer, and whey. How much longer than one hundred and fifty-three years he might have lived, we are not able to tell. His physicians testified, after his dissection, that he died in consequence of a change from a parsimonious to a plentiful diet." Lord Kaimes says, "The island of Otaheite is healthy; the people tall and well made; and by temperance, vegetables and fish being their chief nourishment, they live to a good old age. In many places, Indian corn is the chief nourishment." He says, also, that decayed teeth are unknown amongst them.

Fresh fish is comparatively good food; those kinds that are not oily or poisonous, may be eaten with safety. Still the objection against taking life to support life, when we have such abundance of good vegetables, comes in here. Fish are not fattened and diseased by man, before they are eaten. Hence they are much safer food.

People may think they can eat the flesh and milk of diseased animals with impunity ; but they labor under a great mistake. Sir R. Phillips says that in 1599, the Venetian government, to stop a fatal disease among the people, prohibited the sale of meat, butter, or cheese, on pain of death.

Who has not heard of the milk sickness of our own country, and the dreadful sufferings that result from taking the flesh or milk of those animals affected with the poison that causes the milk sickness ?

The habit of taking much salt with our food is very injurious. There is much prejudice throughout community in favor of salt. People have been taught to believe that they could not eat too much salt. But salt is a source of mischief, when much is taken, and we have abundant evidence that persons can abstain from its use with perfect safety, if not with benefit. Salt produces a feverish state, often causes strangury, and, without a shadow of doubt, aggravates cutaneous eruptions.

Those who are not prepared to admit that salt is detrimental, would do well to look at scurvy, and see if they cannot admit, whilst contemplating this disease, that salt *can* be injurious. Salt produces thirst. A tax is thus laid upon the absorbent system, to carry off fluid that we should not need were it not for the salt. People have too much thirst in the common way of living. Fever is induced,—

what is termed by physiologists the fever of digestion,—and we are obliged to take much fluid to quench the flame. This is wearing out the vital powers unnecessarily; for if we live temperately, and our food is sufficiently succulent, and free from heating condiments, and an excess of salt, we seldom need drink. Some go without drinking for months, and yet enjoy good health,—much better health than those who light up a fever in the system three times, and perhaps oftener, in the twenty-four hours. Those who thus induce fever three times or more in the day, are obliged to quench the flames they kindle by some liquid, and often water is too insipid to satisfy them; they resort to tea and coffee, if to nothing worse.

If people take much more food and drink than they need, and of a kind, too, that never ought to be taken, they must expect corpulency, plethora, humors, and perhaps apoplexy. I know a lady who has long indulged in what are termed the good things of this life. She has the means of indulgence in abundance. She knows nothing of her own organization, except “that somehow she came, and here she is.” She has become exceedingly corpulent, and not long since she gave birth to a child, which lived but a little time; and the poor mother, whose system was corrupted by long abuse, had broken breasts, and after lying between life and

death, throwing off corruption from her surcharged system, she was enabled, by the powers of endurance possessed by her system, just to live. But she is still ignorant, still transgressing the laws of life, and must wear out before many years.

LECTURE X.

FLUIDS.

I SHALL in the present lecture say much in favor of cold water. I am very happy that I am under no necessity to speak of alcohol, as a drink, in any form. I rejoice that this baneful poison is banished by common consent, from our catalogue of drinks. But take care, ladies, that you do not *eat* alcohol. A certain shopkeeper once told me that he “wet down his wedding cake with brandy.” I suppose this was done to keep the cake sufficiently moist. I shall not attempt to determine which was worse, the cake or the brandy.

I rejoice that in an assembly of ladies, at this day, there is no necessity to be eloquent in condemning alcohol, and persuading them to disuse it, whether it be found in the shape of wine, gin, or cordial. So much has been written upon this sub-

ject, that "he who runs may read." Still I cannot but feel a disposition to go out of my path a little to follow these deleterious fluids to their hiding place in solids, in the shape of "wedding cake," "mince pie," &c.

I know a lady does not *drink* brandy, when she eats it in mince pie, or cake, and a drunkard does not *drink* rum when he soaks a brick-loaf in it, and eats it, congratulating himself on an unbroken temperance pledge. But is there any difference in the guilt of these two individuals? I hope all present are fully sensible of the injurious effects of ardent spirits in all its fluid forms. But it comes in so many shapes, that there is much danger of our being deceived, and putting the enemy in our mouths. It is not only to be found in cake, and pie, but in numerous forms of medicine, which are recommended by quacks, and others, for ourselves and our children. There is the cordial, the tincture, the elixir, and the hot-drops. These gain access, where ardent spirits, undisguised, could never come. I have myself heard a good lady say, who was a strong advocate for temperance, in its technical application, "I take hot-drops when I am sick, and I always give them to my children if they complain." "Hot-drops" was this lady's "cure-all." If a child was ill from repletion, which often happened, for the children had almost every thing they ought

not to have, besides "hot-drops," they must take a dose of this medicine. If one of them fell and was hurt, a dose of hot-drops was given, and another dose was rubbed on the bruise.

The effect of these stimulating substances on the mucous membrane of the stomach, I have shown you in a former lecture. The mere circumstance that alcohol is called *medicine* will not save the mucous membrane of the stomach from inflammation and ulceration. Alcohol is alcohol, whether it be hid in cake, or pie, or disguised in elixirs, tinctures, or hot-drops. Fire is fire, and will burn our flesh equally, whether it be a kitchen fire, or the consecrated flame of the poor deluded idolater. Fluids, after passing into the stomach, are taken up, and conveyed into the blood, by appropriate vessels, called absorbents, and these fluids are just as much taken up by the absorbents, if they are taken mixed with solid food, as if they are drank. The serum, or watery part of the blood, needs to be supplied by fluids taken into the system. There is a waste of fluid matter in the system, as well as solid. Hence a supply of fluid is needed, as much as a supply of solid matter. The questions to be answered are, when should this fluid be taken, of what kind should it be, and in what quantities should it be taken? It is conceded at all points, now, where respectable people choose to look for

testimony, that this fluid should not be alcohol, in any of its forms. Wine, cider, and malt liquors, are all highly injurious. The excitement they create, in illness, and in health, their apparent tonic effects, in recovery from illness, are all artificial. They should be disused entirely. If they had no other ill effects, they increase vascular action, thus hurrying the circulation of the blood, and wearing out the vital powers, unnecessarily. I know it has long been the practice of our most skilful physicians, to give wine on recovery from illness. It has been the practice of the great, and the good; and I have tried to think it was right, for this reason. But the more I study, the more I observe, and the more I think, the more I am satisfied of the truth of a sentiment advanced in a recent medical work of much merit. "Nothing can give strength to the system, but plain, wholesome food." "Other things may appear to give strength, but it is only excitement. Medicine may correct faulty action in the system, but food alone gives strength."

I have watched the action of wine upon my own system, in recovery from illness, and I was at no time satisfied that it was well for me, though ordered by one of the most skilful physicians. I am accustomed to follow a physician's directions, in every thing, if I put myself under his care; and though satisfied the wine was not well for me, in other

words, that it was decidedly injurious, I took it, because I would obey my physician ; and I got well in spite of the wine, and I suppose he thought I got well by the aid of it. This physician was a temperance man in the strictest sense of the word, as it respects ardent spirits.

Strange that sick people should be condemned to bear the excitement of ardent spirits, or wine, (for at present they are nearly synonymous,) when well people cannot bear it without injury ! But I must hasten to take leave of a subject, which, at this day, ought not to demand a passing notice. But let all remember that they cannot take alcohol in any form, with safety, or give it to their children. No matter whether it be concealed in medicine, cake, pie, or confectionary, it is every where a deadly substance. "Alcohol does violence to the absorbents, and passes into the circulation unchanged." So testifies Magendie the great French experimenter. But among the deleterious fluids I must not omit to mention the deadly laudanum and paregoric, and solution of morphine. Though opium is a solid, these are fluids, and I am very willing to have this opportunity to speak of them. I can hardly think that those who take laudanum or morphine, or give their children paregoric, have the slightest conception of the mischiefs they are causing. If they wish to commit murder, or suicide, why not

do it deliberately, and not “by *inches*?” But I will not be severe. These persons know not what they do. They have brought themselves into a state of misery, by wrong habits, and they seek relief from their misery. Thirteen years since I took laudanum, and thought I could have no rest from my misery without it. Had I continued the practice much longer, I should have had repose from *bodily* sufferings. The fact was, my habits were wrong; I had deranged my nervous system by the excessive use of tea, and by almost continual study, night and day, till my life was disease. My excruciating pain was relieved for the time being, by laudanum, but it was only for the time being. I was perfectly sensible that it made me worse ultimately.

I have wrecked my constitution by these means. I owe what little of vitality I now possess to temperance and regularity, and I can sympathize most feelingly with those who are destroying health in the manner I destroyed mine. Let those who do not wish to commit suicide, avoid opium in all its forms—unless prescribed by a skilful physician.

I now come to speak of tea, coffee, &c. Here I shall give you my opinion and my experience:

In the first place, tea and coffee are taken when there is no natural thirst. A quantity of fluid is

necessary, to supply the waste of the fluid parts of the system ; if we are in a healthy state, natural thirst informs us when fluids should be taken. But very few, who live in the usual manner, are in a state of health. The abundant use of condiments, and of flesh, and other stimulating articles of food, induces a state of fever, and very many drink only to quench the flame they have thus kindled. Others, whose diet is more as it should be, drink from habit. They are accustomed to drink so many cups of tea, or coffee or cocoa, or so many glasses of water, and they do not stop to consider whether they need this quantity of fluid. Others drink with their meals, and they drink because it is the custom. Some think that " they may as well be out of the world, as out of the fashion ;" and they want a cup of tea and a tea-spoon, or a cup of water, to keep themselves in countenance.

Now all this would do very well, if the stomach were a bottle, or any thing but a *stomach*. As it is, it imposes unnecessary labor upon the system in every way.

Nursing mothers think they must drink large quantities of some kind of fluid, to make milk for their infants. By persevering in this course, they bring on indigestion, and not only defeat the end at which they aimed, but cause much suffering for themselves and their little ones ; for we know that the health of

the child depends very much on the health of the mother.

If we take food too stimulating, and thus create fever, which produces thirst, we thus waste life; and all of us will find it, short enough, at best. If we take fluid from habit, and not because we need it, we thus impose a heavy tax upon the absorbent system, to take up and carry off this fluid. When we drink with our meals, the absorbent vessels take up and carry away the fluid before the process of digestion begins. After putting this amount of unnecessary labor upon the absorbents for a time, they fail, just as any other organ would, that had to perform too much labor, and then indigestion is the result, and often diarrhœa—a diarrhœa of indigestion, in which the food passes off with hardly any alteration: no alteration that approximates toward digestion. It is true, vegetable food may turn acid, and animal food may putrefy; but neither of these constitute any thing like digestion.

You will perceive that I am now speaking of the effect of innocent fluids, when taken in too large quantities. But all these mischiefs are aggravated, and others produced, by the use of improper fluids. We have abundant evidence to prove that tea is a narcotic, and therefore poisonous. Dr. Hooper says, in his Medical Dictionary, "In its natural state tea is a narcotic plant, on which account the

Chinese refrain from its use till it has been divested of this property by keeping it at least twelve months." Now I am very sure, from this passage, that Dr. H. was a tea-drinker; for though he says tea is a narcotic plant, he says also, the Chinese keep it till it is divested of this property. I am very sure, also, that the Chinese would have to *steep* it, as well as *keep* it, before it would be divested of this property. What evidence Dr. Hooper could have that it was divested of this property, I cannot see, when directly after, he says, "When taken too copiously, it is apt to occasion weakness, tremor, palsies, and various other symptoms arising from *narcotic* plants." Dr. H. speaks of taking tea *too copiously*. Every one who takes tea will judge for himself or herself when they take it "too copiously."

The good lady who has taken tea till every nerve trembles, and till she cannot hold her cup and saucer steadily, will not of course think she takes it too copiously, if she takes two, three, or even five cups, *just to steady her nerves*. The good lady who drinks tea to cure the headache, forgetting that those who do not drink tea are not so apt to have the headache to cure, will not think she takes tea too copiously, so long as she does not take enough to cure her head.

But to be serious, let us see what Dr. Cullen

says of tea. He says that scientific experiments prove that an infusion of green tea (as we have it in America) has the effect of destroying the sensibility of the nerves and the irritability of the muscles." He adds, from these considerations, we conclude, firmly, that tea is a narcotic and sedative substance. Dr. Cullen farther says, "It is very possible it may, *like other narcotics*, in a moderate dose, prove exhilarating;" and he thinks, also, it may operate medicinally, like some other narcotics. But what do well folks want of narcotic medicines? — and if they are sick, they ought not to take medicine at hap-hazard, every day. They ought to have advice, and take what is best for them.

But what is a narcotic? some may ask. Dr. Cullen says, "As their power and operation may be extended so far as to extinguish the vital principle altogether, they form that set of substances which properly and *strictly* may be called poisonous."

I know many people do not think tea is poison, though they acknowledge if drunk strong it is hurtful. But is a pound of arsenic poisonous, and is not a grain poisonous? Some say tea cannot be poisonous, for some of their relatives used it, and lived to be old. "My grandfather," said a young man in my hearing, "is eighty years of age, and he always used tobacco from his youth." Because this good old man had lived to a good old age, *in*

spite of tobacco, it was proof positive to the young man, that tobacco was not poisonous. So it is with tea, and even with ardent spirits — because they do not kill outright, or make people “down sick,” they try to persuade themselves that they are not injurious. If they are sick once in a while, they conclude that they *must* be sick occasionally — that sickness *comes* or *is sent* — or perhaps, like a gentleman I once met, they charge it upon their ancestors. “I am,” said he, “convinced of the truth of your temperance principles; but I enjoy perfect health, and do not feel the necessity of making any change.” A gentleman present inquired if he never had the headache. “O yes,” said he, “but then that is hereditary; my grandmother had the headache, father had the headache, and I expect to have it.” He thought it a matter of course, that he must have the headache, because his grandmother and father had it. He lived in the usual manner, and took tobacco *freely*.

I know people say they cannot give up tea, and I know habit is very powerful. I know all this by experience. Ladies say, and good ladies too, and they believe what they say, that tea cures the headache. Now I have no question that tea alleviates their headache; but I also believe it had much agency in causing it first. Ardent spirits derange the nervous system, and produce sickness, violent

tremors, &c. ; but ardent spirits will relieve, for the time being, these symptoms. It will stimulate the deranged and jaded nervous system for a short time, as the whip will stimulate a jaded, worn-out horse to momentary exertion. So it is with tea. Tea has deranged and disordered the nervous system ; it has produced headache and other troubles ; yet by its momentary stimulus, it makes the sufferer feel better, rouses and exhilarates long enough to deceive. Why should a person whose habits are correct, have the headache, any more than the *hand* ache or the *foot* ache ? I confess I cannot see. I look upon all disease as an effect following a cause. I do not consider that it comes, or is sent, without a cause, any more than I consider that a watch or any thing else could make itself, without a maker—“could just happen so.” I see no reason why one thing should “just happen so,” any more than another. I know people are born diseased, and with susceptibility to disease ; but in most cases, were they properly brought up, and did they live right, after they are “brought up,” we should hear less of hereditary disease.

The following remarks from Prof. Hitchcock are so exactly to the point that I introduce them here : “If the intemperate man abandon his cups for a time, he is beset with that terrific set of feelings called the ‘horrors ;’ but at length they pass away,

and nature moves on regularly and calmly, and peace and health and happiness return. Just so, if the tea-drinker gives up his beverage, he will find for a time that dulness, debility and headache are the consequences. Many, in such circumstances, conclude that this is certain evidence that tea is necessary for them, or very salutary, and they therefore return to its use. But were they to persevere in their abstinence for a few weeks, or a few months, their morbid feelings would disappear, and probably their headache would be permanently cured." He also says that whilst he drank tea he found dull, nervous headache no uncommon companion; but upon leaving it he was afflicted with almost constant headache and heaviness. He persevered, however; his headache gradually disappeared, and after a few months, "headache," he says, "was one of his rarest trials."

If the opinions of eminent physicians are worth any thing, then they ought to be brought to the remembrance of those who take tea and coffee. Some may ask which does greatest injury, tea or coffee. I for one must answer, I cannot tell. A great man has said, "that is worst of which we drink the most;" and I believe it.

Dr. Londe says of coffee—"Coffee accelerates the functions only by shortening their duration. It doubles the energy of the organs only by doubling

the debility which follows when the excitement is over. Coffee produces, in irritable individuals, a remarkable agitation, an inclination for some kind of motion which they cannot resist, — often a trembling of the muscles, spasmodic cramps, anxiety and palpitations. Nothing is more calculated to increase the emaciation, the paleness, and to hasten the exhaustion of the organs, in persons of an irritable habit, than this beverage, which is altogether stimulating and not in the least nutritive.”

Dr. Beddoes’ experiments go to establish, beyond the reach of controversy, the deleterious qualities of tea. “It was first ascertained, by a number of trials, with a variety of preparations from vegetables, that laurel water, infusion of opium, of digitalis and green tea, bear *equal* proportion, with regard to their destructive effects upon the hearts of toads and frogs, all rendering them instantaneously incapable of pulsation. In all the experiments tea proved as quickly poisonous as laurel water, opium, or digitalis, and in some *more so*.”

Some suppose that the habitual use of strong tea creates a distaste for ardent spirits. I have tried to reclaim a drunkard by giving him strong tea, till I was tired of trying, and now believe I might as well have reformed him by giving him wine or cider. I have yet to learn that the use of a mild stimulant produces a distaste for a stronger.

I believe that a large proportion of the nervousness, hypochondria and hysteria that hang over the finest minds among us like a thick black cloud, shrouding their brightest prospects in gloom, is to be traced directly to the use of tea and coffee. I have myself suffered much from nervousness, in my coffee and tea drinking days, and I know a worthy gentleman whose nervous system became so deranged by the excessive use of coffee, that he hardly saw a lucid interval. He was completely miserable himself, and made his friends very miserable. His hobby seemed to be that he must come to want. His wife often feared he would take his own life. He was so enslaved to coffee, that if he dispensed with it one morning, he would have a terrible headache, and would even be incapable of business till he had a bowl of strong coffee made. While the stimulus of the coffee lasted he could attend to his business. He was induced, by the entreaties of friends, to abandon the use of coffee for a time.

After much suffering from the absence of his long used stimulus, his nerves became settled, his fits of hypo left him, and he became a cheerful, happy man, and rejoiced in his emancipation. In a letter which I received from a Congregational minister with whom I correspond, I find some facts with regard to coffee, worthy your attention. This gentleman is as eminent for his piety, as his scholarship, and

cannot therefore be suspected of slandering this beverage. His chum, while in college, was much addicted to coffee, and was tormented with a dreadful headache, much of the time during his college course. But he used to say he *knew* it was not coffee that made his head ache. After he left college, his health became so much impaired that he was obliged to seek medical advice. He was induced to lay aside coffee. The consequence was, his head got well. Another gentleman who was a near relative of the writer, was a slave to coffee, and fancied that his wife was his enemy, though she was one of the best women in the world. He could not believe that she loved him, or that any thing was right with him. He thought that not only his wife, but his children and neighbors, were conspiring to work his ruin. He was persuaded to leave the use of coffee; in a few weeks, his system became regulated, and he wondered, wondered! he could indulge in such groundless suspicions, that made himself, and all around him, miserable. When he was relating the circumstances to the writer, a few months afterward, he said, "He had not a single doubt coffee was the principal agent in the matter. But," said he, "I would not believe it, or hear to a word of advice on the subject, till I was driven to the last extremity, and felt obliged to do any thing, and every thing, that was possible for relief; for," continued he, "I

was tempted strongly to run away and leave my family, and I was afraid I should take my own life in some frantic moment." He was a professor of religion, a respectable and influential citizen, and worth several thousand dollars, and between forty and fifty years of age." Let not tea drinkers think their favorite beverage innocent of producing such results, for I have known a lady, who was a slave to tea, and seldom took coffee, who had such fits of depression, that she would weep hours without knowing the cause. She often thought all her friends had forsaken her, and at one time she even attempted to take her own life. She acknowledged that she was often tempted to destroy herself. She left tea, and became calm, cheerful, and happy.

I have promised to give you my own experience with respect to tea and coffee. From a child, I drank tea. My parents were great tea drinkers. I became so attached to tea, that I was not willing to make a meal without it, and I must have it very strong. At length I was not satisfied with it at my meals. I chewed it, and often put a handful in a cup, poured boiling water on it, let it cool, and then drank the infusion, and ate the tea. I became a most wretched being. I had never had firm health, from a child, owing to improper management in rearing me. Severe nervous prostration, accompanied by mental depression, were often my portion. Other

bad habits joined with the tea in producing my misery, no doubt. But a great part of my distress left me when I left tea, although I still retained many bad habits. But I was not wholly relieved, till I adopted the temperance system in all its parts. After I left tea, I became gradually a slave to coffee. I had, therefore, a good opportunity to judge of the effects of each. I am satisfied coffee much increases arterial action, produces palpitation, weakness and trembling. I used coffee when my other habits were better, much better than they were when I took tea. I can judge better, perhaps, of the effects of coffee, than of tea, though I am convinced tea is equally hurtful. My weakness, and trembling, and sickness became so great during the forenoon, (for I only took coffee habitually in the morning,) that I was not able properly to attend to my duties as a teacher. In the afternoon my abused system would rally its powers, and I would be better. I resolved to abandon coffee. I did so, and immediately my system became renovated. I was enabled to perform my duties with ease and cheerfulness, free from nervous prostration, or mental depression, free from palpitation, weakness and trembling. I now take plain food, with no seasoning except a very little salt. If I wholly disused salt, I believe it would be better. I take no fluid with my meals, except a small cup of milk, perhaps twice in the

day. I eat no flesh, no oils, or grease of any kind ; and unless I use much exercise, I am seldom thirsty. I have sometimes passed weeks without taking any drink, or any fluid, only the small quantity of milk I eat morning and night. When I do need drink, water is the most grateful of all fluids. There is a delicious taste in pure water that tea and coffee drinkers know nothing about. But pure water is seldom found. Much impurity exists in our water. This impurity is the cause of many evils. The gravel is no doubt often caused, and always aggravated, by drinking impure water, especially such as contains calcareous matter. Rain water, where it is caught in a proper manner, is probably better than any that many people can get. Filtered or distilled water would be better still, perhaps. But if so much mischief results from drinking impure water, should we not avoid, as far as we are able, the necessity of drinking it? Should we not eat succulent food, good milk and fruits, rather than light up a fever in our veins by the use of flesh, oils, condiments, &c., which we must quench with impure water, or something worse?

Great care should be taken with respect to milk. Still slops, dirty swill, &c., are not the natural food of a cow ; and such horrid slops, drained through the vessels of an unhealthy animal, (for a cow fed in this manner will quickly become unhealthy,)

must be very improper food, to say the least of it. Good milk is good diet for many, though it does not agree with some, especially those who have a tendency to fat, or are troubled with humors. Let our habits be such that we have none but natural thirst, and pure water will be grateful and healthful.

Extract of a Letter from Dr. John Burdell, dated

NEW YORK, JAN. 27, 1842.

MRS. GOVE:—In accordance with your request, I send you the following on the subject of Tea and Coffee, which is the result of my own experiments on various animals.

It is a law of the animal economy, that stimulants and excitants invariably result in a corresponding depression; and if the depression goes beyond a certain point, death is the consequence.

During my dental practice I have had an opportunity of observing the condition of those of my patrons who were in the habit of drinking strong tea, and I have found that such persons have weak, irritable and sensitive nerves; also their offspring. This led me to make some experiments, the results of which I now present to the public.

I took a pound of young hyson tea and steeped it in soft water, and boiled it down to half a pint.

I then procured a rabbit of about three months old, and kept it without food a sufficient length of time to leave the stomach empty. I then gave it ten drops of the decoction, holding its head in a position to cause the fluid to enter the stomach. The animal appeared to be somewhat exhilarated for the space of three or four minutes, then laid down on its side and began moaning, as if in great distress; and in about ten minutes from the time of my administering the dose, its struggles ended in death, the limbs being distended and very stiff.

I also tried the effects of tea on a cat of the same age, after making another decoction from black tea, which the person who sold it said was of the best quality, and was highly recommended by a celebrated physician to a lady in delicate health. The decoction was stronger, as I boiled it down to less than a gill. The results were the same, only more rapid, as the animal ceased to breathe in less than three minutes, although the dose was not as large as I gave the rabbit, being but eight drops.

I have used the decoction of tea for destroying the nerves of teeth, as a substitute for mineral poisons. Arsenic is used by many dentists for the purpose.

Again I took a pound of coffee in its natural state, and boiled it in the same manner as I did the tea, and administered it in the same way, but had

much difficulty in keeping it in the stomach long enough to produce much effect, before it was thrown off by vomiting. But when it could be kept down for any length of time, it destroyed life, but took longer to do it than tea.

My last experiment was in trying the effects of tea and coffee on frogs. The former would make them jump three or four feet at first; but the leaps grew shorter and shorter, until they were incapable of drawing up the hind legs for another jump, and soon expired.

Yours, &c.

JOHN BURDELL.

LECTURE XI.

NERVOUS SYSTEM.

IN treating on the various parts of the human economy, I pretend to no originality. I bring the opinions of the best recent physiologists before my sisters. There is some difference of opinion between late writers on physiology, respecting the nervous system. This difference in no wise affects the pathological remarks, or hygienic deductions of these lectures.

In these lectures I shall give you the different

opinions of physiologists. First, I shall bring before you the opinions contained in my oral lectures.

Under the name *nervous system*, anatomists include those organs which are composed of a nervous or pulpy tissue. The nervous system, in man, is composed of two parts. That which is called the *cerebro-spinal axis*, which is the brain and spinal marrow, and thirty-nine or forty-two pairs of cords, called *nerves*, which pass off laterally from the cerebro-spinal axis, and ramify over every part of the body. Secondly, the ganglions and plexuses, with their various cords, branches and filaments.

Under the term *encephalon*, are included the contents of the cranium, which are the cerebrum, or brain proper, the cerebellum, or little brain, and the medulla oblongata. These different parts are included under the name *brain*. The brain proper, or cerebrum, occupies the upper part of the head; the cerebellum is next below it, posteriorly; and the medulla oblongata is lower still.

I would here remark, that I cannot go into a description of the brain phrenologically, but I am fully impressed with the value of phrenology as a science, and would earnestly recommend to my readers, especially those who are skeptical as to its truth, the admirable works of George Combe, and the Messrs. Fowler.

Combe's "Constitution of Man" is a work that is above praise. His other works are exceedingly valuable. The writings of O. S. Fowler contain physiological and phrenological truth, well adapted to the wants of our age, and eminently calculated to bless humanity. L. N. Fowler is said, by good judges, to be the best practical phrenologist in America.

French anatomists reckon forty-two pairs of nerves. Of these, twelve pairs draw their origin from, or are connected with the encephalon, and thirty come from the spinal marrow.

Each of the spinal nerves consists of filaments destined for two distinct uses, motion and sensibility. They have two roots, one arising from the posterior, the other from the anterior part of the spinal marrow. Sir Charles Bell says, that the anterior part gives rise to nerves of motion, the posterior, to nerves of sensibility.

The series of ganglions and plexuses, with the nervous cords, fibres and filaments which unite them, are collectively termed the great sympathetic nerve. It is connected with each of the spinal nerves, and with several of the encephalic, but does not arise from either. The sympathetic is considered the great system of involuntary nerves. The nerves of the brain and spinal marrow, with their various ramifications, are called the nerves of

animal life. These are distributed principally to the muscles of voluntary motion, and to the sensitive surface of the body, or external skin.

The sympathetic or ganglionic nerves are called nerves of organic life. The ganglions of the sympathetic nerve give off branches, which some of them connect the ganglions with each other, and some interweave and inosculate and form plexuses. From these, numerous branches are given off to supply the different organs with nerves.

Besides the more deeply seated ganglions, connected with the principal viscera, there are two series of them, which range along the anterior side of the spine, connected by nervous cords, which extend from the lower extremity of the spine to the base of the cranium, and enter by small branches through the carotid canal, along with the artery, and form connections with the fifth and sixth pairs of the nerves of the brain.

These two series of what are termed *peripheral ganglions*, with their connecting cords, are called *sympathetic nerves*, because they are believed to form the most intimate union of sympathy between all the viscera concerned in organic life.

At the base of the diaphragm, on the anterior side of the spine, are two large ganglions, called *semilunar ganglions*. These give off numerous large branches, which, together with several from

other parts, and some from within the cranium, form a very large central plexus in front of the spine, which constitutes a kind of common centre of action and sympathy to the whole system of organic nerves. This is called the *solar plexus*. From this branches are given off in every direction, uniting with nerves from the brain, and supplying the different organs, particularly the stomach and arteries. These are invested with a lace-work of nerves, which accompanies them to their termination in the glands, skin, and mucous membrane, and other membranes.

The cerebro-spinal nerves are instruments of sensation and perception. The sympathetic or ganglionic nerves are instruments of sympathy; and in a healthy state are not instruments of sensation; but in a diseased state they have great morbid sensibility; and a morbid sympathy may also be induced. You know that the nerves of the bones, in a state of health, convey no appreciable sensation to the brain. But bones may become diseased; and no pain is more acute than the pain of diseased bones. The many abuses of the nervous system disorder the organic nerves, and render them acutely sensible. The nerves of sensibility partake of the injury. Thus there is disease from abuse, and disease from sympathy.

A great physiologist, from whose works these views of the nervous system are taken, has said,

“The proper performance of the functions of life, and the welfare of each and every part of the system, depend upon the integrity of the nerves, in supplying the necessary vital energy; and this again depends on their healthy state. By inducing a diseased condition, and inflammation of any part, a new and abnormal centre of action may be established, equal in the power and extent of its influence, to the importance of the part, and the degree of its morbid irritation, which will not only derange the functions of the part itself, but also, to a greater or less extent, those of the other parts, and sometimes of the whole system, causing an undue determination of the fluids to itself, and resulting in morbid secretion, imperfect assimilation, chronic inflammation, disorganization, by change of structure, by softening, or indurating, producing scirrhus, ossification, calculi, ulcers, cancers, and dissolution; or mounting into a high state of acute inflammation, and in a more violent and rapid career, bringing on gangrene, or general convulsions, collapse and death.”

Since these lectures were written, some new views of the nervous system have been given to the world by Müller, a German anatomist. These views will be found in the annexed extract from a letter which I received a short time since, from that profound scholar and able writer, D. Francis

Condie, M. D. of Philadelphia. The letter was hastily written, with no view to publication, but Dr. Condie has kindly given me leave to make extracts from his letters, remarking, "that from the rapid manner in which these communications are written, in moments of uncertain leisure, their style is necessarily somewhat loose and careless, and certainly very different from that in which I should clothe my thoughts, did I contemplate they were to be given to the public." I shall avail myself of the privilege thus kindly given, and shall mark the extracts with the letter C.

After carefully studying these views of the nervous system, you will be better able to understand how we are affected by hurtful influences.

"In the first place, it will be proper to lay down a definition of *tone*—which is that state of the nervous system, when it responds with sufficient promptitude, vigor and regularity, to the healthful and natural stimuli. Want of tone is of two kind; first, when, from deficient excitability, the nerves do not respond with *sufficient* promptitude, vigor and regularity, to the natural excitants, and the functions of the system in all, or in part, fall into a state of torpor. The second species of deficient tone is, when the nerves, from excess of excitability, respond too promptly, and often irregularly, to the ordinary stimuli, and often act with violence, from

the impression of causes, which, in their normal condition, affect them but little, if at all. It is this latter species of deficient tone with which we have principally to do. It is produced by over-excitement, moral as well as physical—by over-exertion of the organs, without sufficient intervals of rest—by whatever reduces the physical energies of the system, deficient exercise, deficient food, mental and moral indolence, as well as by excessive mental labor, excessive evacuations, and by whatever impairs or vitiates the nutritive functions of the system, as excessive, improper, or deficient food, improper drinks, vitiated and confined air, deficiency of sleep, the depressive passions, &c.

“In regard to the extension or diffusion of morbid action, this takes place through the nervous centres. Irritation of the stomach, by being reflected upon the heart and lungs, hurries the respiration and circulation. Irritation of the uterus, by being reflected upon the stomach, causes sickness, gastrodynia, &c. ; or upon the spinal nerves of motion, hysteria ; and neuralgia, when upon the nerves of sensation. A piece of indigestible food in the stomach of a child, gives rise, by reflection upon the nerves of motion of animal life, to convulsions. A portion of a briar in the end of the finger, by a similar reflection, causes tetanus, &c. &c.”—c.

The world has so long looked upon passions

misdirected, or excessive in action, that many seem to have come to the conclusion that certain passions or propensities are inherently bad, and that they should consequently be eradicated. Now if we look into this subject, we shall find that it is only the excessive or erratic action of the passions, that is productive of evil. The passions are themselves good; and could the human being be so developed that there would be a harmonic action of the passions, we should then see the perfection of humanity. For instance, caution is a faculty or passion that is productive of great good, but its excess makes fear, or cowardice, which may produce great evils; and its deficiency makes men reckless; which is often a very great evil. The same is true of hope, reverence; or even conscientiousness. But you may say, surely we cannot have too much conscientiousness. You must remember that the moral sense is blind, and unless enlightened by the infusion of truth into the mind, is as likely to lead us wrong as right. The devotee is *conscientious* in casting himself beneath the wheels of Jugger-naut. The Hindoo widow is *conscientious* in immolating herself upon the burning pile with the corpse of her husband. Christians are *conscientious* in adhering to various rites and ceremonies, that divide and scatter in Israel, and produce any thing but the fulfilling of the law, which is *love*.

“Every physiological propensity, appetite or passion, is implanted in the human organism by its Almighty Author, for a wise purpose, and hence the indulgence to a proper physiological extent is proper and commendable—nay, necessary for the well being of the individual, and for the preservation of the species.”—c.

It should be remembered that whatever deteriorates, tends to destroy.

“The great hygienic law in relation to all these passions is, carefully to guard against every thing which has a tendency to cause any of them to become so excessive, as to control the action of the organism, or to remove them from the control of the judgment and the will, and to render them masters, destroying by their tyranny our individual happiness, and depriving us of our power to do good, instead of being servants, ministering to our good, and that of our fellow beings.”—c.

The natural degree of activity should be given to all our passions or propensities. *Excessive* or deficient action produces evil. He who loves his children too much, will be unjust to them, as well as he who loves them too little. Go over the catalogue of passions or faculties, benevolence, conscientiousness, reverence, love of approbation, self-esteem, philoprogenitiveness, amativeness, &c. &c., in excess or deficiency, all produce evil. God has

not implanted evil passions within us, but we have destroyed the healthy balance that should exist in us; we have "sought out many inventions," and wrought out for our race that physiological, phrenological, and consequently moral disorder, characterized by many, by the term *total depravity*.

"We are to recollect, that while the *excess* of any of our natural propensities, appetites or passions is to be guarded against, so nothing should be allowed under the normal circumstances for which we are created, which is calculated to obliterate, or render dormant, either of these propensities, appetites or passions. Their natural degree of activity should be aimed at, *which, governed by reason and the higher order of sentiments, secures our health, our happiness, and our usefulness*—all of which are more or less diminished, or even entirely destroyed, equally when either of our appetites or passions is in excess, or deficient in energy.

"These remarks are especially true of that appetite, instinct or passion which impels us to the propagation of our species. When kept within bounds, and exercised according to the dictates of nature, of reason and of virtue, it has not only a beneficial influence upon the health and longevity of the system, it not merely promotes our individual happiness, and fulfils an important law of our being, 'increase and multiply,' but it has a tendency to soften and

improve the heart, and by the new relations thus resulting, to promote feelings of kindness and benevolence, and to interest us more deeply in the happiness and well being of our fellow creatures. But the instinct of which we are speaking, is one which requires to be watched with the greatest care. Its tendency in the present artificial state of society is to premature and excessive development, and to unnatural, excessive and destructive indulgence; and to this cause are to be attributed very many, if not all of the sexual diseases, which, instead of being confined, as formerly, to those classes which revel in luxury, commence now to inflict their pains and penalties upon the sex at large.”—c.

It is time that parents should know the evils that flow from a premature or excessive development of animal instincts and passions. No false delicacy should hinder parents and guardians, and all who have the care of children, from getting information on these subjects. I propose first to bring a few of these evils before you, and then to show how they are caused, and how they may be prevented. In doing this, I shall endeavor, by divine assistance, to use all necessary plainness of speech. I see myself standing on the verge of eternity. What I have learned I would leave to the world; and I am confident that it will be well received by the virtuous and intelligent.

The belief that the premature and excessive development of the sexual instinct constitutes disease, and becomes, by its immoderate gratification, the cause of numerous diseases, has been too much confined to physicians. Well-meaning Christian ministers have not been slow to declaim against the sinner and the sin, whilst they have been wholly ignorant of the physical means of preventing the evil. And let it be remembered that without proper physical training, all moral means are utterly inefficient to stay this evil. As well may we drop a living coal of fire into a magazine of powder, and beg, and pray, and exhort it not to explode, and expect to be obeyed, as to train our children in a manner directly calculated to produce impurity, and expect them, by the mere force of precept, to counteract the immutable laws of nature and remain pure. Causes must produce effects. If the rays of light pass from a rarer to a denser medium, they will be refracted.

The diseases which may be traced to the excessive development and inordinate indulgence of the sexual instinct, are exceedingly numerous. I shall give a list of these diseases, premising that they may all be caused by social or solitary licentiousness, yet that they may be produced by other causes. Diseases of the uterus, fluor albus, floodings, prolapsus uteri, cancer of the uterus, &c. &c. Medi-

cal writers tell us that abandoned women very often suffer from cancer of the uterus. The fact that the ceremony of marriage has been performed, will not save people from the consequences of venereal excesses. The laws of our nature remain the same; and if violated, we must suffer the consequences.

Numerous other diseases are produced by the excess which we are contemplating. Besides abortions and monstrosities, there are those general diseases which are caused by over excitement of the nervous system; hysteria, dyspepsia, undue nervous excitability, epilepsy, and various kinds of fits, painful menstruation, diseases of the eye, apathy of the sexual appetite, or its undue violence, pulmonary complaints, bleeding at the lungs, diseases of the heart, St. Vitus' dance, exhaustion of the system, idiocy and insanity. Hundreds and thousands are hurried into a premature grave, or made wretched whilst they live, by these diseases, with no knowledge of their causes.

Many lovely young women enter the married state, frail as the gossamer, from wrong physical training, unable to bear the slightest hardship, when it is their right, by God's intendment, to be hardy and robust. They fall victims immediately, and often the grave covers them and their first born, and "Mysterious Providence" heads their obituary. Parent of Wisdom! shall such ignorance for-

ever shroud our world? The functions of gestation and parturition are as natural as digestion; and were mankind brought into a natural and healthy state, we have reason to believe that these functions would be attended with little, if any pain. But the healthy tone of the nervous system is destroyed. Diseased, convulsed, and erratic action is established by the various abuses of civic life, and the most tender and endearing of all relations becomes a terror and a curse.

I know many mothers who, with their husbands, have adopted the "Graham System," or in other words, those correct habits recommended in these lectures; and these mothers have abridged their sufferings in parturition from forty hours to *one hour*, and have escaped altogether the deathly sickness of the three first months of gestation. But they avoided all excesses as far as possible. We know that the Indians, the lower orders of Irish, and the slaves at the south, suffer very little in child bearing. Why is this? God made us all of one blood. Is it not that these, living in a less artificial manner, taking much exercise in the open air, and living temperately, have obeyed more of the laws of their being, and consequently do not suffer the penalty of violated laws, as do our victims of civilization?

LECTURE XII.

NERVOUS SYSTEM.

No form of nervous excitement is so injurious as solitary vice. The reports of our hospitals for the insane, if we had no other means of obtaining information, would convince us that this vice is exceedingly common. I shall proceed to show some of its effects, and then point out its causes and the means of preventing it. That the unnatural, precocious, or excessive development of the sexual instinct is disease, as much as fever, and should be treated as such, I am fully persuaded. If hospitals were built for the social and solitary licentious, instead of casting them out from society, and suffering them to herd in dens of infamy, destroying and destroyed, society might be in a more healthy state. But such is the excessive and diseased development of the animal nature of man, that the *civilized world* might well be turned into a hospital for the cure of diseases caused by licentiousness.

In the reports of our lunatic hospitals, masturbation, or solitary vice, ranks next to alcohol in producing insanity. All the diseases caused by social licentiousness are produced by this form of nervous

abuse. I would again remark, that many of these diseases may be produced by other causes. I have given advice in almost every form of disease induced by this vice. I have seen idiocy and insanity caused by it; and I think with the excellent Dr. Woodward, "that it is time something were done to rescue the most moral, conscientious, and sometimes the most promising youth from the mind-wasting ravages of an indulgence, of whose terrible consequences they have never been forewarned."

Dr. Woodward says farther, "It is the vice of ignorance, not of depravity; the sufferers are personally less offenders than victims." This is a truth to be remembered. We should labor in the spirit of love, not of blame, for the restoration of fallen, diseased humanity. Children are born with the impress of sensuality upon their whole being, in consequence of the excesses of their parents. They are trained in a manner destructive to health, and it would be indeed a miracle if they should escape this vice.

I am unwilling to leave this subject without again calling attention to the diseases which are caused by this habit. There is hardly an end to these diseases. Dyspepsia, spinal disease, headache, epilepsy, and various kinds of fits, which differ in their character according to the degree of abuse and consequent disease of the nervous sys-

tem. Impaired eye-sight, palpitation of the heart, pain in the side, and bleeding at the lungs, spasm of the heart and lungs, and sometimes sudden death, are caused by indulgence in this vice. Diabetes, or incontinence of urine, fluor albus, or whites, and inflammation of the urinary organs, are induced by indulgence in this practice. Indeed, this habit so diseases the nervous system, and through that the stomach and the whole body, that almost every form of disease may be produced by it; though these disorders may arise from other causes, and may afflict those who never indulged in the habit. Some who have been in a degree enlightened on these subjects, have feared to have others enlightened, lest it should increase the evil. They say there is safety in ignorance. I answer, the silent course has been tried till our world has become one vast pit of corruption. Has the world been safe in its ignorance? If not, will it be so hereafter? Deslandes says that St. Vitus' dance is also at times caused by this vice.

Deslandes and Tissot contain abundant evidence that the worst forms of spinal disease are occasioned by masturbation. But light has dawned upon us, and we should be thankful for the blessing.

About eight years since, my mind was awakened to examine this subject, by the perusal of a medical work that described the effects of the vice,

when practised by females. This was the first intimation I had that the vice existed among our sex. Since that time I have had much evidence that it is fearfully common among them.

I have it from good authority, that among the insane admitted into the lunatic hospitals, from this cause, the proportion of females is nearly as large as that of males. The reports of our lunatic asylums furnish melancholy evidence of the prevalence and increase of this vice. In the Fifth Annual Report of the State Lunatic Hospital at Worcester, Mass., we find the following :

“The number of cases of insanity from masturbation [self-pollution] has been even greater than usual, the past year, and our ill success in its treatment the same. No good whatever arises in such cases, from remedial treatment, unless such an impression can be made upon the mind and moral feelings of the individual, as to induce him to abandon the habit. In this attempt, even with the rational mind, we have to encounter mistaken views, as well as active propensities. No effectual means can be adopted to prevent the devastation of mind and body, and the debasement of moral principle from this cause, till the whole subject is well understood and properly appreciated by parents and instructors, as well as by the young themselves.”

How many of earth's noblest, even the brightest

and best of our youth, have sunk beneath slow, wasting, nervous disease, the cause of which was neither known nor suspected by themselves or their friends. They have felt that they were doomed—that a destiny from which they could not escape held them in its relentless grasp. They have shrunk from the struggle of life as if they were all nerves, and as if each nerve was bared to the pitiless pelting of the storm of life. They have felt sure that they were born with a “constitutional nervous sensibility,” that made life a burden and a curse—and often they have sought refuge in voluntary death, as a relief from sufferings that it was not in humanity to bear. Though there are many causes for nervous disease, still we have good reason to believe that many who rise every morning “like an infernal frog out of Acheron, covered with the ooze and mud of melancholy,” may trace their misery to this cause. Is he the friend of his species, is he the true philanthropist—nay more, is he a Christian, who, knowing all this, can be silent; can put his finger on his lip and say, “this subject is too *delicate* to be meddled with—you will but increase the evil by your efforts?” Let ministers, let Christians cease to denounce theft and murder. Let them blot from the blessed Book the commands against licentiousness, and give us an expurgated edition of the Bible, lest the reading of the Holy Scriptures increase the evil.

A short time since, two sisters, ladies of the first respectability, informed me that when very young, they were put to a female boarding school, where this vice prevailed, and the practice was explained to them. They were blessed with parents who were willing to converse with and warn their children, and they escaped the contamination.

There is reason to believe that in nine cases out of ten, those unhappy females who are the tenants of houses of ill fame, have been the victims of this vice in the first place. Were this the peculiar vice of the low and vulgar, there might be more excuse for the apathy and false delicacy that pervade the community respecting it. But it invades all ranks. Professed Christians are often among its victims. Sometime since I became acquainted with a lovely and intellectual young man, who was a student in one of our theological seminaries. His health became so poor that he was obliged to leave the seminary and return to his friends. I saw him lose his reason and become a maniac. I was satisfied, from all the symptoms in the case, that this sin was the cause of his wretched condition. He died without recovering his reason, and a friend of his who was in the seminary with him, told me after his decease, that he was indeed a victim of solitary vice — that it caused his death.

The following statement was given me by a lady of great worth and intelligence.

“MY DEAR MRS. G.—You request an account of my case. I little thought once that I should ever communicate my fearful experience to any one. But a sense of duty to my fellow creatures makes me willing to give the facts in my case; and if only one is warned and saved from the misery it has been my lot to endure, I shall greatly rejoice.

“My early education was religious, and guarded in the extreme. I was taught early to repeat a prayer every night; and the Holy Scriptures were my almost constant companion. My parents never warned me against licentiousness, either social or solitary. It is true, social licentiousness was alluded to as a very shameful thing. Solitary vice was never mentioned. My parents being people of property, I was delicately reared, and took very little exercise; doing very little work, with the exception of nice and very laborious embroidery. I have little doubt my sedentary habits were a great injury to me.

“My parents were very luxurious in their mode of living, using much animal food and large quantities of the different condiments. As nearly as I can recollect, I became addicted to solitary vice about the age of nine years. I was never taught

the vice. Previous to this time, I think I had enjoyed as much health as most children — perhaps more, for my constitution was always considered unusually firm.

“ At about twelve years of age, my health began to fail; I became dyspeptic and nervous. I often awoke in the morning bathed in tears; and the most indescribable and horrible sinking of spirits was my portion during the forenoon. If I committed any little mistake, or fault, the recollection of it would haunt me for days, and make me superlatively wretched. I became pale as death, weak, feeble and emaciated. I had severe palpitation of the heart, pain in the side, and many symptoms of consumption. I had also, much of the time, distressing pain in the head. I had much dizziness, and my sight would often become entirely obscured, especially when I stooped and rose quickly. My parents were much alarmed about me, and the best medical advisers were called. They termed my disorder *chlorosis*,* and they gave me different powerful medicines — calomel, brandy and iron, and let blood till my arms were frightfully scarred.

“ During all this time I was practising solitary vice to a great extent. My conscience often told me it was wrong, but the force of habit prevailed

* A derangement of the menses.

against my better feelings, and I continued to commit this sin against my body and soul. Social licentiousness I had learned to consider a dreadful crime, and I should have recoiled with horror from the deed. O that some one had arisen then, like yourself, to warn young women — to tell them that solitary vice was sin, was adultery, as well as social licentiousness. O, how much misery I should have escaped, and not I alone, but numbers of others, had this been done. But no one raised the warning voice.

“For several years I continued in wretched health. My father travelled with me, and spared no pains or expense in purchasing gratifications, and in procuring the attendance of physicians. But at last relief came. God in his providence raised up that blessed man, Dr. Graham, and opened his mouth to speak on this subject. No words can express my gratitude to this devoted philanthropist. He stepped between me and death temporal, and for aught I know, eternal. The blessing of him that was ready to perish is emphatically his. Though he, like yourself, may have to bear slander and reproach for the blessed cause of purity, yet your reward is sure.

“To Dr. Graham belongs greater praise than to the conqueror of a world. Shortly after the publication of his *Lecture to Young Men*, I met with it.

I opened it merely from curiosity, having little or no idea what it contained. Never shall I forget the mingled sensations of agony and gratitude that filled my soul. I here read my sin and its consequences. I procured a copy of the book, and perused it with great care. I left the wicked habit, and confined myself strictly to vegetable food, with a small quantity of milk and good fruits. I took my meals regularly, about six hours apart. I procured a mattress and slept on it, instead of feathers, and daily used the cold bath. I took much exercise in the open air, and was particular in ventilating my apartment. In a short time my health began to improve.

“Before my mind was enlightened on the subject, I had not the slightest idea that this practice was injuring my health. I had suffered much from a disease of the eyes. This soon left me. After a time the pain in my side left me entirely. I became free from palpitations and headache, and the glow and animation of health again returned. Though I began to recover very soon after the change in my habits, yet the pain in my side continued with more or less severity for a considerable length of time, and the tendency to palpitation was very strong. I find myself now more inclined to a disease of the eyes, palpitation, and pain in the side, than any other illness. If I err in the quantity or quality of my food, or the amount of my exercise, I

am apt to have a recurrence of these complaints; but by care I can maintain a comfortable state of health all the time.

“I am acquainted with a number of persons who have been the victims of this vice; and I am persuaded, from their experience as well as my own, that the entire abandonment of the habit, and the adoption of the Graham system of diet and regimen, will produce renovated health, if any means on earth can do it.

“The Lord bless you, Mrs. G., and prosper you abundantly in your efforts to spread light on this truly awful subject. May parents be awakened, and this foul and blighting curse be removed from our midst.”

A pious young woman has given me the following. I have never received a statement of this kind except from the most conscientious and worthy.

“MY DEAR MRS. G.—I am willing to give you a statement of facts relative to solitary vice. You say you never found it among your mates. Would that I could say the same. My most dear and intimate friend was a victim of this vice, though considered a pattern of loveliness by those who knew her. I was induced when quite young to practise it, but not to any great extent. Fortu-

nately, I met with a moral reform paper, that represented the evil in its true light. I left the habit with loathing and abhorrence. I did not suffer materially in my health; with the exception of an obstinate disease of the eyes.

“With the most earnest desire that information on this subject may be spread, I am your friend.”

The distressing details to which I have listened of nervous disease and irritability, of those disorders which are peculiar to females, of moral aberrations in consequence of the morbid condition of the sufferer, and of a state of partial insanity, have brought me to look upon my erring fellow creatures more as *patients*, than as criminals—more as the victims of disease, than of crime. I would by no means discredit the doctrine of accountability. So long as the actions of persons are under the control of the will, they are accountable for them. But we all know that there is an amount of disease and insanity that removes us beyond the limits of responsibility. Let us diligently inquire into this matter before we blame the erring.

Physicians have done much, within the last few years, to stay the progress of solitary vice. But many of them are still too fearful to do all that is required at their hands. A short time since I was conversing with a physician, who seemed to feel

deeply on the subject. "But," said he, "what can be done? I dare not offend parents by telling them the habits of their children. Only the other day," said he, "I was called to a youth who was destroying himself by this practice, but I dared not mention it. The parents would have been very angry if I had."

Surely it is the duty of physicians to make an effort to save the children of such parents, and clear their own souls of the guilt of suffering them to perish for lack of knowledge, even if they anger them. A parent had better be angry, than to mourn over the premature death of a promising child, or to see him languish in hopeless insanity or idiocy.

One of the most powerful procuring causes of the premature and excessive development of the sexual instinct, is the neglect of exercise. Active exercise in the open air, with a loose dress, is all important to health, at all ages, but particularly during the period of youth. The confinement of children during six hours of the day, to one position, in our close, unventilated school rooms, is a tremendous evil. Girls are much more unjustly treated than boys, because they are not allowed scarcely any exercise out of school, and because of their tight dresses.

If I were asked on what conditions, more than

all others, health and purity depend, I should reply, ACTIVE EXERCISE—ATTRACTIVE INDUSTRY, and HEALTHFUL EMPLOYMENT FOR BODY AND MIND.

The bodies of children are enfeebled by indolence. The brain is excited by premature instruction; and the early reading of love tales, amatory poetry, romances, &c., excite the imagination unduly. Of course the imagination influences the organism, and the fires of passion rage and consume, while all without is calm. Parents and friends are unsuspecting, but the worm is in the bud. The healthy balance of the system is lost. A giant passion is roused, and with morbid and insane violence it crushes its victim; or if slower in its progress, it still saps the foundations of life and health, and eventually destroys. Little can be effected in cases like this by outward remedial treatment; a new direction must be given to the mind. Parents and care-takers must be aware that nothing but a passion can control and subdue a passion. They must make powerful and judicious appeals to some other passion or propensity. With some, the love of life is strong, and the certain death that their unhappy state will cause should be set before them. Conscientiousness, reverence for God and his laws, should be appealed to. But no *occasional* appeal, no *transient* effect, should be trusted. *Regular*

attractive occupation for body and mind, should above all means be provided for the sufferer.

(We should strengthen the minds of the young by encouraging them to read history, biography, and books upon the natural sciences. The study of philosophy, mathematics and the languages, is worth much to health. Hygienic rules for securing the health of the body are invaluable, when the mind is taken into the account. But mere rules for the treatment of the body, without reference to the mind, must often, if not always, prove unsuccessful. Improper associates do much toward corrupting children. Still it will be altogether vain to guard children from improper associates, if the conditions of health are not complied with ; for they often as effectually corrupt themselves as another could do it. Still, our boarding and day schools are sources of untold mischief. If parents and teachers, and those who have the care of children, could know the laws of health as respects body and mind, the aspect of things in our world would soon be changed. The terrible waste of health, and life, and mental energy, that we now see result from the excessive development of the animal nature of man, would cease. Those sins that are the consequence of this unnatural development would cease, and then we might be convinced that the name of these sins was "legion." There is vast meaning in the

words of Scripture, that "men are perishing for lack of knowledge."

The dietetic habits of the people have much to do in causing the evil we are contemplating. A stimulating, oily diet of animal food, is probably next to neglect of exercise, in causing the undue development and excessive indulgence of the animal instinct. Parents should religiously abstain from giving their children rich, stimulating food, or tea and coffee. Cold water is the only proper drink for them. The importance of correct diet should be felt by every parent. Alas, for children and for parents, where the "table is made a snare." The sins of Sodom were said to be pride, fulness of bread, and abundance of idleness.

But some parents say, "If these things are so, why have I not known it long ago?" I know many are reared in a plain, temperate, healthful manner, and escape vice, and a knowledge of it. Let such observe and inquire.

There is a great want of confidence between parents and children. This ought not so to be. Parents should confide in their children, and instruct and warn them, and treat them like reasonable beings, and not like mere animals. If they are curious about their organization or origin, they should never be met with subterfuge and falsehood

but kindly told that when they are old enough they shall be properly instructed.

We all know that the world is very corrupt, and is growing more and more so. What is the course for us to pursue in order to roll back the polluting tide that is overwhelming our world with moral and physical desolation. Every transgression against the laws of our nature, is visited on the head of the offender with a fearful penalty. The only course by which we can hope to renovate the human constitution, is, with the blessing of the Almighty, a course of strict temperance, a course of obedience to the laws of our nature, and the correct education of our children and youth. Let children be reared in temperance; let them be daily bathed thoroughly; let them sleep on a mattress of hair, straw, or some elastic substance; let them be encouraged to exercise; let the mind be occupied in a healthy and invigorating manner, and then the feeble, the inefficient, the nervous, the fanatic, will not cross our path every hour, as they now do. Our insane hospitals will not be flooded with victims, as they now are, and those dens of infamy will cease to exist, which are at once the product and the bane of civilization. And the blessing of God will rest upon us and our children.

The importance of a knowledge of these laws is beginning to be felt. People begin to be aware

that insanity, idiocy and ill health have causes. Formerly they were considered mysterious dispensations of Providence. That they are dispensations of Providence, and depend on infraction of God's laws, phrenologists and physiologists have plainly demonstrated.

Not long since I took up a book by a clergyman, containing an account of a whole family of children who were successively reduced to idiocy. The good man marvelled at this mysterious providence being permitted to afflict pious parents. He found the case in darkness [to him]—he left it so. Truly such men must be called blind leaders of the blind, however excellent their intentions may be.

In conclusion, let me entreat my sisters to study the science of human life. It is the science of sciences. We want light. The cause of humanity is the cause of God, for

“ God is paid when man receives.
To enjoy is to obey.”

[When my Lectures were put to press, I supposed that the popular course would make three hundred pages. The two Lectures subjoined, though not in the regular course, I trust will be found valuable to the reader.]

LECTURE XIII.

DISEASES OF THE SPINE.

DISEASES and deformities of the spine have become so common, and almost fashionable, that it seems to me the votaries of science would be verily guilty, if they have so little philanthropy that they neglect to speak out on this subject, and in such a manner that the community can understand. I know there is a class of the community who can be benefited only in a reflex manner by scientific efforts. The want of common and general information, is a barrier raised between us and a certain part of the people. But if those who are abundantly able to understand these subjects, and to benefit the world by their example and conversation, will but use their energies, they will be instruments of great good in correcting abuses. Sometime since I was in a city where spinal diseases were very fashionable. A lady was ill, and a Thomsonian practitioner was attending her. I inquired what her illness was. "Why," said one lady, "she has got the spine in her neck." It is evident these persons had little knowledge of anatomy.

In considering distortions of the spine, it must be

kept in mind how much the muscles have to do in keeping the body upright, and in maintaining the equilibrium of the body. If the integrity of the muscles is destroyed, they cannot support the spine. For instance, if the muscles that support the chest are paralyzed, they cannot hold the chest upright. Hence that stooping posture so common among young women who destroy the contractility of the muscles by lacing. The spine is bent forward, the intervertebral substance gives way, and assumes a wedge-like shape, and the spine becomes fixed in a degree of distortion.

Young persons who sit much in a stooping posture, or who incline to one side, and perhaps lean the elbow on a bench or desk, are subject to distortion; the latter, to what is called lateral curvature of the spine. It is indispensable to the health of muscles, that they be alternately contracted and relaxed. You have probably all noticed that we tire much sooner when we stand for a considerable length of time, than when we walk. More muscles are brought into action by walking, than in standing. They are thus alternately relaxed and contracted; and this is more favorable than either continued relaxation or contraction. Children who are obliged by fear of punishment to keep in a fixed posture at school, suffer greatly from the continued contraction of the muscles.

From being obliged to keep constantly poring over a book, children contract a habit of stooping, or resting on the right side at school; and owing to the length of time they are confined at the desk, the evil is greatly increased. Lateral distortion of the spine is thus produced. Many have this distortion who are not aware of it. It generally first shows itself in young girls by a prominence in the right shoulder, and by the right breast appearing larger than the other.

The following excellent extracts are from Dr. Warren's Lecture on the Importance of Physical Education. The reader will perceive that I strengthen my positions by extracts from medical men of eminence.

“Causes which affect the health and produce general weakness, operate powerfully on this part, in consequence of the complexity of its structure, and the great burden it supports. When weakened, it gradually yields under its weight, becomes bent and distorted, losing its natural curves, and acquiring others, in such directions as the operation of external causes tend to give to it; and these curves will be proportioned, in their degree and in their permanence, to the producing causes. If the supporting part is removed from its true position, the parts supported necessarily follow, and thus a distortion of the spine effects a distortion of the trunk of the body.

“The change commonly begins at the part which supports the right arm. The column bends towards the right shoulder, forms a convexity on the side where the shoulder rests, and thus elevates the right higher than the other. This elevation, or, as it is commonly called, growing out of the shoulder, is the first phenomenon that strikes the friends of the patient. Often when observed, it has already undergone a considerable change of position; and the change is not confined to the shoulder, nor to the portion of spine immediately connected with it. On examination, it will be discovered that the curvature to the right in the upper part of the column, is accompanied, as a natural consequence, by a bend of the lower part to the left, and a correspondent projection of the left hip. It is perfectly obvious, that the inclination of the upper part of a flexible stick to one side, will leave the lower part on the other; and when, by this inclination, the vertical support is lost, a disposition to yield at the curving points will continually increase, until it be counteracted by some other power. Thus it happens, then, that any considerable projection of the right shoulder will be attended by a correspondent projection of the left hip.

“The rising of the shoulder involves other changes in the osseous fabric. For, as the spinal bones support the ribs, when these bones project, they neces-

sarily push forward the ribs dependent on them. These ribs form the frame of the chest, and of course the right side of the chest is projected forwards, and causes a deformity in the fore part of the body. Nor do the changes stop here. The posterior ends of the ribs being pushed forwards, and the anterior ends being confined to the sternum or breast-bone, the right edge of the sternum will be drawn forwards, and the left edge consequently turned backwards. The fore-parts of the left ribs will be gradually forced inwards or backwards, and thus the left side of the chest distorted and contracted.

“ I am aware how difficult it is to have a distinct notion of these intricate changes in the human machinery, without an exhibition of the parts concerned in them; but it is my duty to present the train of phenomena as they exist in nature; and I think they are sufficiently intelligible to excite consideration and inquiry.

“ Perhaps it may be imagined, that the cases I have described are of rare occurrence, and that we have no occasion to alarm ourselves about a few strange distortions, the consequence of peculiar and accidental causes. If such were in fact the truth, I would not have occupied your time with the minute details of these unpleasant subjects. Unhappily they are very common. I feel warranted in the

assertion already intimated, that of the well-educated females within my sphere of experience, about one half are affected with some degree of distortion of the spine. This statement will not be thought exaggerated when compared with that of one of the latest and most judicious foreign writers. Speaking of the right, lateral curvature of the spine, just described, he tells us, 'It is so common, that out of twenty young girls, who have attained the age of fifteen years, there are not two who do not present very manifest traces of it.'

"The lateral distortion of the spine is almost wholly confined to females, and is scarcely ever found existing in the other sex. The proportion of the former to the latter is at least nine to one. In truth, I may say that I have scarcely ever witnessed a remarkable distortion, of the kind now spoken of, in a boy. What is the cause of the disparity? They are equally well formed by nature; or, if there be any difference, the symmetry of all parts is more perfect in the female than in the male. The difference in physical organization results from a difference of habits during the school education. It is not seen till after this process is advanced. The girl, when she goes from school, is, as we have before said, expected to go home and remain, at least a large part of the time, confined to the house. As soon as the boy is released, he begins to run and

jump and frolic in the open air, and continues his sports till hunger draws him to his food. The result is, that in him all the organs get invigorated, and the bones of course became solid ; while a defect exists in the other proportionate to the want of physical motion.

“A question may fairly be asked why these evils are greater now than formerly, when females were equally confined? The answer, in reference to the young females of our country is, that they then took a considerable share in the laborious part of the domestic duties ; now they are devoted to literary occupations of a nature to confine the body and require considerable efforts of the mind.”

You will readily see, that if the bones are not properly formed, they will be bent out of place much more easily. And bone cannot be properly formed if the habits of the individual are wrong— if exercise is neglected, and pure air is not breathed. We can hardly insist too much on exercise. The bones of men, and of race horses during what is called training, are hard and white like ivory. These same bones will very soon degenerate where there is neglect of exercise. If the food be improper in quality or quantity, the blood will not be good. Of course the bones cannot be properly formed. Hence, too, distortion is easily produced.

Neglect of the skin causes bone to be improperly

formed. But you may ask, what can the skin have to do with the bones? The worn out, useless and pernicious matter of the system is thrown out by the excretories of the skin, when the functions of the excretories are properly performed. The functions of the skin cannot be properly performed, without the pores are kept open by frequent bathing. Where this is neglected, the waste matter of the system, which should pass off through the pores, is thrown upon the lungs. The lungs are made to do the work of the skin. By this unnatural labor, and by means of the morbid matter thrown upon the lungs, they become diseased. The necessary changes by which the blood becomes perfect cannot be produced. The blood is not good, and of course the bones cannot be properly nourished. They become soft, and easily bent out of shape. The superincumbent load that rests on the spine and pelvis, peculiarly dispose these bones to distortion.

A scrofulous state of the bones often induces distortion; though this is but one among many causes of distortion. Scrofula is at the present day a prevalent and formidable disease; and many causes operate in its production.

It will at once be seen, that as all parts of the body are dependent on the blood, for nutrition, they cannot be properly nourished unless the blood be good. The muscles that support the spine become

weak, torpid and shrivelled. They cannot support the spine. There will be irregular contractions and relaxations. The spine will be thus distorted. There are so many causes steadily at work to produce distortion, that it is not at all wonderful that almost every third female we meet with is more or less crooked. Whatever deteriorates the blood, affects the muscles and the bones—thus increasing the chances of distortion. Impure air deteriorates the blood. No blood can be good unless vitalized by pure air. Improper and innutritious food of course affects the blood, tending to produce scrofula and other disorders.

Respecting the causes of scrofula, I find the following sensible remarks in an essay on scrofula by Dr. S. Durkee, of Boston, published in the Boston Medical and Surgical Journal :

“ Whatever is calculated to impair the healthy tone of the system, may lay the foundation of the disease. I have now under my care a young man afflicted with scrofula, and in whom no hereditary taint can be traced. He has, until recently, led a sea-faring life. His complexion is dark. He is one of five children belonging to the same family, none of whom ever exhibited any signs of the complaint; nor yet the parents. This patient’s legs have been covered at times with large crops of scrofulous ulcers, during the last four or five

years. My knowledge of his habits satisfies me that the disease is chargeable to them.

“Another case is that of a female, who from childhood was the object of fond parental regard ; and while no means were unemployd for the cultivation of her mind, her physical education was comparatively neglected, and, as a consequence, her constitution, naturally slender, has been greatly undermined. For several years she was kept at a crowded boarding school, where little regard was had to pure air, exercise and diet. Her digestive powers first became enfeebled, which in time led to a train of symptoms of uncommon obstinacy, such as constipation, abdominal tumefaction, and glandular enlargements. I have long been acquainted with the family of which this young woman is a member, and have no reason to suppose that the scrofulous affections, under which she suffers, are attributable to hereditary predisposition. The health-destroying agencies to which she was subjected in early years, operating slowly and insidiously, afford an explanation of all that appertains to her case, so far as causes are concerned.

“It is a matter of medical history, made certain by the investigations of Alison, that scrofula prevails to a greater extent in large towns and cities, than in the open country. What is the reason of this difference? Certainly not because a higher

per cent. of hereditary predisposition exists among the same number of inhabitants in one district rather than another, but because of the artificial modes of life incident to the abodes of city residents. Causes dissimilar in kind, but the same in effect, are continually at work among the operatives of extensive manufactories; and hence the prevalence of the disease in these establishments. It were idle to dwell on these causes at length. Every practical man in the profession is familiar with them; and is often compelled to contend with their influence in his efforts to conquer the disease. Take, for instance, an enlargement of the lymphatic glands in the first stage. If the patient live in a close, contaminated atmosphere, and on meagre or unwholesome fare of any description, or if he be under the influence of any cause calculated to bring debility upon the system, every exertion to benefit him will prove nugatory. Judicious hygienic measures constitute the sheet anchor in the case; and it may be laid down as a correct proposition, that those causes which interrupt the cure, will produce the disorder. Scrofula has many features which bring it into near alliance with scurvy.

“The digestive apparatus is the grand laboratory for preparing the materials for the support of the animal economy; and if the digestive powers are subjected to the influence of causes which serve to

debilitate them and disturb their proper functions, the process of chylification, being a part of their work, will be partially executed. The blood will consequently be deteriorated in its properties—will be less nutritious—less capable of sustaining and stimulating the general organization, and the vital forces will be depressed.

“If by reason of impure air, bad food, or imperfect digestion, the blood is degenerated and unfit for adequate nutrition, the organs most essential to life will often suffer to a fatal extent. So true is this fact, that in the lower animals strumous affections in the lungs, mesentery, &c., can be produced to almost any amount, by withholding a sufficiency of food, or by allowing them that which is too rich. Quadrupeds and birds, transferred from their wild state and confined in menageries, where the atmosphere is contaminated, and their food too concentrated in form, frequently droop and die with lymphatic engorgements. The same causes produce like effects in the human subject. In large towns the children of the poor suffer for lack of healthy sustenance, while those of the opulent are over-fed with all the varieties which the genius of cookery can invent.

“Of all artizans in this country, shoe-makers are most liable to be attacked with scrofula from artificial causes. The apartments in which they labor

are small, and usually crowded; the temperature is raised to an unhealthy degree, and the confined atmosphere largely impregnated with human effluvia and the smoke of lamps and tobacco, as well as with the specific exhalation arising from the material manufactured. Their attitude, in leaning with the head depressed for twelve or fourteen hours a day, and the pressure of the shoes against the sternum, occasion a permanent deformity of the chest and crookedness of the spinal column. These causes induce torpidity in the functions of the stomach and intestinal canal, and the whole digestive apparatus is deranged; the sanguineous fluid is depraved, its circulation indolent, and the powers of assimilation blunted—the muscles flaccid, the countenance pale and sickly, and the whole constitution atonic.”

In this country, the abundant use of pork is doubtless one great cause of scrofula. It is worthy of remark, that the term *scrofula* comes from a Greek word meaning swine evil, swine swellings, or morbid tumors to which swine are subject. The use of fat, be it ever so healthy a deposition, has a tendency to produce disease, because it is so difficult of digestion. But when mixed with the scrofulous matter, as it doubtless often is, it must be productive of much more evil. Let no one suppose that the deadly virus of disease in the flesh of diseased ani-

mals, strumous hogs, &c., can be eaten with impunity. Sufficient quantities of plain, healthy, nutritive food, free from oils, heating condiments, &c., should be given to children to prevent scrofula. Various opinions are entertained by different medical men respecting this dreadful scourge that invades the glands, lungs, bones, &c.

I know of no animals afflicted with scrofula, habitually, except men and swine. The reason why these two classes of animals are alone infected with this disease is sufficiently obvious. The habits of other animals are not bad enough to cause the disease; but those of men and swine are just bad enough. The manner in which swine are kept in our country should claim the attention of all who use their flesh as food.

I trust I shall be excused for giving so vulgar an animal a place in my pages, when our delicate females so often give it a place on their plates. I claim none of that delicacy that would shun a disagreeable subject, which it may be beneficial to humanity to discuss.

It is well known that swine, in their natural state, are very active animals. The wild boar of Germany is exceedingly fleet, and always active. Its food, too, consists of nuts and fruit principally; though considered an omniverous animal. In its natural state, it has the advantages of pure air,

good food, and abundance of exercise. In the artificial life to which the animal is now reduced, it often has neither. Swine are fed on the most disgusting substances—the most loathsome offal. They are kept in narrow pens, without exercise, and they breathe the most horribly offensive atmosphere continually. Can we wonder that under such circumstances scrofula is developed. Nor is it at all wonderful, that with the same procuring causes, man should be afflicted with the same disease, as he has one means of procuring the disorder that the hog has not. Men eat the flesh of swine, but the swine do not eat us.

It is true, distortion of the spine exists in many cases where scrofula is not present, yet it must be evident to all that its presence always increases the evil. The present method of training children makes it a matter of surprise that any escape scrofula.

Let us contemplate the infant daughter, and follow her from childhood to mature age. In nine cases out of ten, perhaps ninety-nine out of a hundred, the parents, particularly the mothers, are diseased.

A writer in the Boston Medical and Surgical Journal says:

“I recently attended a post mortem examination of an infant who had died of scrofula. The me-

senteric glands were a mass of tubercles. The appetite had been voracious—the stomach had been distended till it was nearly transparent. The body was almost entirely bloodless. The brain, lungs and pancreas were studded with tubercles. Much of the brain was in a state of *ramollissement*. This was a case of hereditary scrofula, evidently from the father, showing conclusively that a subtle virus may be communicated, causing this disease, as well as syphilis.

“Still, unless the system is deeply infected with the virus, have we not reason to believe that proper management with respect to diet and regimen, may eradicate the taint. I know a practitioner runs the risk, in these days, of being *dubbed* a Grahamite, if he recommends the antiphlogistic regimen in any case, or if he dare dissent from the long received opinion, that ‘animal food is more nutritive and stimulating than vegetable; that is, that the same quantity of the former will make more and richer blood, and will satisfy the demands of the digestive organs for a longer period, than the latter.’ Now I, for one, will not surrender the right of private judgment, through fear that I shall be ranked with this or that class of real or supposed fanatics.

“It is conceded by all, that meagre diet of any kind, has a tendency to produce scrofula. It has been my lot to mark the effects of a well-regulated

vegetable diet in a number of cases of scrofula — cases of long standing, and of a marked bad character. My experience in these cases has *not* demonstrated that a mixed diet was best. I am not about to say there are no cases of a character to demand animal food. But in every case that has come under my observation, of hereditary or induced scrofula, where a well-regulated vegetable aliment has been used, it has been with advantage. In several instances a decided improvement and ultimate cure was obtained by abstaining even from milk. I have seen some of the finest specimens of athleta who lived upon an exclusively vegetable diet — not even partaking of milk; and I think I should not be haunted with fears of diminished strength, if I could make up my mind to abstain from animal food.

“Ought we not to be impressed with the belief that prophylactic means are worth infinitely more than therapeutic? When mothers become enlightened on the subject of physical education — when pure air, exercise, the use of the bath and a proper attention to the diet of children — shall become as common as the neglect of these several particulars now is, may we not hope to see scrofula decrease as rapidly as it has increased for a few years past? Would it not be profitable to inquire how far the compression which is exerting its influence on the

nervous tissues, the circulatory system, and directly on the spinal column, has an effect to derange the normal functions of the system, and to produce scrofula?"

The child at birth is made the recipient of unhealthy nourishment. There are many causes which combine to make the mother's milk unhealthy. The functions of the whole system are depraved. The lying-in chamber is generally a most unhealthy place. Pure air is almost by common consent excluded from the lying-in chamber. The vitiated air of the room is loaded with impure exhalations. The child is often enveloped in the bed clothes, and its head so covered that it has but a poor chance even to breathe the bad air allowed. Its tender body is bound with a tight swathe, or the more recent contrivance of the elastic band, which, in many instances, exactly resembles the leg of a coarse woolen footing, is drawn on to chafe the tender skin. Clothes a half a yard too long impede, and indeed hinder its first attempts at motion. Bathing is in a great majority of cases entirely neglected. The first four weeks are generally spent in a confinement poorly calculated to make the child enjoy its new mode of existence, or insure its continuance in it.

To an unreflecting mind, it may seem strange that in many situations half the children die before attaining maturity. It is stated that of 1000 chil-

dren born in London, 650 die before ten years of age. It is stated by Combe, that "one hundred years ago, when the pauper infants of London were received and brought up in the work-houses, amid impure air, crowding, and want of proper food, not above 1 in 24 lived to be a year old; so that out of 2800 received into them, 2690 died yearly. But when the conditions of health came to be better understood, and an act of Parliament was obtained, obliging the parish officers to send the infants to nurse in the country, this frightful mortality was reduced to 450, instead of upwards of 2000."

Of the alarming injustice done the female frame, from a very tender age, we are all aware, or might be, if we will open our eyes. It is stated by Dr. John Bell, one of the greatest men of our age, "that in ten females free from disease, about eighteen or twenty years of age, the quantity of air inspired and expired averaged about three pints and a half, whilst in young men of the same age it was found to amount to six pints—an alarming contrast, after allowing for the natural difference in the size of the chest." How deep the guilt of that mother who compresses the tender frame of her infant daughter, cramping the chest, distorting the spine, obliterating much of the circulation, compressing the lungs, and producing misery that it would take a volume to describe in all its details.

With boys, much of the injustice of the nursery ceases as they grow older. They are allowed to mix in out-door sports and active exercise. Free circulation and breathing pure air make them comparatively robust and healthy. Not so with girls. They are confined to the school room, the piano, and often to embroidery. They are fed on delicacies, pies, pastry, &c. Take the hardiest animal in the world—the dog, the bear, or the lion, and rear him as are our young ladies, and it would ruin his constitution. Do we wonder at the sufferings and ill health of the daughters of our land, when all is wrong with them from the cradle to the grave?

With chest deformed, spine and pelvis distorted, and every organ and tissue of the body imperfectly nourished, can we expect woman to become a mother without indescribable anguish? Or can we expect her offspring to live out half the days allotted to man?

Distortion of the spine is vastly more common than many suppose. Dr. Warren of Boston says, "I feel warranted in the assertion, that of the well educated females within my sphere of experience, about one half are affected with some degree of distortion of the spine." Such a statement, from a man of such enlarged experience and great skill as Dr. Warren, should alarm us exceedingly.

La Chaise, in his work on Curvatures of the

Vertebral Column, when speaking of lateral distortion, expresses his belief that "out of twenty young girls who have reached their fifteenth year, there are not two who do not exhibit very manifest traces of it." Dr. Forbes says, "We lately visited in a large town a boarding school containing forty girls, and we learned on close and accurate inquiry, that there was not one of the girls who had been at the school two years, (and the majority had been as long,) that was not more or less crooked."

This is truly a lamentable, a deplorable picture of society. Is it necessary that this state of things should exist? If so, why are not animals thus diseased? The lambs that sport in our fields without stays or braces, with natural food, and water for their drink, have no spinal distortion, and no scrofulous bones. But the confinement, and compression, and impure air, and improper food of females, are enough to produce both these evils, and many more. It is much more wonderful that females suffer so little, than that they suffer so much. Besides the abuses to which they are subjected, they are born with deteriorated constitutions, and often the whole system is infected with scrofula and other diseases before birth.

I do not mean to give the idea that scrofula causes all the spinal distortions. By no means. But it always aggravates distortion when it has invaded

the bones. There are cases of great suffering and disease from an affection of the medulla spinalis, and the nerves which proceed from it, independent of distortion. Abuse of the nervous system, either by solitary or social licentiousness, causes spinal disease of a terrible character. In spinal disease the injury often is threefold. First, the mechanical pressure exerted by the distorted spine upon the nerves; secondly, the morbid influence that has caused the distortion; and thirdly, often an amount of nervous abuse that very greatly aggravates every other evil.

I have read much on spinal diseases and the mode of cure, and I feel that there is hope even in very bad cases. It will be evident to all that those hurtful influences that have produced the disorder must be removed. Strict attention should be paid to hygienic rules in eating, drinking, dressing, sleeping, air, exercise, bathing, &c.

Unless proper food be eaten at proper times and in proper quantities, we cannot expect good blood. The best regulated diet will avail little if compression is exerting its baneful influence. Again, if there be no compression, if pure air be not breathed and cleanliness attended to, we shall have disastrous results.

The means for the prevention and cure of spinal diseases and distortions are the same. Dr. John

Bell says, "Regular and varied exercise in the open air, and that systematic kind by gymnastics, and good nourishing food, are the chief means for accomplishing this end. A perseverance in these, for a length of time, has been followed by a cure in cases of a most discouraging nature." Speaking of those who are in quest of health and strength, he says, "To attain this end, no bitter, nor tonic, nor cordial, derived from the shops, no fermented, and still less alcoholic liquor can be regularly taken. On the contrary, a long perseverance in their use will be found eminently detrimental both to health and beauty. The only means of permanent restoration of the exhausted economy and feeble frame, and deficiency of contour, are plain nourishing food, free exercise in the open air, regular occupations, tranquillity of mind, and a proper allotment of time for sleep."

LECTURE XIV.

EDUCATION.

VARIOUS terms have been used to characterize our age. It has been called the "excital age," the "mechanical age," &c., but it seems to me to be the age of discovery. Great truths, fastened by golden

links to the throne of God, are thrown world wide, to be gathered up by mortals. Men are needed to present these truths to the world. The way-farers are too busy to heed them. It is a hard thing for these to cry truth in the market places; but all things, I had well nigh said, are sold in the shambles in our age.

The Divine Providence gives great minds to our world to discover truth to meet our necessities: But there is so much simulation, so many errors that only gain currency by counterfeiting truth, that men are cautious. This is well; it brings out the energies of the apostles of truth. They are strengthened by hardships, and inattention, and neglect. Like the infants of savages, none but the hardiest survive the hardships of their lot. They get "not what they *wish*, but what they *want*," in their intercourse with their fellow men.

I have sometimes thought inattention more painful to the philanthropist than contention. If men will think enough to quarrel with truth, they are *coming*. The mischief is, men do not think, as a mass. They appoint some one, if not by vote, at least tacitly, to do their thinking; and they thankfully receive ready made dogmas, and perhaps pay for them.

With all deference to our *very* wise world, I am inclined to think that the word education is not understood.

Some years ago, a friend made me a present of a beautiful ice plant. I immediately set about cultivating it in such a manner as would insure the largest amount of leaves and blossoms. I succeeded. It was the admired of all admirers ; but "passing away" was written on it. *I had educated it to death.* Such is the course pursued with our children. Those of you who know my labors in the cause of physical education, will not expect me to separate physical from intellectual culture in my remarks. "What God hath joined together, let not man put asunder."

I find so many more valuable thoughts on the subject of education than my own, that I feel bound to bring them before you. The following thoughts from the Common School Journal, that able organ of truth, which is, or ought to be, the boast of Massachusetts, are beautifully true :

"Physical education is not only of great importance on its own account, but, in a certain sense, it seems to be invested with the additional importance of both intellectual and moral ; because, although we have frequent proofs that there may be a human body without a soul ; yet, under our present earthly conditions of existence, there cannot be a human soul without a body. The statue must lie prostrate, without a pedestal ; and, in this sense, the pedestal is as important as the statue.

- "The present generation is suffering incalculably under an ignorance of physical education. It is striving to increase the number of pleasurable sensations, without any knowledge of the great laws of health and life, and thus defeats its own object. The sexes, respectively, are deteriorating from their fathers, and especially from their mothers, in constitutional stamina. The fifteen millions of the United States, at the present day, are by no means five times the three millions of the revolutionary era. Were this degeneracy attributable to mother Nature, we should compare her to a fraudulent manufacturer, who, having established his name in the market for the excellence of his fabrics, should avail himself of his reputation to palm off subsequent bales or packages, with the same stamp, or ear-mark, but of meaner quality. Thus it is with the present race, as compared with their ancestors; short in length, deficient in size and weight, and sleazy in texture. The activity and boldness of the sanguine temperament, and the enduring nature of the fibrous, which belonged to the olden time, are succeeded by the weak refinements of the nervous, and the lolling, lackadaisical, fashionable sentimentality of the lymphatic. The old hearts of oak are gone. Society is suffering under a curvature of the spine. If deterioration holds on, at its present rate, especially in our cities, we shall soon be a bed-rid

people. There will be a land of ghosts and shadows this side of Acheron and the Elysian fields. Where are the young men, and, emphatically, where are the young women, who promise a green and vigorous age at seventy? The sweat and toil of the field and of the household are despised, and no substitute is provided for these invigorating exercises. Even professed connoisseurs, who lounge and dawdle in the galleries of art, and labor to express their weak rapture at the Jove-like stature and sublime strength of Hercules, or at the majestic figure of Venus, beneath whose ample zone there resides the energy which prevents grace from degenerating into weakness,—even they will believe, in dress and contour, all the power and beauty they profess to admire. There is a general effeminacy in our modes of life, as compared with the indurating exposures of our ancestors. Our double-windows; our air-tight houses; our heated and unventilated apartments, from nursery to sleeping room and church; the multitude of our garments of fur, and down, and woollen, numerous as the integuments around an Egyptian mummy,—beneath which we shrink; and cower, and hide ourselves from our best friend, the north-west wind; our carriages in which we ride when we should be on foot;—all these enervating usages, without any equivalent of exercise or exposure, are slackening the

whole machinery of life. More weakly children are born than under the vigorous customs and hardy life of our fathers; and, what is still more significant, a far greater proportion of these puny children, under our tender and delicate nursing, are reared, than was formerly done. A weak cohesion still exists in many a thread of life, which, under the rough handling of former times, would have been snapped. Amid hardship and exposure, the young were toughened or destroyed. Nature passed round among them, as a gardener among his plants, and weeded out the blasted and mildewed. She shook the tree till the sickly fruits fell off. She did not preserve these as the stock from which to produce the still more degraded fruits of a second season. But, under the modern hot-house system, the puny and feeble are saved. They grow up without strength, passing from the weakness of childhood to that of age, without taking the vigor of manhood in their course. By the various appliances of art, indeed, the stooping frame can be kept upright, and the shrunken be rounded out into the semblance of humanity. But these cheats give no internal, organic force. Though the arts of bolstering up the human figure, and of giving to its unsightly angles the curvilinear forms of grace, should grow into a science, and its practice should be the most lucrative of professions, yet not one element

of genuine beauty or dignity will be thereby gained. Such arts can never bestow elasticity and vigor upon the frame, nor suffuse 'the human face divine' with the roseate hues of health. The complexion will still be wan, the pulse feeble, the motions languid. The eye will have no fire. The imagination will lose its power to turn all light into rainbows. The intellect will never be sufficiently expanded to receive a system of truths; and single truths cut out from their connections, and adopted without reference to kindred truths, always mislead. The affections will fall, like Lucifer, from the upper, to fasten upon objects in the nether sphere. In a word, the forces of the soul will retreat from the fore-head to the hind-head, and the brow, that 'dome of thought and palace of the soul,' will be narrow and 'villanously low;' for it is here that Nature sets her signet, and stamps her child a philosopher or a cretin. Here she will not suffer her signatures to be counterfeited, for neither tailors nor mantua-makers can insert their cork or padding beneath the tables of the skull."

Education means to form the manners, to instruct, to nurture, &c. But the received definition seems to relate principally to the mere memorizing of words at school. A good definition of education is given by a recent writer:

"The highest object of education is that of form-

ing the mind and character to every thing that is manly and useful, developing the physical powers in their highest perfection, and seeking a correspondent development of the intellectual and moral man ; preparing men for the practical business of life ; to provide for their own subsistence and welfare, and the subsistence and welfare of others ; to advance civilization ; to increase the wealth of the community ; to adorn and embellish society by all the arts that ingenuity can invent, and to contribute to the general comfort, to multiply and extend the means of enjoyment and improvement, and further the progress of mankind in all that is useful and good."

We hear of young ladies who have "*finished their education!*" that is, they are just out of a boarding school, where perhaps some six or eight were crowded into one apartment at night, like so many prisoners. Are their bodies developed in a healthy manner? Are they hardy and robust? Can they engage in rural sports or labors with ease, comfort, and indeed high enjoyment? Are their minds disciplined and strengthened? Can they think deeply, closely and rationally on any given subject, and write out their thoughts? Will a work on metaphysics give them more pleasure than a work of fiction, addressed to their feelings? I will endeavor to answer each of these questions according to truth.

The first three questions may be ably answered by the following quotations from Dr. Warren's able lecture on the importance of physical education, delivered before the American Institute.

“ Action is the object for which organization was created. If the organs are allowed to remain inactive, the channels of life become clogged, and the functions, and even the structure, get impaired. Young animals are filled with the desire of motion, in order that the fluids of the body may be forced rapidly through their tubes, the solids thus elongated and enlarged, and every part gradually and fully developed.

“ The immediate consequences of action on the bodily frame are familiar and visible to daily experience. Observe the sinewy arm of the mechanic. The muscles are large and distinct; and when put in motion, they become as hard as wood, and as strong as iron. Notice those who are accustomed to carry considerable weights on the head. The joints of the lower limbs are close-set and unyielding; the frame perfectly erect, and the attitude commanding. In the cultivator of the soil, though the form may be vitiated by neglect, you may observe that the appearance of every part is healthful, vigorous, and well fitted for labor.

“ While all of us are desirous of possessing the excellent qualities of strength, hardiness and beauty,

how defective are our systems of education in the means of acquiring them! In the present state of civilization, a child, soon after it can walk, is sent to school; not so much for the purpose of learning, as to relieve its parents of the trouble of superintending its early movements. As he grows older, the same plan is incessantly pursued and improved on, till a large part of his time is passed in sedentary pursuits and in crowded rooms. In the short intervals of mental occupation, the boy is allowed to follow the bent of his inclinations, and seeks in play that exercise which nature imperiously demands. The development of his system, though not what it was destined to be, is attained in a certain way; and he is exempted from some of the evils which fall heavily on the other sex.

“The female, at an early age, is discouraged from activity, as unbecoming her sex, and is taught to pass her leisure hours in a state of quietude at home. The effects of this habit have been already spoken of in general terms; and I would now point out some of its results in a specific manner.

“In the course of my observations, I have been able to satisfy myself that about half the young females brought up as they are at present, undergo some visible and obvious change of structure; that a considerable number are the subjects of great and permanent deviations; and that not a few entirely

lose their health from the manner in which they are reared."

There is a natural joyousness in children, when they are not broken by disease, the same as in the young of all animals. This natural playfulness, if indulged, insures to a great extent the proper development of their frames. But they are cramped and confined every way, especially females. Their dress makes it even dangerous to exercise; and then if they go out of their measured pace, they are checked, and told that such things are very improper for a little girl; and perhaps the names romp, or "tom-boy" are added, to effectually cure the child of a disposition to healthful exercise. For six hours a day children must be confined in our prisons called schools; but then boys make partial amends for this; but girls are prisoners for life. With such an education for soul and body as our females receive, the law may well class women with infants, minors and idiots, as it does. And yet, under all her disabilities, there are gleams of intelligence to be found even among us, that give promise of a brighter day, when men and women shall understand all the laws that govern body and mind, and act in accordance with them.

It is painful to me to be obliged to present such answers to these questions, but every day's observation confirms their truth. We see ill health and all

its train of evils on every hand. I have shown you in these pages that the miseries of our miserable race commence even before birth. Children live, if live they can, through the errors and ignorance that surround the nursery, and then they are sent with the brain all unformed to our schools, which are nurseries of disease. The females, surrounded by all the disadvantages that custom heaps upon them, grow up feeble and frail. Let us contemplate one of these fair daughters when she first sustains the relation of a wife and a mother.

A year since she was led to the altar, a white robed vision of loveliness. Alas! the worm was even then in the bud, and her husband and friends are soon called to weep over the grave of buried hopes. "After life's fitful fever she sleeps well." But did God intend that this misery should be the portion of his creatures? Did he intend that the marriage relation, his own divine institution, should be the prelude to sufferings that no pen can describe, and that often end in the death of one or both of the beloved beings on whom the friends hang with souls full of anguish and love?

We return again to the questions, Has our present system of education a tendency to strengthen the mind, to make deep and rational thinkers? The vast demand for fictitious writings would alone answer these questions. Is the philosopher as well

understood and as much honored by the mass as the writer of fictions, puerile though innocent ?

I do not ask for the same education for woman that man receives. I do not wish to leave my subject to enter into an argument about the equality of the sexes. I know full well, as woman is educated and enslaved by circumstances, that she is not equal to man. Whether she would be in a better state of things, I stop not to inquire.

That there will always be a dissimilarity between the sexes, whether their education be the same or different, I think no one will deny. But dissimilarity is no proof of inferiority. Man has more of intellect, woman more of affection. But I have yet to learn that wisdom is *superior* to love.

For the sake of the race, I ask that all be done for woman that can be done, for it is an awful truth that fools are the mothers of fools. For myself, I know that I am not a shadow of what I might have been had I been rightly educated—educated with wise reference to soul and body. I am a crushed wreck, a miserable remnant of humanity ; and knowing the disabilities under which I labor, I can plead for children.

My mind takes cognizance of a few truths ; but had it not been broken by disease, I might have bathed in the ocean of truth, instead of catching drops of spray. But this is a heart sickening subject, and I leave it.

I am not one of those who charge man with injustice to woman. Man as man is no more unjust to woman than he is to himself. Both are the slaves of circumstances.

There is no doubt in my mind, that society, as it is, is radically and fundamentally wrong; but we must make the best of it. Children ought to be under the care of those who have an attraction for the care and education of the young. Gold never bought affection.

Confinement and impure air are not the only evils of our schools; and we may well expect to ask in vain for pure air for our schools, when the wisdom of our state legislature is not sufficient to insure a supply of pure air. I have just come from the state house in Boston, and I there saw our senators and representatives deliberating amid an atmosphere so impure and disgusting, that it not only causes much present discomfort, but must very much shorten life. One of the representatives remarked to me that he "knew of nothing that he would more gladly purchase than fresh air." But such is the state of ignorance and inattention on the subject, that a few who feel the importance of breathing pure air, do not hazard the expression of an opinion respecting the advantages of ventilation.

The evil which I am now about to mention I charge upon community. It is educating our chil-

dren as Americans do every thing else, in a hurry. We live in a hurry, we eat, drink, walk and think, if we have time to think at all, in a hurry. It is the vanity of parents that leads to the destruction of their children. Infant schools are such a monstrosity, that is, where the brain of the child is forced, as we often see, that they deserve indictment as much as many other crimes that spring from ignorance and pride.

The brain of the child, according to Meckel, is not formed in all its parts till the seventh year. This delicate unformed organ is subjected to such excitement in our schools, that it is diseased, and the whole body with it—and often insanity is caused. Dr. Pierce, a man of whom Philadelphia ought to be proud, says “that undue excitement is not only injurious to the brain as an organ of the body, but also deranges its functions, producing various diseases of the system, and oftentimes insanity.” He says farther, “I shall endeavor to show that the course pursued in our schools in regard to the education of children, has this injurious tendency, and entirely fails of the object for which it was intended. It is generally known that clever children are seldom clever men. The brain is exhausted by overculture, and the parents’ vanity is satisfied by showing off a very forward or bright child at the expense of health, life and intellect. Parents see no con-

nection between the unnatural excitement of the partially formed brain of their child, and dropsy of the brain, various nervous disorders, and that imbecility which is the fate of their children in after years. When parents lament that their children are dull, poor scholars, and that no force can make them study when they are bright and active for play and mischief, I rejoice. Happy is the child who cannot be *broken* into an intellectual drudge, who cannot be excited to preternatural exertion of the mind, who will not submit to be crammed with intellectual food, as fowls are crammed, fattened and diseased for a market. Education is powerful for good or evil. The brain and nervous system, the body and mind of the child, are to a greater or less extent destroyed by the unnatural training. Why is it that great men and great women are scarce? Do you suppose that only one great soul is created in a century? or do you suppose the manifestations of mind are dependent on the organization of the body, and that parents and teachers, and the false and unnatural state of society, by diseasing the body and over-tasking the minds of our youth, produce those apologies for men and women with which our world is cumbered? They strangle and suffocate greatness in its earliest years. Do not think I have finished my catalogue of evils. A child may grow up amid impure air and confinement, and over-culture, weak,

feeble and irritable, it is true, but if he is rightly governed, all the mischief that could be done him is not accomplished. If the moral atmosphere he breathes is love, the child is not wholly ruined. But how many teachers suppose that it is improper to treat children kindly and familiarly! They suppose that their dignity would be compromised by such a course. They do not say, "John, or Mary, will you have the goodness to do such a thing, or please attend now to your studies." But, "John, study your book; do n't let me see you gazing about. If I see you laugh again, I'll give you something to laugh for." These are little things, but straws show the way of the wind. I know there are kind teachers who do not for ever make a show of authority. There are those who are not hirelings, for their hearts are in their work. These will not be hurt by my remarks. I have heard a teacher say that her scholars loved her dearly, though she scolded and whipped them. This fact speaks well for the children; but the fount of affection runs dry after a time; and many an impatient, unlovely man had his temper ruined at school, and looks back to Mrs. Birch with feelings that I should not like to have cherished towards me.

The government of schools seems to me as radically wrong as the other circumstances that surround them. The motive power of all teachers

should be love. They should have an attraction for teaching. They should love truth, and love to communicate it. I know many say children cannot be governed by love. Have those who assert this ever made the trial? I know the natures of even young children are terribly perverted by abuse. When all is wrong at home with children, the teacher's labor is very much increased. But the superiority of love to brute force has not been sufficiently tested in our schools. Love is power, always. It may not give us *all* power over a perverted and hardened mind, but it gives *much*. God is *omnipotent*, and he is *love*.

I have had much experience in teaching, and I wish no power over pupils that affection will not give me. I have had lads placed under my care that neither parents nor teachers could govern, with rods, force and fear to aid them, and yet they have been immediately subdued by calmness, kindness, and the conviction that I heartily desired their good.

A lad was once confided to my care, of ten or twelve years of age. He had been turned out of the village school as wholly unmanageable. He had been severely whipped many times. Indeed, it seemed to me that severity and the rod had made him reckless. He came into my school a perfect *Ishmaelite*. The first day he glowered

around him without attending to any thing particularly. In the afternoon, at recess, instead of going out with the boys by the door, he very deliberately leaped from a large open window next the road. This was probably intended as the commencement of hostilities with me. I took no notice of the transaction till the close of the school. I then requested him to stop a few minutes. He sullenly took his seat, and I seated myself beside him. His health was poor. He was a pale, nervous child, with combativeness enough, without arousing or irritating the organ. I spoke to him as a reasoning being, with a kindness which I really felt; for his extreme waywardness had aroused no other feeling in my heart. I spoke to him of living in the world as he ought, in order to insure his own comfort and that of his parents. I told him he must, if he lived, become a man; that I wished him to be a happy and useful man. I spoke of his capacity for usefulness, which was truly respectable. I drew a picture of the happiness enjoyed in my school, and told him that I required obedience to all the rules of the school, and that the only penalty for disobedience was expulsion from the school; that I had no other punishment. I alluded to his rude conduct, and playfully asked him if he did not know that doors were made to go out at, and not windows. The little fellow's combativeness was completely

put asleep. His heart was touched ; and when I gave him his choice to leave the school or make an acknowledgment that his conduct had been improper, and ask the school to forgive him, he readily chose the latter ; and during the whole time he was under my care, he gave me no more trouble than the other scholars. He knew that if he conducted with propriety, he should be happy with us ; and that if he did not, he knew he was self expelled from the atmosphere of love.

I could relate very many instances of a similar character.

The manner in which children are classed at school is often productive of much mischief. The dull, slow scholar, who is obliged to study long and patiently, is placed beside the quick intellect, that enables its possessor to know a lesson by intuition almost ; and both scholars are required to get the same lessons. Often the result of this procedure is to discourage the slow child, and give an inflated, unhealthy confidence to the "bright child." A judicious course in classing these scholars would often doubtless make the dull child a better scholar than the more brilliant. A slow, reasoning intellect is often more valuable than the rapid intuitive kind.

I think it must be obvious to all, that the intellectual powers can never reach that state of per-

fection which is desirable, unless the body is developed in health. Attractive industry, or agreeable exercise, are indispensable to health. There is no doubt that it would be far better for children at an early age to be trained to attractive industry. But if this cannot be procured, and we know that it cannot, only in isolated cases, in the present state of society, then agreeable and healthful exercise should be provided.

Some years ago, when calisthenic exercises were introduced into schools, public opinion was very much against them. Five or six years since I introduced a variety of exercises into my school in Lynn, Mass. Strong opposition was manifested by some; but in two or three years a teacher who proposed to establish a school there, advertised calisthenic exercises, and it was considered a recommendation of her school. This shows that public sentiment is changing. Within the last year a school for teaching young ladies calisthenic exercises, has been established in Boston, by Mrs. Hawley, a lady who has taught these exercises for the last fifteen years. This admirable establishment is well patronized, having at this time one hundred and seventy pupils from the most intelligent families in the city.

The following notice of this establishment from the Boston Medical and Surgical Journal, shows

the light in which these exercises are viewed by the medical profession. It gives me great pleasure to pay this well deserved tribute to Mrs. Hawley in this lecture :

“ A refined civilization is unfortunately accompanied by various forms of physical deterioration, for which it is one of the special objects of science to provide a remedy. People of advanced age, who do not trouble themselves to philosophize on whatever strikes them as a departure from the common appearance of every day things, never heard in their youth of curved spines, distorted shoulders, or any other unsymmetrical derangement of the frame-work of the body, which are so characteristic of the present age, that institutions are exclusively devoted to their correction. Experience shows, too, that they are exceedingly necessary ; and they have been, therefore, well sustained by the intelligent public, and always sanctioned by the medical profession. Very recently, Mrs. Hawley, formerly Madame Beaujeu, of England, has commenced a series of calisthenic exercises for young misses in this city, which are recognized by very distinguished physicians of Philadelphia, New York and Boston, as worthy of the patronage of parents. It is unnecessary to enlarge upon the value of exercise for young ladies in a crowded city. Those who will take the pains to inspect Mrs. Hawley's

hall, corner of Bromfield and Tremont streets, will be satisfied of the utility of her system. With a view of bringing the subject before the profession of Boston and its neighborhood, that they may avail themselves of the curative means which judicious calisthenic exercises promise in many conditions of a debilitated system, particularly in young girls, we are desirous of directing their attention to this lady's qualifications and claims."

In order that children be rightly educated, it is necessary that teachers understand the conditions on which health of body and mind depend. But how many of our teachers are thorough physiologists or phrenologists, and consequently thorough metaphysicians? And if teachers were entirely qualified for their high trust, such is the ignorance of parents, such the state of society, that they could not fulfil its duties. Still, much might be done that is not now done, were teachers rightly educated, and had they moral courage to act in accordance with their convictions.

In the words of another, "almost the best defence, at least one of the strongest safe-guards of morality, is the feeling of independence. If the world think that to be right which you think to be wrong, follow your own opinion, and preserve your self-respect. Consider that you would rather be honorable and despised, than be honored and dispi-

cable. If the world holds you in light esteem because it misunderstands your character, every mark of disrespect which it bestows upon you is a certificate of the beauty and excellence of those virtues in which it erroneously supposes you to be deficient."

If teachers could realize the truth of these sentiments, we should not find that "mush of complacency" which we now find in too many teachers. But how can we expect them to do justice in the education of children, when they have not been blessed with an education to fit them for this high trust? A course must be struck out and pursued that will strengthen and improve the reasoning powers. Children at present are not taught or encouraged to reason as they should be. They are employed in memorizing words, as Mr. Rantoul has well said in his remarks on Education, published in the North American Review. "Education is not the getting by rote set forms of words, which may be altogether barren of fruit; no, nor barely storing the memory with the information of facts, however extensive and useful."

Children can easily be taught to reason; and we well know that every faculty is strengthened by judicious use. When the mind is active in reasoning, in searching for truth and the causes of things, no one passion gets the ascendancy in such a man-

ner as to remove itself from the control of the will, and thus lead the individual to folly, fanaticism or crime. Had the saints of olden times been engaged in discovering truth, in sound reasoning, they would not have spent days, weeks, and even years, upon their knees in prayer, till cavities were worn in the solid rock, and their knees became callous. Such a course now would be attributed to an unbalanced state of the mind, and consequent insanity. Thanks to progress; our age is wiser than the days of witchcraft.

If girls are taught to reason, they will not spend their days reading fictions, and their nights in morbid dreams of love—a love that bears about as much resemblance to the true and healthful sentiment of love, as the blasting simoom does to the refreshing breeze. Diogenes says that love is the occupation of the idle; he might have said, of the unreasoning. No passion should be allowed to engross all or nearly all one's time and attention. God has given us various faculties. All should be cultivated. All should be exercised. If one assumes an undue prominence, mischief is the result.

The right education of one child is of immense importance to others. Whilst we live in society, we cannot really increase our own happiness without increasing the happiness of others. "True self-love and social are the same."

“ This is the foundation of all human wisdom,” says Le Père Buffier, “ the source from which all virtues purely natural flow, the general principle of all morals and of all human society, that while I live with other men, who equally with myself desire to be happy, I must try to discover the means of increasing my own happiness, by augmenting that of others.”

In the beautiful language of the gifted Rantoul, “ Universal education, a higher education, such as shall put to shame not past ages only, but the present, must be provided for. The want is felt and will not longer be endured without a strenuous effort to meet it. The philanthropist, the patriot and the Christian feel the urgent need of a generous development of the noblest powers and faculties, and the richest affections of our common nature, through that dull mass of humanity in whom they now slumber, inert and almost lifeless. The refinement of taste, which, without intellectual and moral cultivation, ends only in elegant imbecility ; financial prosperity, which, if not pressed into the service of virtue, may be prostituted to engender corruption absorbing political interests, which convulse the Union to its centre, and which unhallowed ambition may pervert to the destruction of freedom, all these are insignificant, are as nothing and less than nothing, compared with this paramount necessity.

The cry of the age is for true education. Its advent is longed for, and prayed for, and believed in. It seems just bursting above our moral horizon, radiant with knowledge and virtue, shedding light into the understanding, and pouring warmth into the heart; a genial sun whose beams are for the healing of the nations. Glorious visions of future progress, and blessed omens of their coming consummation throng upon the soul, and fill it with comfort and joy, when the evidences of the earnest awakening of mankind, under the vivifying and quickening influences of the bright-dawning era, present themselves to our view.

“How is the great work to be accomplished? What are our means of levelling the fortifications, impregnable since the creation of the world, in which ignorance and vice have entrenched themselves? Hope, which was Cæsar’s only portion when he went into Gaul; faith in man’s high nature and destiny; the ardent enthusiasm which the grand object to be attained inspires; the unquenchable zeal already active, and which will never rest, nor pause, till the victory is achieved, and darkness abdicates her narrowed empire.”

The momentous work of education should be committed to the care of those who love the work; and they should *live* by their labor, not merely *stay* in the world. Dollars and cents can never pay the

price of a solid and useful, a true education. But I have known a teacher who had worth and ability, toil through the weary year, unable to purchase the bare comforts of life, so small was her salary ; and yet such was her attraction for the work, that she would submit to privation, and want even, rather than relinquish her pleasant labor. The great want of community is for such teachers.

The remarks of Dr. Channing, in his address at the Odeon on the 28th of Feb., 1837, are better than any thing I can present you on this subject :

“ We want better teachers, and more teachers, for all classes of society, for rich and poor, for children and adults. We want that the resources of the community should be directed to the procuring of better instructors, as its highest concern. One of the surest signs of the regeneration of society will be the elevation of the art of teaching to the highest rank in the community. When a people shall learn, that its greatest benefactors and most important members are men devoted to the liberal instruction of all its classes, to the work of raising to life its buried intellect, it will have opened to itself the path of true glory. This truth is making its way. Socrates is now regarded as the greatest man in an age of great men. The name of *king* has grown dim before that of *apostle*. To teach, whether by word or action, is the highest function on earth.

“ Nothing is more needed, than that men of superior gifts and of benevolent spirit should devote themselves to the instruction of the less enlightened classes in the great end of life, in the dignity of their nature, in their rights and duties, in the history, laws and institutions of their country, in the philosophy of their employments, in the laws, harmonies and productions of outward nature, and especially in the art of bringing up children in health of body, and in vigor and purity of mind. We need a new profession or vocation, the object of which shall be to wake up the intellect in those spheres where it is now buried in habitual slumber.

“ We want a class of liberal-minded instructors, whose vocation it shall be to place the views of the most enlightened minds within the reach of a more and more extensive portion of their fellow creatures. The wealth of a community should flow out like water for the preparation and employment of such teachers, for enlisting powerful and generous minds in the work of giving impulse to their race.

“ Nor let it be said that men, able and disposed to carry on this work, must not be looked for in such a world as ours. Christianity, which has wrought so many miracles of beneficence, which has sent forth so many apostles and martyrs, so many Howards and Clarksons, can raise up laborers for this harvest also. Nothing is needed but a new pour-

ing out of the spirit of Christian love, nothing but a new comprehension of the brotherhood of the human race, to call forth efforts which seem impossibilities in a self-seeking and self-indulging age.”

I have no belief that children can be educated in such a manner as to develop the highest powers of the body and mind, without *attractive industry*. Judicious exercise can do much, but a system of attractive industry can do more. Schools with which labor is connected, have already been established in our country.

In Miss Beecher's excellent work on Domestic Economy, I find a sketch of an improved school for young ladies, which I give you with pleasure, premising that I do not like the separation of the sexes in the work of education, though like medicine, surgery, jails, &c., it may be a necessary evil in the present state of society. The institution at Oberlin, Ohio, has all the advantages of the one mentioned below by Miss Beecher, and the sexes are educated together, as in a well regulated family. I have often thought if young persons must be separated during the period of education, why are not families constituted with reference to this rule? Why are not some families composed entirely of boys, and others of girls. As this is not the case, I must think the separation unnatural, having its origin in the corruptions of the age. Miss B. asks the fol-

lowing sensible questions, which it is hoped the wisdom of our age will satisfactorily answer:

“But are not the most responsible of all duties committed to the care of woman? Is it not her profession to take care of mind, body and soul? and that too at the most critical of all periods of existence? And is it not as much a matter of public concern, that she should be properly qualified for her duties, as that ministers, lawyers and physicians should be prepared for theirs? And is it not as important to endow institutions that shall make a superior education accessible to all classes, for females, as much as for the other sex? And is it not equally important, that institutions for females be under the supervision of intelligent and responsible trustees, whose duty it shall be to secure a uniform and appropriate education for one sex, as much as for the other? It would seem as if every mind must accord an affirmative reply, as soon as the matter is fairly considered.

“As the education of females is now conducted, any man or woman that pleases can establish a female seminary, and secure recommendations that will attract pupils. But whose business is it to see that these young females are not huddled into crowded rooms? or that they do not sleep in ill-ventilated chambers? or that they have healthful food? or that they have the requisite amount of fresh air

and exercise? or that they pursue an appropriate and systematic course of study? or that their manners, principles and morals are properly regulated? Parents either have not the means, or else are not qualified to judge; or, if they are furnished with means and capacity, they are often restricted to a choice of the best school within reach, even when it is known to be exceedingly objectionable.

“If the writer were to disclose all that could truly be told of boarding school life, and its influence on health, manners, disposition, intellect and morals, it would be a tale which would both astonish and shock every rational mind. And yet she believes that such institutions are far better managed in this country than in any other; and that the number of those which are subject to imputations in these respects, is much less than could reasonably be expected. But it is most surely the case, that much remains to be done, in order to supply such institutions as are needed for the proper education of American women.

“In attempting a sketch of the kind of institutions which are demanded, it is very fortunate that there is no necessity for presenting a theory which may or may not be approved by experience. It is the greatest honor of one of our newest western states, that it can boast of such an institution, and one endowed, too, wholly by the munificence of one

individual. A slight sketch of this institution, which the writer has examined in all its details, will give an idea of what can be done, by showing what has actually been accomplished.

“This institution [the Monticello Female Seminary, endowed by Benjamin Godfrey, Esq., of Alton, Illinois] is under the supervision of a board of trustees, appointed by the founder, who hold the property in trust for the object to which it is devoted, and who have the power to fill their own vacancies. It is furnished with a noble and tasteful building of stone, so liberal in dimensions and arrangement, that it can accommodate ninety pupils and teachers, giving one room to every two pupils, and all being so arranged as to admit of thorough ventilation. This building is surrounded by extensive grounds, enclosed with handsome fences, where remains of the primeval forest still offer refreshing shade for juvenile sports.

“To secure adequate exercise for the pupils, two methods are adopted. By the first, each young lady is required to spend two hours in domestic employments, either in sweeping, dusting, setting and clearing tables, washing and ironing, or other household concerns.

“Let not the aristocratic mother and daughter express their dislike of such an arrangement, till they can learn how well it succeeds. Let them

walk, as the writer has done, through the large airy halls, kept clean and in order by their fair occupants, to the washing and ironing rooms. There they will see a long hall, conveniently fitted up with some thirty neatly painted tubs, with a clean floor, and water conducted so as to save both labor and slopping. Let them see some thirty or forty merry girls, superintended by a motherly lady, chatting and singing, washing and starching, while every convenience is at hand, and every thing around is clean and comfortable. Two hours thus employed enables each young lady to wash the articles she used during the previous week, which is all that is demanded, while thus they are all practically initiated into the arts and mysteries of the wash-tub. The superintendent remarked to the writer, that after a few weeks of probation, her young washers succeeded quite as well as most of those whom she could hire, and who made it their business. Adjacent to the washing room was the ironing establishment, where another class were arranged, on the ironing day, around long extended tables, with heating furnaces, clothes frames, and all needful appliances.

“By a systematic arrangement of school and domestic duties, two hours each day, from each of the pupils, accomplished all the domestic labor of a family of ninety, except the cooking, which was

done by two hired domestics. This part of domestic labor it was deemed inexpedient to incorporate as a part of the business of the pupils, inasmuch as it could not be accommodated to the arrangements of the school, and was in other respects objectionable.

“ Is it asked, how can young ladies paint, play the piano, and study, when their hands and dresses must be unfitted by such drudgery ? The woman who asks this question, has yet to learn that a pure and delicate skin is better secured by healthful exercise than by any other method ; and that a young lady who will spend two hours a day at the wash-tub or with a broom, is far more likely to have rosy cheeks, a finely moulded form, and a delicate skin, than one who lolls all day in her parlor or chamber, or only leaves them girt in tight dresses, to make fashionable calls. It is true, that long protracted daily labor hardens the hand, and unfits it for delicate employments ; but the amount of labor needful for health produces no such effect. As to dress and appearance, if neat and convenient accommodations are furnished, there is no occasion for the exposures that demand shabby dresses. A dark calico, genteelly made, with an oiled silk apron, and wide cuffs of the same material, secure both good looks and good service. This plan of domestic employments for the pupils of this institution, not only

secures regular healthful exercise, but also reduces the expenses of education, so as to bring it within the reach of many who otherwise could never gain such advantages.

“ In addition to this, a system of calisthenic exercises is introduced, which secures all the advantages which dancing is supposed to effect, and which is free from the dangerous tendencies of that fascinating fashionable amusement. This system is so combined with music, and constantly varying evolutions, as to serve as an amusement, and also as a mode of curing distortions, particularly all tendencies to curvature of the spine; while at the same time it tends to promote grace of movement and easy manners.

“ Another advantage of this institution is, an elevated and invigorating course of mental discipline. Many persons seem to suppose that the chief object of an intellectual education is the acquisition of knowledge. But it will be found that this is only a secondary object. It is the formation of habits of investigation, of correct reasoning, of persevering attention, of regular system, of accurate analysis, and of vigorous mental action, that are the primary objects to be sought in preparing American women for their arduous duties, which will demand not only quickness of perception, but steadiness of purpose, regularity of system, and perseverance in action.

“It is for such purposes that the discipline of the mathematics is so important an element in female education ; and it is in this aspect that the mere acquisition of facts, and the attainment of accomplishments, should be made of altogether secondary account.

“In the institution here described, a systematic course of study is adopted, as in our colleges, designed to occupy three years. The following slight outline of the course of study will exhibit the liberal plan adopted in this respect :

“In mathematics, the whole of arithmetic contained in the larger works used in schools, the whole of Euclid, and such portions from Day’s Mathematics as are requisite to enable the pupils to demonstrate the various problems in Olmsted’s larger work on natural philosophy. In language, besides English grammar, a short course in Latin is required, sufficient to secure an understanding of the philosophy of the language, and that kind of mental discipline which the exercise of translating affords. In philosophy, chemistry, astronomy, botany, geology and mineralogy, intellectual and moral philosophy, political economy, and the evidences of Christianity, the same text books are used as are required at our best colleges. In geography, the largest work and most thorough course is adopted ; and in history, a more complete knowledge is

secured by means of charts and text books; than most of our colleges offer. To these branches are added Griscom's Physiology, Bigelow's Technology, and Jahn's Archæology, together with a course of instruction in polite literature, for which Chalmers's English Literature is employed as the text book, each recitation being attended with selections and criticisms from teacher or pupils, on the various authors brought into notice. Vocal music, on the plan of the Boston Academy, is a part of the daily instructions. Linear drawing and pencilling are designed also to be a part of the course. Instrumental music is taught, but not as a part of the regular course of study.

“To secure the proper instruction in all these branches, the division of labor adopted in colleges is pursued. Each teacher has distinct branches as her department, for which she is responsible, and in which she is independent. By this method the teachers have sufficient time both to prepare themselves and to impart instruction and illustration in the class-room.

“The writer has never before seen the principle of the division of labor and responsibility so perfectly carried out in any female institution; and believes that experience will prove that this is the true model for combining, in appropriate proportions, the

agency of both sexes in carrying forward such an institution.

“ One other thing should be noticed, to the credit of the rising state where this institution is located. A female association has been formed, embracing a large portion of the ladies of standing and wealth, the design of which is to educate, gratuitously, at this and other similar institutions, such females as are anxious to obtain a good education, and are destitute of the means. If this enterprise is continued with the same energy and perseverance as has been manifested the last few years, Illinois will take the lead of her sister states in well educated women ; and if the views in the preceding pages are correct, this will give her precedence in every intellectual and moral advantage.

“ Many who are not aware of the great economy secured by a proper division of labor, will not understand how so extensive a course can be properly completed in three years. But in this institution none are received under fourteen, and a certain amount of previous acquisition is required in order to admission, as is done in our colleges. This secures a diminution of classes, so that but few studies are pursued at one time ; while the number of well qualified teachers is so adequate, that full time is afforded for all needful instruction and illustration. Where teachers have so many classes that they

merely have time to find out what their pupils learn from books, without any aid from their teacher, the acquisitions of the pupils are vague and imperfect, and soon pass away ; so that an immense amount of expense, time and labor are spent in acquiring what is lost about as fast as it is gained.

“Parents are little aware of the immense waste incurred by the present mode of conducting female education. In the wealthy classes, young girls are sent to school, as a matter of course, year after year, confined six hours a day to the school house, and required to add some time out of school to acquiring school exercises. Thus, during the most critical period of life, they are confined, six hours a day, in a room filled with an atmosphere vitiated by many breaths, and are constantly kept under some sort of responsibility in regard to mental effort. Their studies are pursued at random, often changed with changing schools, while one school book after another (heavily taxing the parent's purse) is conned awhile and then supplanted by another. Teachers usually have so many pupils, and such a variety of branches to teach, that little time can be afforded to each pupil, while scholars, at this thoughtless period of life, feeling sure of going to school as long as they please, feel little interest in their pursuits.

“The writer believes that the actual amount of education, permanently secured by most young la-

dies from the age of ten to fourteen, could all be acquired in one year at the institution described, by a young lady at the age of fifteen or sixteen."

Other schools, perhaps still better adapted to the wants of humanity, will doubtless be established hereafter. We have great reason to be encouraged when we look at the "signs of the times." With the intelligence and virtue that exist in community, we may be assured that our course is *onward*. May it not only be *onward*, but *upward*, for ever.

THE END.

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