

fathers and the requirements of a false religion, were never inside a ball-room or a theatre until they became Latter Day Saints, and now they seem more anxious for this kind of amusement than our children. This arises from the fact that they have been starved for many years for that amusement which is designed to buoy up their spirits and make their bodies vigorous and strong, and tens of thousands have sunk into untimely graves for want of such exercises to the body and the mind. They require mutual nourishment to make them sound and healthy. Every faculty and power of both body and mind is a gift from God. Never say that means used to create and continue healthy action of body and mind are from hell. Such means never originated there. Hell is a great distance from us, and we can never arrive there, unless we change our path, for the way we are now pursuing leads to heaven and happiness.

When the saints come into this building, and look on this stage, to see our brethren and sisters perform to satisfy the sight, to satisfy the ear, and the desires and mind of the people. I want you to pray for them that the Lord Almighty may preserve them from ever having one wicked thought in their bosoms, that our actors may be just as virtuous, truthful, and humble before God and each other as though they were on a mission to preach the gospel.

I say to those who perform, if anything is discovered contrary to the strictest virtue and decorum, the offenders must leave this building. I intend this remark to apply also to the musicians. I wish the dramatic company to seek diligently and in all kindness to promote the happiness of all concerned.

Unless by my order I do not wish a drop of intoxicating liquor brought into this house; I want the actors behind the curtain, the musicians in the orchestra, and the audience to hear and observe this.

When this house is finished, there will be places in the passages where cakes, pies, fruits, etc., can be bought; but no intoxicating liquor will be allowed in these saloons. No drunken person will be permitted to enter this house; I will not have it polluted and disgraced by the presence of the drunken, nor my brethren and sisters, who strive continually to do right, annoyed by the filthy breath of a poor, miserable, filthy loafer.

We intend to preserve the strictest order here; do we expect the people to come to this house praying, and the whole souls devoted to God, and to their religion.

Tragedy is favored by the outside world; I am not in favor of it. I do not wish murder and all its horrors and the villainy leading to it portrayed before our women and children; I want no child to carry home with it the fear of the fagot, the sword, the pistol, or the dagger, and suffer in the night from frightful dreams. I want such plays performed as will make the spectators feel well; and I wish those who perform to select a class of plays that will improve the public mind, and exalt the literary taste of the community.

If we wish to hold a conference in this hall, we shall do so, and shall use it for all purposes that will satisfy our feelings in doing right, and no evil.

May God bless you. Amen.

Love for the Dead.

"The love which survives the tomb," says Irving, "is one of the noblest attributes of the soul. If it has its woes, it has likewise its delights; and when the overwhelming burst of grief is calmed into the gentle tear of recollection; when the sudden anguish and the convulsed agony over the present ruins of all that we most loved, is softened away into pensive meditation on all that it was in the days of its loveliness—who would root out such a sorrow from the heart? Though it may sometimes throw a passing cloud over the bright hour of gaiety, or spread a deep sadness over the hour of gloom; yet who would exchange it even for the song of pleasure, or the burst of revelry? No; there is a voice from the tomb sweeter than song; there is a remembrance of the dead to which we turn even from the charms of the living."

ANTEDELVIAN TREES.—We saw a few days since two remarkable specimens of petrified trees from Pike's Peak. They belong to the University of Chicago, and so far as our knowledge extends, though a young institution, it has the finest and largest specimens of the antedelvian forests with which we are acquainted.

While the change to stone is complete, the structure of the wood is as perfectly preserved as if no change had occurred. The petrifying agent was silica, and it may be seen incrusting some portions of the surface in white and blue globules.

From the curvature of the annual rings or growth we judge the tree from which these specimens come to have been at least fourteen feet in diameter, and their number and thickness indicate that it must have required about one thousand six hundred years to grow to that size. The larger specimen of the two is over nine feet in circumference at the base, on which it stands nearly erect, and is five feet and a half high, and weighs one ton and a half—3,000 pounds. The other specimen is nearly as long, weighing half as much, and is nearly uniform in size from end to end, while the larger specimen tapers from the base to about half the size at the top.

The species to which these wonderful specimens belong has probably been long extinct, but they appear to resemble very closely in every respect the California redwood.

SEVENTIES' HALL LECTURES.

The great public interest manifested in the lectures of the past winter has afforded real pleasure to the committee who have controlled them, and in bringing them to a close for the present season they desire to express their high gratification in the success which has attended their feeble exertions for the spread of true scientific knowledge.

Those members of the committee who expect to be here, purpose arranging early next fall to have lectures delivered one or two evenings each week during the winter, upon such subjects as will be both interesting and instructive.

The last lecture of the season, which is herewith published, was delivered by Dr. Davis, upon the important science of Physiology. It speaks for itself, and therefore needs no comment.

With sincere thanks to the public for their kind attendance, and encouragement of literary pursuits, we are, Respectfully,

ALBERT P. ROCKWOOD,
GILBERT CLEMENTS,
ROBERT CAMPBELL,
WILLIAM WILLIS,
RICHARD H. ATWOOD,
JOHN V. LONG,

Committee
on
Lectures.

LECTURE ON PHYSIOLOGY.

Being called upon to make a few remarks on the subject of physiology, in justice to myself I must confess that I hardly know where to commence: the science of physiology is so extensive, and yet so closely connected that to deduce only one lecture from the great field, and at the same time make it both interesting and edifying to this vast and diversified congregation, is no small task. Ages ago, king of Sparta, when asked what thing boys should learn replied: "those which they will practice when they become men." As health requires the observance of the laws inherent to the different organs of the human system, so not only boys, but girls, should acquire a correct and thorough knowledge of the laws of their organization. If sound morality depends upon the inculcation of correct principles in youth, equally so does a sound physical system depend on a correct physical education during the same period of life. Hence, the study of the structure of the human system, and the laws of the different organs, should be subjects of interest to all mankind. Every young person, and particularly every young man, after acquiring a knowledge of the primary branches of education, such as spelling, reading, writing, geography and arithmetic, should learn themselves, and the structure of the human system, and the conditions upon which health and disease depend, for this knowledge girls will be required—yes, and a practical knowledge, too, you will need in after life. "It is somewhat unaccountable," says the celebrated Dr. Dick, "and not a little inconsistent, that while we direct the young to look abroad over the surface of the earth, and survey its mountains, rivers, seas, and continents, and guide their views to the regions of the firmaments, where they may contemplate the moons of Jupiter, the rings of Saturn, and thousands of luminaries placed at immeasurable distances, that we should never teach them to look into themselves; and contemplate their own corporeal structures, the numerous parts of which they are composed, the admirable functions they perform, the wisdom and goodness of the great Architect displayed in their mechanism. Physiology teaches us what part each organ performs in the general economy."

DIGESTION.

The human body, like every other organized structure, is continually wasting away, even to the deepest and most solid parts. This waste requires to be supplied by the addition of new matter, and hence is required the function of digestion, which consists in changing our food, drink, etc., into the materials of the body. This change is one of the most extraordinary phenomena in nature. Every part of the body of animal life is formed from the fluid called blood, which is first formed from food, drink, etc. Does it not seem almost impossible when we consider the various articles of food, and how dissimilar they are to blood, that such a conversion can occur? For instance, compare a piece of bread or a potatoe with a portion of blood, and observe how unlike they are to it in every respect; is not the change miraculous?

MASTICATION.

The first part of the process consists in the preparation of the food by chewing, grinding or breaking it into small parts. This is accomplished with the teeth generally—not always. I have seen a man that never had any teeth, but in their stead he had a rim of enamel bone on both the upper and lower jaw. During the process of mastication the food is moistened with a fluid called the saliva, which is secreted by certain organs called the salivary glands, situated in the mouth. This moistening assists the act of chewing and is, as some have asserted, essential in the process of digestion after the food has entered the stomach.

DEGLUTITION.

The next act, after mastication is accomplished, is that of deglutition, or swallowing, which, though it appears so simple an act when we perform it, is nevertheless a very complicated one, in which many curious scientific principles are concerned (every particle of food or drink we swallow has to pass over the little valve or clapper of the tube called the larynx or wind-pipe); the food is

passed from the mouth down a pipe or tube called the oesophagus, into the stomach. Most animals masticate their food first, and then swallow it; but there are some who swallow it first and masticate it afterwards. For instance, the lobster and grass-hopper have their teeth connected with their stomachs. Digestion itself is performed in the stomach and intestines. The structure of these organs varies much in different animals. Thus the sheep, whose chief subsistence is grass, requires a very complicated apparatus to turn that grass into the substance of its body; while the lion or tiger, living upon flesh, require comparatively a simple apparatus, because their food is already nearly like the substance of their bodies. Consequently the sheep has four stomachs, and its intestines are twenty-seven times the length of its body; while the lion and tiger have but one stomach and their intestines are but three times the length of their bodies.

Man being omnivorous (all eating) has an intermediate organization; he has one stomach, and his intestines are about six times the length of his body.

CHYMIIFICATION, OR DIGESTION IN THE STOMACH.

When the food has entered the stomach it undergoes the first part of the real process of digestion, and is converted into a greyish pulp-like substance called the chyme. The stomach itself is a kind of pouch or bag with very strong muscular walls which keep up a continual contraction and relaxation; a sort of churning as it were of the food from side to side. The grand agent, however, in converting the food into chyme, is a peculiar fluid called the gastric juice, which is secreted from the inner wall of the stomach. This fluid has a remarkable solvent power which few substances can withstand. It acts very readily upon all ordinary articles of food. It acts out of the body the same as in it. The gastric juice from the stomach of the lion or tiger will not act upon the food in the stomach of the sheep; nor vice versa; but the gastric juice from the stomach of man will digest the food from the stomach of the lion, tiger, sheep or any other animal. It cannot, however, act upon any body so long as that body retains its vitality. We well know that worms exist in the stomach and intestines unharmed; but let one die, if it is not immediately passed off, it will be digested; hence, any medicine that will kill the worms (and not the person) may, if properly compounded, and given suitably, become a celebrated vermifuge; and in like manner the stomach itself is uninjured during life, but frequently after death is found corroded, or partly so, or may even have holes eaten through it in consequence of the action of the gastric juice. Hence, I will say, physicians and coroners, beware of the verdicts you render in post mortem examinations; where corruptions of the stomach or bowels present themselves—analyse the contents of each carefully before you pronounce p-o-i-s-o-n-e-d.

PASSAGE OF THE FOOD INTO THE INTESTINES.

During his process of chymification the food is continually moved about as already stated, by the action of the wall of the stomach, and each portion is thus presented alternately to the small intestines, called the pylorus. This opening is at the right end of the stomach, the oesophagus opening into the left or cardiac extremity. Here may be observed a remarkable phenomenon, which as yet has never been explained, nor is it understood by man. This pyloric opening will permit only the digested portions of food to pass through into the intestines; consequently the undigested portions of food must be returned to the upper or cardiac end of the stomach till they are more fully acted upon by this peculiar fluid, the gastric juice. Hence to this little sentinel is given the name of pylorus, a porter. This trustworthy servant or porter will not permit any portion of food to pass without the countenance of its master (the stomach), which password is, digested. Hark, do I hear some mother saying, doctor you have missed it this time, for my little one often passes its food apparently just as it swallowed it. That is just what I wanted you to call my attention to; the too good mother often says, Tommy, or whatever the name may be; sunny, you have not eaten enough this time, don't you want a piece of cake? No, Ma. Poor little dear he must be sick; here, my son, drink a little tea or coffee. He drinks some. The mother anxiously enquires, my son, can't you drink a little more? Betty, you go and get him some preserves, for I am sure he must be sick. Ah! mother this sort of kindness is not only making him sick, but it will in most cases either directly or indirectly plant the germs of disease so that life, sooner or later, will become irksome and death but a welcome harbinger. The practice of frequently crowding the stomach (as though it were a carpet bag) is very deleterious to the health of any individual. The stomach must have rest or else it cannot perform its functions properly. You will please remember that whenever the master (stomach) becomes so much exhausted through over feeding or any other cause as to be conquered, that then the little servant (pylorus) ceases to be sentinel till the restoration of its master.

When the chyme is passed from the stomach, through the pylorus, it enters the first part of the small intestines, called the duodenum. Here the separation of the nutritious portion of the food from the refuse commences. Here also the chyme meets with two fluids, one and secreted by the liver, called the gall or bile, the other secreted by the pancreas or sweetbread, called the pancreatic juice. The gall

is a dark green and alkaline substance; the pancreatic juice somewhat resembles the saliva. Both the bile and pancreatic juice are conveyed into the duodenum by small tubes or canals. These enter the duodenum several inches below the stomach, not into that organ as many of you have been erroneously taught.

Immediately after the admixture of these fluids with the chyme, there begins to be a separation into two distinct portions, one consisting of the nutritious portion, called the chyle, which is a thick cream-like substance; and the other of the refuse portions forming the feces or general discharge from the bowels.

ABSORPTION OF THE CHYLE.

The chyle is absorbed from the inner surface of the small intestines, by an immense number of minute vessels, called lacteals. The chyle now resembles blood in nearly every particular, except its color. The lacteals terminate on the inside of the intestines by means of small tubes with open mouths; but externally they appear like strings of beads, owing to their being full of little valves, to prevent the return of the chyle. In passing through them the chyle also passes through certain bodies called the mesenteric glands; in which it is supposed to undergo some alterations. Eventually the lacteals terminate in a vessel called the receptacle of the chyle. This vessel is the commencement of a tube, in man about the size of a small chicken quill, called the thoracic duct, which runs up the spine, till it reaches the left subclavian veins into which it empties. The chyle is thus passed into the venous blood, and goes with it to the lungs, where the action of pure air turns it vermilion red, and converts it into real blood. There are other vessels also which empty into the thoracic duct, besides the lacteals; these are called the lymphatics; the great lymphatic vein empties into the right subclavian, like the thoracic duct on the opposite side. The lymph is a fluid somewhat similar to the chyle, and is supposed to be the superfluous particles of nutriment not needed just at that time, and is consequently again thrown into the circulation, instead of being wasted, nature being a great economist.

We are not acquainted with the force that moves the chyle upwards, but it is sufficiently powerful to burst the thoracic duct, if it be tied in a living animal.

A medical man remarked to me a few years since, that the throat had destroyed more lives than the sword; he furthermore said that three-fourths of the vice that entails wretchedness upon the human family, is physiological vice; which consists in the depraved indulgence of the three appetites, viz: Eating, drinking, and sexuality. "O, Temperance," says Sir Wm. Temple, "thou physician of the soul as well as the body, the best guardian of youth and support of old age, the tutelary goddess of health and universal medicine of life, that keeps cool and clears the head, and cleanses the blood, that eases the stomach and purges the bowels, that strengthens the nerves, enlightens the eyes, and comforts the heart." How often have we beheld the miserable mother, with her helpless infants, pining in want, while the cruel father was indulging his insatiable appetites.

LACING.

Boys, let your motto be, Natural waists or no wives. No woman is fit for a wife or mother, who is a confirmed wearer of stays or corsets. "O," says one, "I cannot keep erect, unless I wear them. I feel so weak without them." Poor excuse.

Was there not a time when you felt buoyant; if so, it was previous to their adoption. I will relate one circumstance by way of illustration. A few years since I was called in consultation to see a young lady who was confined to her bed; formerly she had possessed health and strength, and all the requisite accomplishments of her sex. Her pulse was feeble, her breathing short; I found on examination that tight-lacing had been the primary cause of her sickness; death soon closed her earthly career. I was also present at the post mortem examination. Her sternum or breast bone was crowded backward and upwards; the ends of the false or short ribs were jutting passed each other four inches, whereas they should have been at least six inches under. She had lessened the size of her waist ten inches. Her liver, stomach, lungs, etc., were thrown towards the spine; her chest was so contracted that the lungs could not receive more than one-fourth part of the inflation that health and their organization required.

There is a similar objection to boys wearing belts. Healthy lungs at every inspiration require from twenty to forty cubic inches of air, supposing we take twenty such inspirations every minute, which will amount to from 400 to 1600 cubic inches of air per minute, according to the size of the lungs; but suppose we restrain the elevation of the ribs, and depression of the diaphragm (as in tight-lacing), so that the quantity of air conveyed into the lungs will be reduced to ten cubic inches of air per inspiration, where twenty are needed, and the result will be as follows: only one-half the carbonic acid will be eliminated from the system, and the blood will receive but one-half as much oxygen as it requires; consequently the blood will be but imperfectly oxydated, and but partially freed from its impurities. This impure blood will be returned to the left side of the heart, and the whole system will suffer from an infringement of organic laws. I have already spoken of eating, drinking, etc.