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NATURE'S LAWS, GOD'S LAWS; OBEY AND LIVE.

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The Physical Effects of Alcohol.

[THE following article from the *Boston Journal of Chemistry* embodies a very thorough description of the effect of alcohol upon the blood and the circulation. To any thoughtful person, these facts will be amply sufficient to forever settle the question of the dietetic value of alcohol.—ED.]

The theme of Dr. Richardson's third lecture was the primary physiological action of ethylic or common alcohol on animal life.

Alcohol may be introduced into the body by many channels, but it passes into the blood in every case. The shortest way is by inhalation; the longest and ordinary way is by the stomach. When taken into the stomach, however, alcohol cannot be absorbed into the system until it has undergone a certain degree of dilution with water. When we dilute alcohol with water before drinking it, we quicken its absorption. If we do not dilute it sufficiently, it is diluted in the stomach by transudation of water until capable of absorption by the veins.

Alcohol, in its passage through the body, first reaches the blood, and coming in contact with all parts of the blood, it produces disturbing action if present in sufficient quantity. It may cause the corpuscles to run too closely together, and to adhere in rolls; it may modify their outline, making the clearly-defined, smooth outer edge irregular or crenate, or even star-like; it may change the round corpuscle into the oval form; or in very extreme cases it may produce a truncated form of corpuscle, in which the change is so great that if we did not trace it through all its phases we should be puzzled to know whether the object were indeed a blood-cell. These changes are due to the action of the spirit on the water contained in the corpuscles. The spirit absorbs this water from the corpuscles. While these changes are going on, the power to absorb and fix gases is impaired, and when the aggregation of the cells in masses is great, other difficulties arise; for the cells united together pass less easily than they should through the minute vessels, and thus impede the current. Alcohol in excess acts also on the fibrine of the blood. It may act in two ways, according to the degree in which it affects the water that holds the fibrine in solution. It may fix the water with the fibrine, and thus destroy the power of coagulation; or it may extract the water so as to produce coagulation. This explains why in acute cases of poisoning by alcohol the blood is sometimes found quite fluid, at other times firmly coagulated in the vessels.

Alcohol paralyzes the minute vessels, and allows them to become dilated with blood. But the action of the alcohol does not stop there. With the disturbance of power in the extreme vessels disturbance is set up in other organs, and the first organ that shares in it is the heart. The vessels being relaxed, and resistance removed, the heart begins to run quicker, with a weakened recoil stroke. It is easy to account in this manner for the quickened heart and pulse which accompany the first stage of deranged action from alcohol, and it is interesting to know to what extent this increase of vascular action proceeds. The information on this point is exceedingly curious and important.

Dr. Richardson then referred to his own experiments on pigeons, and gave an account of the researches of Prof. Parkes and the late Count Wollowicz. They found that the average number of beats of the heart in 24 hours during first or water period, when no spirit was imbibed, was 106,000; in the alcoholic period, 127,000; in the brandy period, 131,000. These were the eventual average results obtained from eight observations, operating upon the young and healthy adult man.

The highest of the daily means of the pulse during the eight days of the water period was 77.5 beats; the next highest was 77. Comparing the mean of this one day, namely, 77 beats per minute, with the alcohol days, we find:—

	Times more.
On the 9th day, with 1 fluid ounce of alcohol, the heart beat	480
On the 10th day, with 2 fluid ounces .	1872
On the 11th day, with 4 fluid ounces . .	12,960
Lastly, on the 14th day, with 8 fluid ounces	25,488

The first day of alcohol gave an excess of 4 per cent, and the last of 23 per cent; the heart, therefore, during the concluding alcohol stages was doing one-fifth more work. The heart, however primarily excited, soon begins to flag, and more stimulus is necessary to carry on the work; other organs than the heart are also implicated.

The flush seen on the cheek during the first stage of alcoholic excitation is commonly presumed to extend merely to the parts exposed to view. It cannot, however, be too forcibly impressed that the condition is universal in the body. If the lungs could be seen, they too would be found with their vessels injected; if the brain and spinal cord could be laid open to view, they would be discovered in the same condition, and so on. Dr. Richardson said he had witnessed this vascular condition of the lungs of an animal killed suddenly when under the influence of alcohol. He once had the opportunity of observing the same phenomenon in the brain structure of a man who, in a paroxysm of alcoholic frenzy, had his brains dashed out by the wheel of a railway carriage. The brain, entire, was examined three minutes after death. It exhaled the odor of spirit; its membranes and minute structure were vascular in the extreme. "It looked as if it had been injected with vermilion." The white matter of the cerebrum could scarcely be distinguished, and the pia mater, the internal vascular membrane covering the brain, resembled a delicate web of coagulated red blood.

The function of the spinal cord is influenced by the continued use of alcohol. This is the seat of automatic mechanical acts, and these pure automatic acts cease, under the influence of alcohol, to be carried on, the nervous control of certain of the muscles is lost, and the nervous stimulus is enfeebled. Then come in swift succession the impaired condition of the brain centers, and the will and judgment suffer shipwreck; the rational part of man abdicates, the emotional or organic reigns. Happy is it for the inebriate that the brain fails before the heart, which to the last remains faithful to its duty. When once the circulation dies, the tragedy is finished.

"WHY Did he not Die?" is the title of a novel. We have not heard the answer, but believe it to be, "Because he did not take his medicine."

Dress Reform.

(Concluded.)

PROBABLY no obstacle stands more in the way of a sensible dress-reform, such as health and comfort imperatively demand, than the prevailing notion that any such change must necessarily be hideous, and an offense to the eyes. As if Beauty refused to ally herself with Health and Convenience; and as if they were not the trinity in dress which ought never to be separated! Indeed, we should pray for a radical change in our attire, if for no other reason than because we believe in beauty. Is not the latter repeatedly outraged in every essential of our present garb?

We hear much from the opponents of such reform concerning the grace of flowing lines; and short skirts they refuse to tolerate, because an important feature of attractive raiment would thus be destroyed. But look at our modern robe. Where are the flowing lines in the flounces, the ruffles, the puffs, the over-skirts, and the bunchings at the waist, which a friend, for lack of a more definite term, has called "the great hereafter?" Not a single straight sweeping curve from belt to hem; but a terraced, balconied, Chinese pagoda, with gingerbread ornaments confusing its architecture, and meaningless pendants swinging from every support. Can any plain, short skirt, be half so bad as that?

Flowing draperies, admirable as they are, must never be obtained at the expense of the long, tight waist which she takes such infinite pains to mold. That shall survive, if all else perishes. "Lengthen your skirts, by all means," she says,—"the floor is yours,—but never encroach upon the bodice above. I care not if that be the most pernicious feature of the whole attire; it is the one to which I shall most desperately cling."

If girding the body to the closest outline of the form over the region between the ribs and the hips, and there alone, is to remain the one essential accompaniment of a full-dress costume, might we not, at least, have a fixed standard of size for the waist, so that only those who transcend certain bounds may feel compelled to diminish themselves? As it is, no woman, however small, is small enough. Pinching appears to be indispensable. Nature is never allowed to be right as she is.

Not only, then, because those who plead for the retention of woman's present habiliments dodge the great facts of life, and, while prating of the lovely sheen of trailing satins in my lady's drawing-room, forget the physi-

cal miseries and inefficiencies of their sex—of mothers, housekeepers, and workwomen—must we dissent from their views, but because, in pleading for a fancied beauty such as they see around them, they delay the advent of that higher beauty which must always be consonant with God's laws, and which alone the true artist would recognize.

Those who advocate a real and enduring dress-reform, do so not only for the sake of health, but because they cannot forget, through blind adoration of prevailing deformities, in what the true harmonies of form and color consist. One whose life, as an artist, has been given to the study of beauty's laws, arraigns our present dress for "its inconsistency with the just proportions of the human figure; for its prevention of muscular freedom, and consequent falsity to grace and beauty; for its excessive ornamentation, and its introduction of senseless and glaring deformities, which are disgraceful to the wearer, demoralizing to the community, and an outrage to good taste and common sense." This is the dress which it is claimed we cannot change to-day without destroying all the loveliness of female apparel; a dress which so clothes the feet that graceful walking is impossible, and substitutes a hobbling limp in place of that firm and noble carriage which denotes the queen, *incedit regina;* which prevents the arms from being raised above the head, and keeps them skewered feebly to the side; which obliterates curve of outline and sweep of fold by meaningless and redundant trimming; which exaggerates the bust, humps the hips, pinches the waist, and in every way tends to destroy freedom of motion and symmetry of form.

It is often asserted that they who preach dress-reform for women desire merely that they shall dress like men. Heaven forbid! is our reponse.

Looking at the general tendency of the late fashions devised for women, the prospect seems quite encouraging for them. If a wanton luxuriance of trimming runs riot over hampering train and torturing bodice, there is likewise provision for higher and purer tastes, and the severe finds a place beside the ornate. Simplicity of adornment, unbroken lines, looseness at the waist if you will—what more can you hope for to-day? Mantua-makers tell us that the late Parisian fashion plates retain straight redingotes for women, and even herald the return of short skirts; and that all these may be plain to a degree. Beneath such an exterior, what hinders you from being as comfortable as you can ever be under the old *régime* of skirts and bodices? Ungird your waistbands, and put on your suspenders; who shall be the wiser?

Nor would we forget the substantial gains of the past ten years. Water-proof cloaks and rubber boots have been vouchsafed us, in recognition of the fact that women have acquired regular occupations outside their homes, and must go abroad in rainy weather as well as in fair. Corsets, bad as they are, are no longer laced with the aid of the bedpost, nor worn at night. Low necks and short sleeves are seldom displayed at balls and parties; and let us believe that, for the sake of common decency, they will rarely be seen there again. A few years ago we should have cited close coat-sleeves, comfortable boots, short walking-dresses, and hats in lieu of bonnets, as further proofs that the world of fashion was swinging steadily towards the millennium. But, alas! since then we have seemed to be returning towards chaos and old night; for flowing sleeves, high-heeled boots, and trailing skirts for the street have come in again, and, however brief their reign, they have shown us that women are as ready as ever to freeze their arms, to torture and deform their feet, and to sit enveloped in breadths of drapery which have swept the public sidewalks for a mile. The worse for the credit of women and the credit of fashion! It teaches us to put no faith in any fair promises that the fickle goddess may make. If to-day she offers us plain and sensible habiliments, to-morrow she will lead us a terrible life again, with her flutings and flouncings. She is not converted to the side of dress-reform, only trying her hand at oddities. And, if we should call in her aid to help along our thoughtful work, she would jilt us just as it was well under way. Could we create the dress of which we dream, and, securing Mme. Demorest and the fashion magazines, astonish the world with a *coup d'état* which should make women appear for once clad like reasonable beings, by what force could we compel them to retain this mode longer than the season which produced it? Laws, to endure in a republic, must be approved by the people who submit to them. If the majority of its wearers see no other reason for the adoption of a costume than that they find it in their fashion-books, it will be abandoned when another supersedes it there.

Here is the obstacle which is to be overcome, if we would look for any effectual and enduring dress-reform among the women of to-day, such as the good of our American society now demands. It cannot be imposed upon any one; its wearers must desire it for themselves. They must desire it, moreover, for

reasons which shall render it necessary to retain it as a permanency.

These reasons will be, first, a respect for their physical natures, and an enlightened belief that their own bodily weakness and inefficiency are chiefly due to the injurious effects of wearing the present dress. The second reason will be an artistic perception of what true beauty is, and a desire to conform to it, independently of any arbitrary rules of taste. In short, they must learn Nature's laws, and respect them.

In this work we ought to have men for allies instead of opponents; for they have themselves struggled out of the same wilderness where we are now wandering. And could they be made to realize the daily and hourly discomfort inflicted by the clothes they admire so much, could they know what hindrances these are to us, and what time and thought we spend upon them, they would cease to ridicule any attempt at dress-reform, and would rather strive to lend it all possible aid and encouragement. But many of them appear amazed that anything has been found wrong with the drapery in which lovely woman is enshrined; while others, firmly believing that in order to make woman healthy in body it is absolutely necessary to make her hideous in apparel, hold it advisable for their sisters to continue to commit slow suicide in the service of Art. Though they positively declined to do this themselves, when they fashioned their present attire, they are yet ready, like Artemas Ward, to sacrifice all their female relatives in that cause.

Were I an emperor, absolute as any Shah, it would be my sovereign pleasure to decree that the men of my kingdom should wear women's clothes for a day, and that the women should wear those of the men—for one day only. It would not be long before something would be done; for the close of that memorable time would behold a race of groaning athletes, giving thanks for their escape from the strange bondage, and drawing great breaths of deliverance, while the wailing of the women at their return to the old fetters would be heart-rending to hear. Then the nation would pause from its consideration of lesser evils, and would set at work in good earnest to eradicate this.

Of all the seed that can be scattered by the wayside, none will bear such promise of fruit as that which shall fall upon young minds. It is with the girls that this reformation must begin, if it is to prove effectual. We older women, and all like us, however strong and well we may think ourselves, are, at the best, little better than physical wrecks, capable of repairs more or less thorough, but still hopelessly damaged by the ignorance of ourselves and of our time. What we might have been in our physiques, had we been properly trained and clothed from childhood, we can never know. But the girls of to-day should be saved before they have learned to wear the woman's dress, with its countless abominations, that they may be enabled to grow up untrammeled, vigorous, and happy, to show the world a nobler womanhood and a nobler race of children than our country offers now. Practical teaching of this sort the pupils of our schools seem glad to hear and enthusiastic to follow. In large cities its need is imperative.

And just now it is especially important, not only to the physical but to the mental well-being of our girls and women, that some thorough dress-reform should be effected. It is the bodily weakness, resulting so largely from their attire, which has become the chief argument for dwarfing and restraining their intellectual growth.

Admitting, as we must, that the undoubted ill-health of our countrywomen is a national injury and a national disgrace, we should feel called upon as patriotic citizens and as philanthropists to do everything in our power to remove the causes which induce it. No one habit of American life can be held responsible for it; the agencies are manifold which convert so many of our vigorous girls into suffering invalids before they have fairly grown into women; but if there be one agency worthy to be emphasized above all others, I believe it to be our present pernicious style of dress. A physican who could attribute the sad decay of our young women to excessive and continuous study, must be ignorant of very much of what constitutes the daily life of those of whom he speaks; and I protest against that explanation of the prevailing invalidism which has lately been given, and which is so eagerly caught at and proclaimed by those who are at heart opposed to every belief which tends to develop woman into something more than a merely physical being, valuable to society not for her own sake, but only because she is the mother of an order of beings superior to herself. The fact that girls, upon whose muscular and nervous systems such a peculiar strain is to come in their after-lives, are suffered to do nothing in youth which shall strengthen those muscles and tone those nerves; that half-grown limbs, unfilled lungs, sluggish livers, pinched stomachs, and distorted wombs, are carefully cultivated by the corsets and tight waists in which we encase their developing bodies; and that sedentary habits, bad air, and poor appetites are given them as a daily portion

when we keep them in-doors and seek to train them into presentable young ladies,—argues nothing against the native endurance of their physical frames, but rather tends to show that there must be an extraordinary amount of vitality and recuperative power in what refuses so obstinately to be destroyed. It is a ludicrous mistake to suppose that a few sporadic cases of injudicious study in the few female colleges of the land can be held accountable for the general ill-health of our women. Had any masculine physician who entertains that idea ever made a study of the full feminine regalia in which his delicate patients sit enveloped when they come to consult his professional skill, he would have found, in chilled and encumbered limbs, dragging skirts, overheated abdomen, compressed waist, and hot and burdened head, a better explanation of that state of things which he and all well-wishers of our country and our race must lament. It is not that boys and girls are trained too much alike mentally, but that they are trained too much unlike physically, which works the harm. Not too much knowledge of astronomy and mathematics, but too little knowledge of the laws of life, is what proves fatal to our young women. The remedy for their weakness is to be sought, not by enfeebling the mind till mind and body correspond, but by strengthening the body, through intelligent obedience to its laws, so that mind and body can both attain their perfect stature.

When the instruction so much needed on vital matters is furnished to our girls by their parents and teachers, they will abandon forever the style of apparel which now works such disastrous results; and then, with proper clothing and proper training, they will be enabled to grow up, not into those strange, unfeminized beings, ashamed of their sex, of whom some writers morbidly dream, but into strong-bodied, strong-limbed, clear-headed, warm-hearted, rosy, happy women, proud of their womanhood, surrounded by husband and children, if they prefer a domestic life, but held in equal honor and esteem, if, for any reasons which may seem to them good, they choose to devote themselves, with self-reliant energies, to other labors for their race.

Such work, for ourselves and for others, will hasten the day when woman shall be more than her dress; when the latter, from being a master shall become a servant, and man's work be held less admirable than that of God.—*Condensed from* "DRESS REFORM."

WE should demand nothing which costs another unnecessary trouble or pain.

Eating for Strength.

BY J. H. WAGGONER.

THE majority of men really think that they could not adopt the health-reform diet, and do hard work. It will do well enough, say they, for people who do not work; but when it comes to hard work, they think they must have coffee, pork, and all manner of highly seasoned food. But they who have tried both systems know that they not only have greater clearness of mind and buoyancy of spirit, but also greater activity of body and power of endurance, when they live according to the strict rules of hygiene.

Most people seem to think, for so they generally express themselves, that the hygienic system is but an impracticable theory, which is sure to fail when brought to the test of every-day life. But there are facts enough before the public to correct their false impressions if they would only stop their fault finding long enough to candidly consider the facts.

It is known to everybody that no one will undertake to run, wrestle, walk, &c., for a wager, without putting himself under "training." This also is the case for boxing matches. This training consists in suitable diet and exercise. As a general thing, all stimulants, both in drink and food, are carefully excluded. The diet is plain, and not too full. Now, why is this? It has been found, by thorough experiment, that a plain, unstimulating diet, gives the greatest strength and power of endurance.

"But Dr. —— says people cannot work on such food." This is often the last resort. Dr. Blank is the oracle with such people, and his knowledge of dietetics is well expressed by his name. The fact is that truly scientific physicians know and confess that the truth on this subject is on the side of the hygienists. A discussion at a recent meeting of the British Association, as reported by the *London Medical Record*, presents some interesting points. The following may be considered to profit:—

"Dr. Gordon said that he recollected running races, putting stones, wrestling, and other exercises being the favorite amusement of the sons and servants of the farmers in the County Down. Now nothing of the sort was heard of. These young men found a short day's work almost too much for them, and at the end of it they were to be seen lying about indulging in idle conversation. Coincidently with this they imagined themselves the equals of their masters and mistresses, and that the healthful oatmeal porridge and buttermilk twice daily, with beans and bacon for dinner,

was too strong and coarse. They insisted on more delicate fare, and demanded a supply of tea and white bread. They were unconscious that persons in their position but a few years ago possessed amazing vigor and performed twice the amount of labor with greater ease, and when the day's work was ended actually reveled in the display of surplus strength, which nothing but their better and more rational diet could have yielded them."

Laborers have been known to do hard work, and endure for years under severe toil, on a diet of oatmeal and potatoes, and their health was good. Changed to a meat diet, or that which is popularly known as *strong food*, and they uniformly failed in health and strength. We consider that this is the great reason why traveling is so generally hard on the health. Habits are broken up, and indigestible food is everywhere found, and often partaken of as a necessity.

Here I am reminded of the oft-repeated statement that there is no efficacy in the rules prescribed by hygienic physcians; but "our enemies being judges," the statement is not true. Not long since I read a very pleasant account of a certain editor who had long been under the care of an eminent physician, and was nothing bettered, who bought a highly recommended medicine for trial, which he showed to his physician. The "directions" contained the following:—

"In eating and exercise be moderate. Avoid bad habits and excesses that sap the life from you. Use no salt pork, newly-baked fine bread, vinegar, coffee, strong tea, or spirits, while taking this medicine. It is not in the power of man to restore you to health unless you regard these directions."

Now the doctor had been professor of a college, and was supposed to be a proper udge of the matter. To the inquiry of the editor what he thought of it, he replied:—

"All very well, for if the vial contains nothing but water, with just sufficient alcohol to keep it, a strict observance of these directions might restore you to health."

This opened to the mind of the patient a new field, and he replied:—

"You have treated my case for a long time, doctor, and have never given me such instructions. Pray, why do n't *you* get up something similar?"

An answer to this question might have been interesting, but the doctor did not give any!

It is a truth which should be kept sight of in all human maladies, that great Nature is our wisest and safest teacher.

Criminal Responsibility.

Few subjects are of greater importance and more fruitful in correctly modifying our present theories of the innumerable phases of human action, than a study of *criminal responsibility*. Researches in physiology and pathology have forced upon us already a perfect revision of our former ideas of mental action, and still further inquiry will cause, although not without a sharp conflict, a radical change in our present opinions concerning individual responsibility. As man advances intellectually, so will he discard his crude and fallacious reasonings which clung to him as his indispensable hope and safeguard. Witches are no more sacrificed at the stake or hung; maniacs are no longer incarcerated and left to perish for want of proper care and nourishment; criminals who are classed among rational beings, and visited by the stern hand of law, are now known to have been insane and irresponsible, while a wholesale modification of opinion, respecting capital punishment, is taking place at the present time. This revolution of the intellect is, undoubtedly, due to a more proper appreciation of the relation existing between brain and mind. Formerly mind and body were presumed to be separable, could exist independent, the mind only requiring the brain during its terrestrial life, but at present every physiologist is aware of the fallacy of such a doctrine. This notion took its origin at the time when the crude knowledge of nature was confined to priests, and when all the perceptible changes, even in inanimate matter, were attributed to and solved by the supposition of countless supernatural agencies, according to whose caprice man was injured or benefited—punished or rewarded.

In the course of experiment and investigation, man has generalized the appearances of nature, has unveiled their mystery, and referred them to the laws by which they are governed, until now it is an accepted scientific fact that all her phenomena, mind not excepted, fall within the sphere of natural laws, and are proper objects for physical investigation. However, until this was accomplished, the scientific world was attacked from all quarters by the ignorant and superstitious, who are always ready to ascribe everything they cannot readily understand to supernatural causes. Unfortunately, man was the last to be divorced from the supernatural element. Both health and disease were referred to the favor and displeasure of spirits. A man who was deprived of speech or hearing, had a dumb or a deaf devil. If he suffered pains in any portion of his body, it was believed that

a witch was inflicting this torture by forcing pins into the corresponding portions of a wax model. The devil was supposed to be omnipotent. There were religious sects, who were required to hawk, sneeze, and spit continually, in order to expel the devils which they inhaled. Few ever thought of inquiring into these terrible delusions, as the church denounced all who dared to attempt an investigation.

While this disposition prevailed to refer all diseases to the interposition of demons, rational medicine could hardly be brought into existence; but as time rolled on, and truth and light were developed and diffused by science, these supposed supernatural diseases were assigned to their proper and legitimate sphere, and from thence we date the birth of rational scientific medicine. In the development of anatomy, physiology, and pathology, as indeed in everything else, we see that the more simple and common structures are comprehended previous to those more complicated; hence the brain, the most complex and least understood organ in the body, is the last seat of struggle between the natural and supernatural—between science and demonology.

It is now an admitted fact, by nearly all scientific men, that mind is nothing more or less than brain-function. Dr. Maudsley says: "It must be distinctly laid down that mental action is as surely dependent on the nervous structure as the function of the liver confessedly is on the hepatic structure." And Professor Claude Bernard says: "Physiology tells us that, except in the difference and the greater complexity of the phenomena, the brain is the organ of intelligence in exactly the same way that the heart is the organ of circulation, and the larynx that of the voice." And again, Dr. Carpenter says: "It is one of the best established facts in physiology, although taken very little account of by metaphysicians, that *all* mental action is dependent on a chemical reaction between the blood and the brain."

But, on the other hand, a majority of metaphysicians contend that the mind is something altogether independent of the brain, and only uses it as an instrument for its own revelation, and while others are forced to admit that a portion of mind is brain function, they believe that which they call "free-will" to be altogether extraneous to man, and sufficiently strong to guide and keep him, if he chooses, in the path of rectitude and virtue.

But if every man, as they hold, is endowed with this innate power, why do not all individuals possess it in the same degree? Why is one good and another corrupt? Is it not very evident that a great many fall, while others remain unscathed from the pernicious influences of society? If it does not depend upon some basis which is more or less imperfect in different individuals, why so many different shades of human conduct? And again, if this "free-will" power, which does not depend upon a defective material substratum, enables a man to control himself at his own command, why does he not escape the tyranny of his own imperfect organization and become a sinless and perfect being? Surely there is no one who does not desire such a condition of life. And again, if it is free, it must necessarily be uncontrolled and independent. It cannot be the result of a cause, for then it is dependent. It cannot come within the bounds of the physical world, for here everything is the result of the operation of law. In short, can we conceive of anything uncaused, uncontrolled, and independent? Yet these properties, if it is free, are essential to its free existence.

Buckle, in his "History of Civilization," discards the idea altogether that human action "depends on some capricious and personal principle, peculiar to each man, as 'free-will,' or the like," on the contrary he asserts "the great truth that the actions of men being guided by their antecedents, are in reality never inconsistent, but however capricious they may appear, only form part of one vast scheme of universal order, of which we, in the present state of knowledge, can barely see the outline." He further writes: "Indeed the progress of inquiry is becoming so rapid and so earnest that I entertain little doubt that before another century has elapsed the chain of evidence will be complete, and it will be as rare to find a historian who denies the undeviating regularity of the moral world, as it now is to find a philosopher who denies the regularity of the material world." Quetelet, in his "Science of Man," says, "It is curious to see man proudly entitling himself King of Nature, and fancying himself controlling all things by his free-will, yet submitting, unknown to himself, more rigorously than any other being in creation, to the laws he is under subjection to."

The will or volition is the determining agent of the body, it sets free the movements which have been previously organized in the motor nerve centers; depends upon the brain for its basis; is controlled by natural law; and for its proper development and proficiency, training and exercise are as essential as they are to develop any other faculty in the body. All our actions are either instinctive or acquired. The instinctive actions are immediately essential to the maintenance of our lives, and take place from the commencement

without any training; they are inherited, and are such as breathing, sucking, etc. But on the other hand there are a great many actions which we learn, and after having acquired them thoroughly, perform them as regularly and methodically as we do instinctive actions. This is the case with the acts of walking, writing, speech, &c. We all know how difficult it is to train a child to these actions. Until locomotion is thoroughly accomplished the child endures a long and painful experience. So a great deal of time and patience is required to bring all the voluntary actions of the body under the guidance of the will.

It is a fact, long ago admitted, that tubercle, syphilis, rheumatism, scrofula, and gout may be inherited and transmitted from parent to child, but not until within a recent period was it believed that the brain enters the world with the same imperfections which have long been observed to take place in other organs. If, then, all our actions are controlled by immutable and unchanging law, everything the necessary result of a cause, are they who are not responsible for the cause, responsible for the effect? In other words, are those beings who are born into the world with a defective nervous organization, and thus inherit a tendency to sin and crime, as responsible for their actions as their more rational fellows? A son inherits a tendency to strong drink; through his whole life he labors under an oppressive and imperfect constitution, and eventually becomes a confirmed drunkard, commits a capital crime, and is accordingly hung. Now, no amount of reasoning can lead us to the preposterous conclusion that there is the faintest shadow of justice in such a procedure—punishing an individual for an act, the effect of a cause for which he was perfectly irresponsible, yet no one will deny that such acts do occur, and frequently have occurred hitherto.

The question inevitably follows whether we are not all born with a tendency to sin, and how far this annuls the responsibility of every one. This is a point that should be weighed with due consideration; and, on the one hand, we know that ante-natal causes and tendencies shape our actions and ends to a greater degree than we perhaps are conscious; but we must not, on the other hand, forget that pernicious and vitiating environments, such as are found in every civilized and uncivilized community, are as potent for evil. In his address before the "National Prison Association," Hon. Horatio Seymour said, "I do not doubt that some men are more prone to vice than others, but, after listening to thousands of prayers for pardon, I can hardly recall a case where I do not feel that I might have fallen as my fellow-men have done, if I had been subject to the same demoralizing influences, and pressed by the same temptations. I repeat here what I have said on other occasions—that, after a long experience with men in all conditions of life, after having felt, as most men, the harsh injustice springing from the strife and passion of the world, I have learned to think more kindly of the hearts of men, and to think less of their heads." Language like this, coming from such eminent authority, is full of meaning, and cannot fail to carry its weight wherever uttered; yet how much is it at variance with the doctrines and decisions of the courts of law, which hold all men equally responsible, unless smitten by the most consummate aberration of the mind.

We are too prone to stand up and thank God that we are not like these poor men who are blood of our blood, and bone of our bone, who are ourselves, only under different conditions, and the influences which dragged them to ruin may force others to sink to the same level, who do not dream of danger. We love to do this, while at the same time we are guilty of offenses which were committed on similar principles and under like influences. To say that a criminal is responsible for his actions, where he knows that which he does is wrong, and that he could have done differently had he only chosen to do so, is to impute to a defective creature something which we in our better and wiser moments cannot, at least do not, resist, while probably if placed in similar circumstances we would fall side by side with him whom we are so free in condemning. For it must be patent to nearly all, that it is a great wrong and a positive physical injury to overload and abuse our digestive organs, yet where are the precious few who are exempt from this sin? Many who are in this habit will say, and perhaps console themselves, that they have a will power, whereby they can avoid it at their own pleasure, but do not seek to do so; yet this is fatal, for the darkest stained criminal may bring the same plea in self-defense. It is poor evidence that a man possesses much will power, if he never manifests it when demanded for his own health and safety. The true reason that an individual abuses his stomach is not owing to the assertion that he has a will whereby he can control his appetite, but it is on account of his imperfect organization, resulting from inheritance or lack of proper training. This is only one of the many transgressions which we are apt to commit every day, and they pass by unheeded without teaching us the valuable lesson that

all our actions are imperfect, and that they only develop in proportion to their cultivation, and whenever they receive this properly they will always manifest themselves in the right direction.

It is utterly and glaringly foolish to expect a musician of ordinary skill to perform the different compositions of Liszt, or the sublime symphonies of Beethoven, but it occasions surprise and even condemnation when an individual who was born in crime and poverty, who is deficient in training and education, does not conform to the requirements of social law and order. These are analogous cases as far as capability is concerned, and we can with equal propriety demand as much from the former as from the latter. Whenever the responsibility of an individual is involved, inquiries should be instituted whether and to what extent he is mentally incapable or incapacitated. In the eyes of the law the young members of society are held incapable and irresponsible in proportion to the incompleteness of their development, but it is an indisputable fact that in every country there exist tens of thousands of hopeless vagabonds, usually known as the dangerous classes, who are really so incapacitated that they possess no self-control beyond that of a brute, and are, for the most part, moral infants, if not imbeciles. These persons are the weeds of society, and in truth are men who are in a great degree made and controlled by the pernicious impulses surrounding them. Their condition is the result of causes exciting and predisposing, which to a great degree are preventable, and however often they are subjected to the most rigid prison discipline, the moment their foot is set free, the majority will re-enter their former life of vice and crime.

The majority of criminals are of a very fertile age and naturally propagate their kind at a very rapid rate; and if I had time and ability I might show you how vicious, depraved, and imbecile parents pollute their offspring to the "third and fourth generation," and how they serve to fill our asylums for the insane to overflowing, and that unless means be instituted to restrain their liberty during the period of fecundity, there must necessarily be an incessant increase of the insane, imbecile, and vicious portion of our population.—T. J. MAYS, M. D., in *Sanitarian.*

A NEW CHINESE REMEDY for worms, syphilis, vomiting, and skin diseases, and possibly for any other kindred malady for which the patient may take it, is prepared as follows: Maggots are taken from privies and washed, then dried in the sun, fried, pulverized, and either made into pills or eaten in powder. We think it would be better for the Chinamen not to get these diseases.—*Selected.*

DIAGNOSIS OF A COLD.

(According to the theory of Dr. O. W. Holmes.)

I
Moan,
Sigh,
Groan,
I sneeze—
I wheeze—
Cold chills
Like rills
Creep o'er.
Red nose
Redder grows,
When it blows—
And how sore!
Forever more,
As it seems,
In day dreams;
And at night,
Swollen, tight as a tick,
And as hard as a stick.
Most makes you feel sick!
Stitch in side,
Mouth open wide
To catch a breath;
Ears stopped like wool,
Roaring chock jam full.
Mind stupid as any fool,
Brain dull as a rusty tool,
I am tired almost to death,
Catching, snatching for breath.
But, ah! just here my doctor comes,
My dear doctor (and poet) O. W. Holmes,
And says, "Dear sir, your lungs are gaining,"
Because he notes I am growing more diffuse,
In course of all my grumbling and complaining
In the quantity of syllables I use;
This being the essence of his later creed,
That people naturally write as they have breath to read.
If it were a lady patient, in this style he would greet her:
"Do you respire, s. m., c. m., or long particular meter?"
And she, "I fear me, doctor, I am in a swift decline,
I seldom now respire or write a forty-syllable line."
And before he would assure a man that his cure was quite complete,
He would say, "I must count carefully, not your pulse, but your feet."
And therefore (to return) he finds my cold continually lessening in its might.
Since it takes increasing length of breath to read each succeeding line of verses that I write:
And I almost must concede in view of this very striking theory recently promulgated by the doctor and the poet,
That by token of these lines I write and the ever-prolonging length of breath which they indicate and require, I am now as well as ever, even if otherwise I should not know it.

Discussion of the Salt Question.

(*Concluded*)

[In this, the concluding article of this discussion, we shall first consider the remaining positions advanced by our opponent, and will then present a brief summary of the arguments against the use of salt. We invite the continued interest of the reader in this question, not because of its paramount importance in itself, but because it involves great principles which lie at the foundation of many of the most important doctrines of health reform.]

Eld. Butler continues :—

Experiments have been made by agricultural societies in fattening cattle, giving a certain portion salt, and others not, and having other conditions alike, and their general verdict has been that those that had the salt looked sleeker and seemed healthier. But such experiments are not conclusive, for possibly the others had been accustomed to it, and felt its loss. But there are a few great facts which to my mind weigh something in this question, and tend to show, at any rate, that it is not hurtful. From the most ancient times, the race has used salt as a common article of diet. This has been so near universal that it has been rather difficult to find many exceptions. We are told that some of the North American Indians, and some barbarous tribes in Africa never use it. But we are not informed that they present the finest specimens of manhood, or that they are more free from disease, or live longer than those who use it. I think it could be shown that such exceptions are very low in the scale, and that the reason they did not use it is because they are not able to get it. All the civilized nations of the earth have used it. Livingstone states (London edition, page 26), "When the poor [in Africa] who had no salt were forced to live on roots, they were often troubled with indigestion. Such cases we had frequent opportunities of seeing at other times, for the district being destitute of salt, the rich alone could afford to buy it. The native doctors being aware of the cause of the malady, usually prescribed some of that ingredient in their medicines. The doctors themselves had none, so the poor resorted to us for aid. We took the hint and henceforth cured the disease by giving a teaspoonful of salt, minus the other remedies. Either milk or meat had the same effect, though not so rapidly as salt." He further states, as his own experience, that when he had no salt for months at two distinct periods, and was confined to a vegetable diet, when he procured meat, though it was boiled in perfectly fresh rain water, it tasted pleasantly saltish as if slightly impregnated with salt. He speaks also how thankful poor women were for a little salt.

This is a significant extract and plainly shows how gladly they would use it if they could get it, and the effect, in their case, of doing without it, according to the doctor's opinion. So we see that the practice of using salt is universal in the race practically. We can say almost as much of the animals which subsist on herbage. None can deny but they generally eat salt; not domestic animals merely, but the wild deer congregate about the salt-licks, and are often killed because their fondness for it leads them where the secreted hunter may make them a mark for the bullet. Who has not seen the calf, as soon as he begins to eat grass, when first tasting of salt, act almost crazy for it? The flesh-eating animals seem to have no desire for it—possibly for the very reason Dr. Livingstone speaks of. But there is a natural appetite for salt in the vegetable-eating animals, especially when feeding on green herbage. In the winter season, when fed on dry food, they pay not so much attention to it. But in the summer, a herd which has not tasted salt for a long time will act almost beside themselves to obtain it.

I well remember how a couple of cows owned by a radical health reformer in Minnesota used to act some twenty years ago. He did not believe in salt, and would give his cattle none. So they came to the neighbors searching around where the slop water was thrown out, almost distracted for a little of this "poison." These are facts any man may see in the country. Why is all this? Why is it that man and the vegetable-eating animals, take so naturally to this mineral, and to none of the other mineral substances on the face of the earth, if it is such a poisonous substance as we are told? These are great facts, indisputable facts, and have a weighty bearing upon this question.

Why is it that probably nine-tenths of the fishes on the face of the earth live in salt brine, which must be very poisonous according to some, and yet thrive in it finely. They are not differently constituted, essentially, from those living in fresh water, for some of them live in both salt and fresh water.

Why is it that salt water bathing is pronounced so excellent, and why do our hygienic physicians in our health institutes, in some cases, prescribe salt water baths, if salt is so poisonous? Of course it is more or less absorbed by the skin, and thus taken into the system. But we are told salt is very irritat-

ing and injurious to the tissues of the system because it will make the eye smart, or any place where the cuticle is removed. This hardly follows. How about acid; will not that make the eye smart? Try a drop of lemon juice in it sometime and see. Yet all admit the wholesomeness of fruit acids. Who can tell us how much they build up the tissues, or how hard the stomach, liver, etc., have to work to get rid of them? Many of the very arguments used to show salt to be injurious will prove these acids to be the same; and yet we hardly think we can live comfortably without them. Do they enter into the formation of the tissues, muscles, bones, etc., any more than salt?

For one, I do not pretend to be able to explain all the effects or uses of these agencies in the human system. It it fearfully and wonderfully made. In the thousand strings of that harp, some are difficult to touch; and we are so benighted that we doubt very much if even the doctors have learned them all perfectly. It does not follow that a long-established habit is wrong because we cannot explain every internal process connected with it. We have not seen sufficient evidence yet to bring us to the conclusion that salt has all the deadly effects which some attribute to it. We doubt not but many use far too much of it, so that it has an injurious effect upon the system. But used in moderation, we believe with the Saviour that it is "*good.*" And though some of our zealous health reformers would as soon use ashes on their potatoes as salt, we confess we prefer the salt.

REPLY. The experiments which have been made upon cattle with reference to the effect of salt upon them have utterly failed in establishing the position that salt is beneficial even for animals. We know of numerous instances in which the animals from which the salt was withheld were found, at the end of the experiment, in a much more flourishing condition than those to which it was given freely. But we need add nothing further on this point; for our friend admits that even those experiments which seemed to favor the use of salt were "*not conclusive;*" then let us consider the "great facts" which are adduced to establish the dietetic importance of salt, and which, we may rightfully expect, should afford us some evidence which *is* conclusive, at least to the mind of our opponent.

1. The general use of salt from remote ages is again produced as an argument in its favor. In answer to this we need do scarcely more than call attention to what we have already said on the same point in the previous articles. Neither the universality nor the antiquity of a practice is an argument in its favor. An appeal to custom and established usage is always the stronghold of conservatism and old-fogyism. Such reasoning has ever been the bane and the most formidable barrier of progress in any direction; and if such logic had never been repudiated as worthless by such men as Luther, Lord Bacon, and the great Newton, the world would still be groping in the darkness of the middle ages, when such reasoning was accepted. Religion would still be but a synonym for superstition. Mental philosophy would be as formerly, nothing more than a conglomeration of absurd vagaries and puerile speculations; while physical science, the greatest pride of modern civilization, would be as unsubstantial as when it was the universal belief that the world was flat and supported upon the back of a huge turtle. Must we cling to these old delusions because they have the sanction of antiquity? If our friends will persist in eating salt *because* Job did, together with other ancient worthies, let them adopt ancient views of science also. We prefer to test the question for ourselves upon its own merits, discarding all appeals to prejudice as unworthy of the name of argument. Thus we find that the first "great fact" adduced by our opponent in defense of his favorite condiment is wholly devoid of logical force.

2. But the dietetic use of salt is very far from being a universal custom. Numerous tribes of South America, as well as many of the North American Indians, together with the inhabitants of Siberia and Central Africa, know nothing of salt. And, so far as physical development is concerned, they furnish some of the finest specimens of vigorous manhood that can be produced. The Siberians live upon the sea-coast, and thus have ample opportunity for obtaining plenty of salt if they found any necessity for it; and yet it is as unknown to them as was rum to the American Indians before the discovery of this continent. A gentleman who has been much among them informs us that when a little salt was presented to them they preserved it as a great curiosity.

According to the quotation from Dr. Livingstone, salt operates upon sick negroes as a medicine. If this is really true, it is a capital arguments *against* its use as food; for every one knows that medicines are not good for food. Suppose that a teaspoonful of salt will *cure indigestion* in an African negro, what has this to do with diet? A dose of Epsom salts will sometimes do the same for an American negro. A dose of castor oil or a mustard emetic often has the same effect. Now will our opponent claim that salts, mustard, and castor oil, are good articles of food because they occasion medicinal effects? If not, then another "great fact" is

found wanting in that it has no relation to the subject under consideration. We will only add that Mungo Park, the great African traveler, tells us that he found many of the tribes of Central Africa living in perfect health without ever tasting a particle of salt.

3. Now let us examine another "great fact." Here we are met again by the oft-repeated objection that wild animals manifest a liking for salt, as well as domesticated animals. Formidable as this objection appears at first sight, it grows rapidly less upon examination, and ultimately becomes too attenuated to be longer visible. In the first place, the number of animals which eat salt is very small indeed when compared with the many classes belonging to the animal kingdom. It will be observed that they belong wholly to the herbivora, or those which feed on herbage. In fact, only a small portion of this one class manifest any desire for it whatever; all the rest are total abstainers in this respect. The hog is a vegetable-eating animal, living on grass when it is allowed to do so, yet no farmer "salts" his pork until after it is dead. Rabbits live wholly on herbaceous food, and yet they require no saline addition to their food. The same may be said of squirrels and other animals of the same class. Even the goose, that much abused bird, has wisdom sufficient to lead it to discard the use of salt, although its food is grass. In fact, the bird family in general find no necessity for the use of salt, notwithstanding the fact that they are mostly vegetarian in their diet. Indeed, it is well enough known that salt is particularly obnoxious to birds, and it is sometimes employed as a convenient means of disposing of troublesome fowls. Thus we find that another "great fact" is rapidly sinking into insignificance when subjected to careful scrutiny; but there are several further considerations which deserve notice in this connection.

a. Granting that all herbivorous animals have a natural appetite for salt, which we have shown is not the case, what possible bearing has this "great fact" upon the use of salt by man? We must answer, None whatever, for man is not an herbivorous animal. If it could be certainly proved that salt is good for herbivorous animals, it would require entirely different arguments to prove that it is good for man; for if it were true that salt is good for man because good for cows and horses, it would be equally true that it is good for rabbits, geese, and chickens, for the same reason.

b. All physiologists and comparative anatomists agree that, in his dietetic character, man more nearly resembles the orang outang, and other members of the monkey tribe, than any other animal, as he also does in physical structure. Now the monkey does not eat salt, although he lives entirely on fruits and green vegetables.

c. Salt is an excellent remedy for the small worms which sometimes infest the intestinal track of herbivorous animals; and there is very good evidence for believing that these animals are impelled by instinct to seek it as a remedy for worms, when they are suffering from them, and thus acquire the taste just as the drunkard often dates his morbid appetite for alcohol from his physician's prescription. We do not object to the use of salt as a remedy for worms; for it will kill them; but we protest against the habitual use of a drug which possesses such destructive powers when administered as a medicine. Salt is good medicine, but is in no sense food.

d. Many animals have a relish for, and even subsist upon, substances which are absolutely poisonous to human beings. Does this prove that those deadly articles are wholesome for man?

4. It is asked, "Why is it that man and the vegetable-eating animals take so naturally to this mineral?" Answer. It has never been proved that this statement is true. On the contray, it has been shown that only a very few of either vegetable-eating or carnivorous animals manifest any relish whatever for "this mineral;" and it has been further shown by repeated experiments that even those few can get along quite as well without it when they have never been allowed to acquire an appetite for it. So far as man is concerned, we have already referred to the fact that there are many tribes whose dietetic habits have not been perverted by civilization, among whom the taste for salt is wholly unknown. Indeed, they refuse to acquire a taste for it, as proved by the following incident:

Some years since, Mr. James Sawyer, a gentleman of our acquaintance, and now a thorough health reformer, was voyaging on the coast of Siberia. Frequent landings were made for the purpose of trading with the natives. Upon one of these occasions, some of the people were presented with a quantity of salt as a curiosity, it being entirely new to them. Some months later, the vessel in which our friend was sailing was shipwrecked upon the same coast, the passengers and crew barely escaping to land with their lives. They found the natives very kind, but were unable to relish their simple food on account of its freshness. Seeing their difficulty, the kind-hearted people brought to them the identical salt which had been presented to them months previously. Query: If, as our opponent claims, those who do not use salt are prevented from doing so only by the impossibility of ob-

taining it, why did these Siberians lay aside as useless an article of which—according to this theory—they must have stood terribly in need, having been deprived of it for so many years?

Again, suppose that men and other animals do take naturally to the use of salt, which is not the case, does this prove its wholesomeness or its utility? By no means. No fact is more patent than that all mankind take naturally to sin and to many hurtful and pernicious practices. Many men are born with an appetite for tobacco and rum, as thousands of others are with an appetite for salt. The love and desire for stimulants is quite as universal as the appetite for salt. Both come by inheritance and custom. Does this prove that there is a constitutional demand for them on the part of human beings? This is the argument used by those who advocate the use of alcohol, tobacco, tea, coffee, and other stimulants and narcotics, and its force is fully as great when thus used as when employed to demonstrate the dietetic value of salt; yet we are sure that our friend would hesitate much before advocating the use of rum and tobacco on such grounds.

The simple use of an article by any set of men, no matter how considerable in numbers, is wholly insufficient grounds upon which to base a principle of dietetics. If such arguments were admissible, we should not be surprised to hear some unsophisticated Frenchman advocating the dietetic use of asafœtida—one of the most offensive of drugs—because it is used as a condiment in his native land, and in several of the countries of Central Europe. Several entire tribes of human beings eat large quantities of clay, and think that they derive nourishment and benefit from it. Indeed, if we may believe the accounts of travelers and historians, thousands of people "take" as "naturally" to clay and other mineral substances, and to asafœtida and other abominable things, as our worthy friend does to salt. Must we then eat earth and fetid drugs, and believe them to be wholesome, because our fellow-men thus use them? We sincerely hope that our much-esteemed friend will not, in his anxiety to follow custom, adopt any of these repulsive and injurious articles of diet. We cannot believe that he will, for it will be recollected that in a previous portion of his article he clearly expressed his entire disapproval of the use of stimulating spices, which is even more universal than that of salt, for they are largely used even by those nations who are happily free from the latter poison. Thus we have disposed of another "indisputable fact."

5. The next "great fact" to which our indefatigable opponent calls our attention is presented in the following question: "Why is it that probably nine-tenths of the fishes on the face of the earth live in salt brine?" This argument is so deplorably weak that we might be excused, perhaps, if we should ignore it altogether. At least, all that is necessary to do is to consider it for a moment, when its absurdity becomes well enough apparent. Doubtless ninety-nine hundredths of all the frogs and turtles on the globe live and thrive in the mud and slime of stagnant pools and marshes. Oysters and clams dine upon the filth of the ocean; and a whole family of living beings find their home and their sustenance in putrefying flesh. Must we then conclude that salt, and mud, and slime, and putrescent flesh are good for man? No sane man will attempt to support so preposterous a theory. All that need be done to understand this question is to recollect that human beings are neither fish, turtles, frogs, clams, oysters, nor anything other than human beings. Each class of animals is especially adapted for the conditions of life under which it is to exist.

6. Another "great fact." Says our opponent, "Why is it that salt-water bathing is pronounced so excellent? and why do our hygienic physicians, in some cases, prescribe salt-water baths?" Salt-water bathing is beneficial in the same way that bathing with water which contains no salt is beneficial, though in somewhat less degree. But if people would confine their use of salt to external applications, we should find little occasion for objecting to it. We will allow those hygienic (?) physicans who prescribe salt as a remedy to answer for themselves. The action of the skin is to carry salt out, and not to take it in, as our reviewer seems to suppose.

7. We have never said, or claimed, or "told", that salt is irritating or "injurious to the tissues of the system *because* it will make the eye smart or any place where the cuticle is removed." Hence the argument on this point is wholly without weight, being based on a false premise. We merely referred to this irritating property of salt as an *illustration* of its effect upon delicate tissues when brought into contact with them. There is a vast difference between salt and the vegetable acids. When salt is taken into the stomach it is absorbed as salt, is circulated in the blood—and there found—as salt, and is finally expelled from the body as salt. When lemon juice, or any of the harmless vegetable acids, is taken into the stomach, it is acted upon by the gastric juice, and wholly disappears as an acid. It cannot be found in the blood, and never appears in any of the excretions. Consequently, it never comes in contact with any of the delicate tissues which are so often injured by the presence of salt. None of the arguments used by us against the use of salt will apply in any degree to the acids found in edible

fruits. Our friend need entertain no fears that he will be deprived of the harmless acids which he considers so essential to his comfort, even if he becomes a convert to hygienic views on the salt question, as we trust he will in due time. There is not the slightest room for doubt that vegetable acids supply a very important place in the formation of several of the tissues of the body; but the same cannot be said of salt.

Not long since we were consulted by a much esteemed friend who is considerably troubled with a chronic irritation in his throat. From general report, from our own observations, and from the fact that he is widely known as a very earnest advocate of the use of salt, we conclude that he is possessed of a remarkable fondness for the saline condiment, and employs it with uncommon freedom in his food. We would improve this opportunity of suggesting to him that he finds in himself one of the best illustrations of the irritating effects of salt; and we can assure him, from our own experience and that of others, that he will find the total abandonment of salt as an article of diet the most efficient means of ridding himself of his unpleasant throat affection.

We are sorry that our friend finds himself "so benighted" on this question, though we cannot but admire his ingenuous acknowledgement of his inability to explain "all the effects or uses" of salt in the system. It is certainly no fault of his that he can afford no explanation of how salt is beneficial to the body, or that he has failed to prove that it is thus beneficial. He has certainly brought to the aid of his side of the question all the support that could be afforded by patient thought, careful research, acute criticism, and ingenious argument. Consequently the failure to sustain the positions advanced must be attributed to the inherent weakness of the positions themselves.

We have not demanded that our opponent should explain *every* internal process connected with the use of salt. We have only asked for just *one* fair and unequivocal evidence of its beneficial effects upon the system as a regular article of diet. This we have looked for in vain. Such evidence has not been, and cannot be, produced. We have not claimed that salt was a deadly poison in small doses. Tobacco, alcohol, opium, and a hundred other drugs may be taken moderately for years without producing death, or occasioning any toxic symptoms; yet they are poisons, because they cannot be used in the body for any useful purpose.

Notwithstanding his former concession that salt is neither necessary for the maintenance of health nor conducive to longevity, our friend concludes his dissertation with the statement that he believes "with the Saviour that it is 'good.'" If assertions could fairly take the place of logic, and if statements were of equal force with arguments, then our opponent's position would be abundantly sustained. But we have looked in vain for any *proof* that salt is good. It is true, as we have before admitted, that the Saviour said, "Salt is good." Paul made a much broader statement in 1 Tim. 4: 4: "Every creature [created thing] of God is good." If it is persisted that in saying, "Salt is good," the Saviour meant, "salt is good" *to eat*, then it must be admitted that Paul meant, "every creature of God is good" *to eat*. Thus we should have the sanction of Holy Writ for the consumption, as articles of food, of snakes, lizards, venomous reptiles, vermin of all sorts, and every noxious and loathesome thing; for all are the work of the Creator's hands. Are our salt-loving friends prepared to accept all of these abominations together with their salt? We cannot believe their appetites so depraved.

In conclusion, we will give a very brief summary of the chief grounds of objection to the use of salt.

1. *It is useless.* This is proved by several facts.

a. Science shows no necessity for its addition to the food. It is found in vegetables in quantity wholly sufficient to meet all the demand for this mineral that may exist in the human system.

b. There are many nations that never use it, although living largely on vegetable food, and yet do not suffer from its absence. Many individuals have abandoned its use after being accustomed to it for many years without detriment, and, in many cases, with manifest improvement. The animal kingdom in general have no use and no appetite for salt.

c. Another evidence of its uselessness as a condiment is found in the fact that when taken into the body it is hurried out by the various excretory organs in the quickest manner possible. Thus, it is found in the perspiration, in the urine, in the bile, in the mucus from the air passages, and even in the tears. It is inorganic in character, and hence cannot be assimilated, or manufactured into tissue. Consequently, it is sent out of the body in the same form in which it enters, having served no useful purpose in it.

2. *Salt is a poison.* Startling as this proposition may appear to many, a little thought will show its reasonableness. Nothing is absolutely neutral in its relations to the human system. Everything taken into it is either useful or harmful. As we have already seen, salt is not

useful. Being useless, it is more ; it is injurious. This would be true, even if it possessed none of those actively harmful properties which we shall show that it has ; for in the latter case, it would at least be a clog, and would thus interfere with the working of the vital machinery. But it is more than merely clogging. It is recognized by the system as an enemy, and is treated as such. When a man takes alcohol into his stomach, it speedily makes its appearance in the products of respiration, and in the urine. This is an evidence of the defensive action of the system against it, and so it is called a poison. The same thing it true of salt ; hence, it is also a poison.

3. *Salt is a medicine.* We find this drug put down in the materia medica among other medicines. Its medicinal properties are said to be stimulant and diuretic. Now, every physiologist knows that medicinal properties are only the poisonous effects of drugs. Every intelligent person also knows that medicines are not food ; and that, as a general rule, medicines which are given to cure the sick will make well people sick if they are administered to them.

4. *Salt is an irritant.* When freely used, it produces a feverish condition of the whole system by its irritating properties. This is evidenced by a quickened pulse, an elevation of temperature, and a sensation of thirst. Even when applied to an abraded surface, its irritating character becomes apparent. When taken into the blood, it comes into a far more immediate contact with the delicate structures of the nerves and muscles.

5. *Salt interferes with digestion.* A piece of fresh meat will digest in two or three hours. Salt pork requires five hours for its digestion in a healthy stomach ; a weak one would fail altogether. One of the chief properties of salt is that of preventing vital changes. Digestion is a vital process. It is a process by which an organic change is produced in food. Is it not evident, then, that it must interfere with digestion on account of its anti-vital properties ?

6. *Salt impoverishes the blood.* Last month we described the effect of salt upon the blood corpuscles, as viewed under the microscope. It will be recollected how destructive it was. Who will say, then, that such an agent can be otherwise than harmful to the delicate structures found in the blood ? Of course, the extent of its destructive influence will depend upon the quantity taken into the system.

7. *Salt is a chemical compound.* It is a well recognized fact that only organized matter can be manufactured into living tissue. Hence it ought to be discarded, if for this reason alone. But it is composed of two of the most poisonous substances in nature. Its scientific name is chloride of sodium, its formula being, NaCl. It contains twenty-three parts of sodium, a most violent caustic—so powerful that it will decompose water—and thirty-five and five-tenths parts of chlorine, a most irritating and poisonous gas.

8. *Salt vitiates the nerves of taste and obscures the natural flavors of foods.* A person who is addicted to the free use of salt does not have that delicacy of taste which is possessed by one who has never blunted his sensibilities by this or other stimulating articles. More than this, he really knows nothing of the delightful natural flavors of food, since they are always obscured or destroyed by this caustic condiment. Of variety of flavors, he knows but little ; for, to him, everything is salt.

All writers who advocate the use of salt, do so upon the same ground that they advise the use of other condiments, as pepper, spices, etc. They also use the same arguments for tea and coffee. Dr. Bellows, an eminent writer on dietetics, says of salt, "It is not in any sense, nutriment, as it does not furnish support to any organ or function, and does nothing toward sustaining life."

We might prolong this article almost indefinitely without exhausting the subject, but we must not trespass further upon the patience of our readers. We will conclude by calling attention to a very few important facts.

In the foregoing discussion we have tried to consider candidly and fairly all the arguments which have been presented. Such comparisons and illustrations as we have made use of have not been for the purpose of ridiculing our opponent, but merely to exhibit what appeared to us to be the true nature of the argument involved. We have wished only that truth might be made to appear in its proper light. All we ask, is that the reader will carefully and candidly consider the several arguments adduced, and give to them their just weight.

It should be borne in mind that we do not recommend that those who have long made use of salt should abandon it at once. All such changes should be made by degrees, so that no derangement of the system may occur. Nor should it be thought from the space which has been devoted to this subject that it is the most important one connected with health reform. Considered by itself, it is far inferior to many others. Much of its importance arises from its relations to other subjects, especially that of drug medication. Thus, it will be readily seen that if it could be well proven that salt, an inorganic, mineral substance, could nourish the tissues, or assist any vital process, it would be equally easy to prove, by the same arguments,

that iron is food for the blood, phosphorus for the brain, lime for the bones, etc. So, also, a physical necessity for quinine in ague, iodide of potassium in epilepsy, alcohol in pneumonia, and bromide of potassium in insanity, could readily be found to exist. The hygienic system is one harmonious whole; and we trust that our friends will yet be able to see that it is useless to attempt to establish theories which are inconsistent with its fundamental principles.

Good Words.

IT is always encouraging to the friends of any desirable reform to see the cause advancing, and that the public mind is stirred up to see its necessity. The following, which I extract from an article which appeared in the *Plattsburgh* (N. Y.) *Sentinel* of May 14, entitled, "Tobacco—Its History and Use," has the ring of true temperance principles, and speaks for itself:—

"MR. EDITOR: Please allow me a few words upon the tobacco question. Much has been said about the habit of using intoxicating liquors, but seldom a word is written referring to the loathsome practice of using the weed when the subject of temperance is discussed. Is intemperance in drinks the only sin to be noticed when there is one, the twin sister of drunkenness, which keeps step with the march of the demon of the cup, often inducing the imbibing of ardent spirits by the effects of this article upon the nervous portion of the system. Did, or did not, the apostle have a meaning when he said, 'Know ye that ye are the temple of God, and that the Spirit dwelleth in you; if any man defile the temple of God, him shall God destroy; for the temple of God is holy, which temple ye are?'

"How can any man defile himself in any manner as quickly as by pickling himself through and through with the nauseous, indescribably repulsive oil of tobacco? The odor of a garlic breath is like the breeze from a rose-tree, in comparison to the condensed essence of tobacco. Can any sensible person honestly state any quality of this plant which can add one iota of purity to mind, morals, or body?

"We read that 'no murderer shall inherit the kingdom of God.' With this fact staring us in the face, is it not 'strange, passing strange,' that such a multitude of people should use a poison which will sooner or later cause death? people possessing superior judgment upon other subjects will chew, chew, chew, or smoke, smoke, and *smoke* themselves into idiots, maniacs, or fill the grave by their sudden deaths.

"Tobacco is a direct heart poison; it deranges the digestive functions, gives an habitual cough, breaks down the nervous portion of the human constitution. We may well say the human constitution, because *animals* will not touch tobacco.

"A man at the meridian of life or past, whose blood is saturated with nicotine, seldom recovers from sickness. The poison neutralizes the effect of the remedies used—yes, the poison is stronger than any known remedies.

"Is the use of tobacco by clergymen advisable, right, or appropriate? Tell me, ye winged winds, where has the chivalry of olden times vanished? Experience answers, in *spitting* and *smoke*. Why do we meet so few of the Old School gentlemen with their unvarying 'politeness' and kind cordiality among the crowd while travelling along the pathway of life? Daily observation shows mankind to be generally incased in a crust of selfishness produced by the use of rum and tobacco in some form. Chewing is the most noxious, although not so poisonous as smoking.

"More destruction has been caused by the use of tobacco and rum than by all the floods since the flood that floated the ark. Tobacco fastens a habit upon one much more difficult to cure than any other substance, not excepting the Chinese luxury, opium. Many eyes are red by imbibing the wine in the cup; but tobacco causeth the same redness of eyes. A tobacco-user will cause more annoyance to the public than a drunkard, because he will be allowed where a man *disguised* with *liquor* will be excluded, although his breath and clothes are redolent of filthiness; his manners anything but agreeable to refined people, his breath taints the air so strongly that modern ventilators have no effect, even with open windows oftentimes.

"It is not used only by the ignorant, boorish emigrant, the untutored Indian, the negro, the rowdy, oh! no; but those who wish to be styled (and think themselves), Beau Brummels of society.

"The smoker is compelled to seek the consolation (?) afforded by smoking in the car appropriated to the purpose; why not send the chewer there also when he presents himself to the public in such an odorous condition.

"I think that stronger efforts would be necessary to induce men to abandon the use of the weed than to forego their stimulating liquors. If, Mr. Editor, you are doubting this idea, please try circulating a petition requesting people to abandon the use of this *useless, entirely useless*, plant, and notice the result." S. B. WHITNEY.

Appearances Often Deceptive.

DR. GRAHAM states that the chyle elaborated in the digestion of food "is so nearly the same, when the food is exclusively vegetable, and when exclusively animal, that the difference is scarcely appreciable;" that "the chyle formed from vegetable and that from animal matter are so nearly identical in chemical composition that no appreciable difference can be detected by the most careful and accurate analysis." From this it might be inferred that animal food is equally healthful with vegetable. But this is not all of the truth. He further says, "But the chyle elaborated from purely vegetable food differs in one respect, most remarkably, from that formed from purely animal food. When taken from its living organs, the chyle elaborated from animal food putrefies in three or four days at longest, while that from the vegetable food may be kept for several weeks without becoming putrid. This is an exceedingly important physiological fact, which does not seem to have been sufficiently appreciated by physiologists."

Now it seems to me that when this last fact is appreciated, it will be easy to believe that eating largely of flesh increases our liability to disease ten-fold.

Again, those who indulge in all the variety of unhygienic food often boast of their health. They seem to be robust. Nothing they eat or drink hurts them; and as they appear as well or better than some strict health reformers, they conclude there is nothing in the cry about reform. But mark the sequel. When some acute and virulent disease takes them, suddenly they pass away; while the apparently feeble health reformer passes safely through the same trial, or escapes the ordeal entirely. While the latter, perhaps, survives a long run of typhoid fever, the robust, high-fed, plethoric young man is cut down in one week. Hence it is well to learn that outward appearances are often indeed very deceptive.

It is better to go a little deeper into physiological facts and the science of life, and come to conclusions more in accordance with sound reason and ultimate facts of experience which so often demonstrate the folly of those who fancy they will escape the penalty of violated physiological law, because, for a time, they seem to be in the vigor of health while transgressing those laws.

R. F. COTTRELL.

HOPE is the highest remedy of the soul, and the most efficient for the body.

A SPECIMEN OF NOMENCLATURE.—*The Med. and Surg. Reporter* says: "Our chemical readers will doubtless be pleased to learn that a series of acids have been investigated by M. Hayduck. One is orthoamidotoluenesulphonic acid; and another, diazorthoamidoparatoluenesulphonic acid. A knowledge of these is not indispensable to the practice of medicine. The action of tin and hydrochloric acid on nitrobromacetanilide gives rise to the hydrochloride of ethenylbromophenylenediamine."

THE WOLF IN SHEEP'S CLOTHING.—In an inland town in California is an individual who claims to have a secret cure for diphtheria, to the sale of which he devotes his energies. This man has lately become religious. [?] At a church meeting he is reported to have made a speech as follows: "I have made up my mind to give my property to the service of the Lord. I have several thousand dollars in money, all of which I bestow on the church. I have some fine blooded stock, especially some Black Hawk horses, all of which I give to the church. I have also a lot of grain and farm produce, which in like manner I bestow on the church. There is but one thing in all my possessions which I reserve for myself, and that is my celebrated medicine for the cure of diphtheria, which I will continue to sell as heretofore, for the moderate price of two dollars a bottle."

The *Boston Med. and Surg. Jour.*, commenting on the above says: "They have a trick in Boston worth two of that; it is to treat disease at a certain home by prayer and the judicious use of medicine."

DANGER OF PROTRACTED SLEEP.—But here, as in so many other cases, the evil of deficiency has its counterpart in the evil of excess. Sleep protracted beyond the need of repair, and encroaching habitually upon the hours of waking action, impairs more or less the functions of the brain, and with them all the vital powers. This observation is as old as the days of Hippocrates and Aretæus, who severally and strongly comment upon it. The sleep of infancy, however, and that of old age, do not come under the category of excess. These are natural conditions, appertaining to the respective periods of life, and to be dealt with as such. In illness, moreover, all ordinary rule and measure of sleep must be put aside. Distinguishing it from coma, there are very few cases in which it is not an unequivocal good; and even in a comatose state the brain, we believe, gains more from repose than from any artificial attempts to rouse it into action.—*Edinburgh Review.*

The Health Reformer.

BATTLE CREEK, MICH., JULY, 1875.

J. H. KELLOGG, M. D., : : : EDITOR.

Bathing.

THE ancient Romans bathed several times a day, regarding the bath as a great luxury. Indeed, some of the wealthy spent a large portion of their time in the bath. Unfortunately for humanity, this cleanly custom went out of fashion. In fact, the bath seemed to be almost entirely forgotten; and Michelet tells us that for a thousand years, during the dark ages, the bath was unknown in Europe. To this fact he attributes the advent of those fatal plagues and epidemics which depopulated whole cities and exterminated so many millions during that period.

It is quite possible that the Romans were somewhat extravagant in their use of the bath; but it is often unpleasantly evident that the tendency at present is quite too much toward the uncleanly habits of the middle ages. There seems to be abroad in the land a fear of the application of water, as though it were exceedingly dangerous. Many people think that a bath is "weakening." Invalids fear to bathe lest they shall "run down" in consequence. Even many physicians seem to have a very incorrect notion of the effects of baths, often dosing their patients for weeks in the hope of curing some simple malady which resulted wholly from a dirty skin.

The objects to be obtained by a general bath are very important. One of the first is cleanliness. The skin contains many millions of little tubes which open externally, communicating internally with little glands, whose function it is to separate from the blood the various impurities found in it. The tubes referred to convey away these impurities, together with the fluid in which they are held in solution. This product is the sweat or perspiration. Sometimes it is very profuse; at other times it is almost imperceptible. Several pounds of matter are carried out of the body through these channels every day. The watery portion evaporates; but the solid matter—the impurities—are deposited upon the surface of the skin. Thus a thin film of dirt is formed upon the integument, which increases each day until it gets so thick that it peels off, or until it is removed by soap and water.

Beside the impurities which accumulate in this way upon the skin, there is a constant deposit from the atmosphere, so that there are two sources from which the body acquires a covering of filth which augments with age.

It should be recollected that this is not harmless dirt, like sand and clay; it is of so injurious a nature that when retained in the body it soon produces death by poisoning. A rabbit will die in a few hours if it is deprived of its hair and then covered with an impervious coat of varnish.

Being retained upon the skin, this impure mass not only clogs the skin, stopping up its delicate pores, and thus preventing the free escape of like matter from the blood, but it is absorbed by the lymphatics, to some extent, and thus re-enters the system after being once eliminated as useless and poisonous.

But still further mischief is wrought. Being subjected to warmth and moisture, the accumulated filth upon the skin undergoes a process of decomposition—putrefaction, in fact—by which means noxious, acrid, penetrating, and disgusting odors are developed, together with irritating acids. These foul odors are not only unwholesome to the individual himself, but they become a source of intense disgust to others; at least, to all persons of delicate sensibilities, thus often making an individual who is otherwise congenial, a positive nuisance. Now, who can believe that it would be more weakening to take a nice bath, and thus secure a clean skin, than it would be to carry around such a load of filthy, decomposed matter?

In the warm summer months, a daily bath is none too much for cleanliness. It need not be prolonged more than two or three minutes in most cases, and a very large amount of water is not required to cleanse the skin effectively, if its application is accompanied by vigorous rubbing. In some cases, a water bath every other day, and a dry-

hand-rub on the alternate day, will suffice for cleanliness.

We do not advocate cold-water bathing, even in summer, though many may practice it without apparent injury. Water of a temperature only a few degrees below blood heat is generally preferable.

Our advice to all who wish to be true reformers is, "Wash and be clean."

Parlor Lectures.—No. 1.

EXERCISE.

LADIES AND GENTLEMEN: We purpose to talk a short time this afternoon upon the subject of Exercise, one of the most valuable of therapeutic agents. We hear much of the importance of rest. There are institutions, even, which style themselves "Rest-Cures." Rest is doubtless valuable in many cases; but as a remedy for most chronic ailments, it cannot be compared with suitable exercise.

Life itself is motion; and all its phenomena result from the ceaseless activities of the anatomical elements of the body of which we have previously spoken—and not from their quiescence. All progress comes from activity. This is true in every department of life; in politics, in education, in religion, as well as in physical development. If the student wishes to acquire more mental culture and discipline, he must use to the fullest extent that which he already possesses. So with the invalid; if he would grow stronger, he must use what strength he already has. Organs develop by use, and undergo degeneration when not exercised.

EFFECTS OF EXERCISE.

The benefits arising from exercise are twofold: 1. Local, or its effect upon the parts exercised; 2. General, or its effects upon the whole system.

1. When an organ is properly used, it grows. This is true of every organ in the body, and especially of the nerves and muscles. It is true, also, of all animals, and of man in common with other animals; for when we consider his physical nature alone, he is nothing more than a highly organized and developed animal. This question of development by use holds a very important place in the doctrine of evolution, which is just now agitating the scientific world. Such scientists as Darwin, Huxley, Spencer, Tyndall, and Youmans, tell us that all the numerous modifications of animal life which we see about us have resulted from changes effected through exercise. Although many of us do not accept all of the deductions of these gentlemen, yet they have undoubtedly presented us with many interesting and curious facts, if we may call them such. For instance, there grows in one of the West India Islands a beautiful trumpet-shaped flower with a narrow neck about ten inches in length. The stamens of this flower grow at the bottom of its deep corolla, while its pistils reach some distance above. Now, in order that the pollen from the stamens should reach the top of the pistils, and thus fertilize the flower and produce seed, it is necessary that some insect should penetrate its narrow neck and reach the bottom. In all the region where this flower grows there is only one insect which is able to do this. This is a species of moth which closely resembles the large ones we see hovering about our flower-gardens in the twilight and sometimes mistake for hummingbirds. This large insect has a long tube connected with its mouth which is just long enough to reach to the bottom of the flower in question. This it thrusts down through the narrow orifice at the flower's mouth, in search of the drop of nectar at the bottom, and in withdrawing it, brings away a multitude of pollen grains which are rubbed off upon the stigmas of the pistils, and thus the flower is fertilized. Now, we are told that this elongated proboscis has been produced by the long-continued effort to reach to the bottom of the flower. So much for exercise.

We see the same thing in the brawny arm of the blacksmith; the muscular limbs of the dancer; and the athletic form of the trapeze performer. Again, those of you who have ever tried piano playing know how difficult it is at first to produce evenness of tone on account of the difference in strength of the several fingers. One of the first tasks of the learner is to acquire smoothness of execution by bestowing special attention upon the exercising of his weakest fingers.

The effect of exercise upon the brain and

nerves is equally as marked as upon the muscular tissues. The man who never tasks his mind by severe thought, never acquires but a small degree of mental acumen. All men of great mental power are men who think much—men who are not afraid that a little thought will stretch their brains or produce cerebral softening. The nerves require exercise to enable them to transmit will power efficiently. This is also well illustrated in piano-playing. It does not take the pupil long to learn where the fingers should be placed, but it takes months of study and exercise to enable him to place his fingers where he wishes.

But how does exercise cause this increase in the growth of an organ? By increasing the circulation of blood through it so that the worn and broken down tissues may be removed, and new, vigorous, and healthy tissues built up in their place. Every muscular movement, every transmission of nerve force, every thought, occasions the destruction of millions of the minute organic molecules which make up the various structures of the body, and which I have already explained to you in previous lectures. Exercise creates a necessity for repair and replenishment, but at the same time it is beneficial in promoting a more healthy and vigorous structural growth.

2. We can now readily see how exercise effects the general system. By the exercise of certain portions of the body an increase of the circulation is promoted not only in the part exercised, but in most other parts of the body, through increased action of the heart.

EFFECTS OF DEFICIENT EXERCISE.

If a child was never allowed to exercise, it would never attain mature growth and development. The stock raiser understands the necessity for exercise, and so allows his animals plenty of room to gambol and frisk about in the open air instead of shutting them up in a close place where such exercise would be impossible.

The result of deficient exercise is seen in the shriveled and wasted arm of the Hindoo devotee which has been held in one position for many years to satisfy a foolish superstition. The same condition is to be observed in a limb which has been paralyzed for years, thus being incapable of voluntary exercise. Those whose habits are extremely sedentary do not possess anything like that degree of muscular development which is found in those who engage in mechanical pursuits. The muscles of the literary man are nearly always soft and flabby unless he employs special means to keep them in a healthy condition. The same is true of animals; and this accounts, in part, for the difference in quality of flesh as regards tenderness. The flesh of animals which possessed firm and healthy muscles will be quite likely to be tough; while the flesh of animals which possessed weak and flabby muscles will be more tender. Tender meat, then, is quite sure to be diseased meat. The effect of deficient exercise is often seen in whole nations.

In ancient times there was a nation called the Amazons. This was a nation which held very extreme views on the subject of women's rights. The women did the governing and the fighting, and compelled the men to perform all the drudgery of house work, and other menial service. In order to keep them in subjection, their right hips were disjointed at birth, so that they were rendered cripples for life. By this means, the men of this nation came in time to be feeble both in body and mind; while the women were robust and courageous.

The Patagonians are a nation remarkable for their well-formed bodies. Their upper extremities are also more than usually well developed; but their lower extremities are disproportionately short and small, owing to the fact that almost their entire waking hours are spent upon horseback.

Even the vital organs suffer from lack of exercise, both directly and indirectly. The lungs need to be exercised properly, and much suffering and death have resulted from a neglect of this kind of exercise. So, also, the stomach requires exercise; and when it does not receive it, it becomes weak, torpid, and much diminished in size. I have seen the stomach of a large man, which ought to be able to contain several pints, thus diminish in size until it was no larger than my hand. Here is one of the great advantages of vegetable food. It gives the stomach better chance for exercise by affording an increased bulk for it to act upon.

The effect of deficient exercise upon the nerves is very easily demonstrated by a simple experiment. If the principal nerve of one of the limbs of a dog be divided, the muscles of the limb may be made to contract very powerfully by the application of electricity to the divided end. By the division, the connection with the brain is of course cut off, so that no voluntary motion can occur. If, now, the electricity be applied at the end of ten or twelve days, it will be found impossible to cause contraction in the muscles to which the nerve is distributed on account of the degenerative changes which have occurred, making it impossible for it to perform its function. All this results from disuse.

It is very interesting to study the structural changes which take place in a muscle as the result of too little exercise. In order to make this subject clear to you, I will show you through the microscope two specimens of muscle. The first is from a healthy organ. The second is from a limb which had been deprived of exercise by paralysis. In the first you see, magnified five hundred diameters, a healthy muscular fibre. Its outline is sharp and distinct, and you see that it is made up of a great number of little disks laid one upon another like a rouleau of coin, their edges turned upward. The edges of the disks are marked by the fine dark lines which pass transversely across the fibre. Now if you will look at this other specimen, you will see a muscular fibre which has undergone a process known as fatty degeneration from lack of use, although it was in this case no fault of the patient that he did not exercise, being a victim of paralysis. Here you see quite a different object. Instead of the beautiful and regular markings which you saw before, you see now a granular looking mass. The delicate little lines are wholly obliterated; while the whole fibre seems to be filled with little globules and granules of fat. The fact is, the little disks which were seen in the healthy specimen have been here replaced by fat, so that the function of the fibre is seriously interfered with. Its power is greatly lessened, and in time is wholly lost. Here, then, we see, side by side, the effect of exercise and of disuse. No words can portray it so well as the objects themselves depict the difference. Sometimes adipose tissue or fat is deposited between the fibres; this is a form of disease known as fatty infiltration. It is quite serious, but not so much so as fatty degeneration in which the fat is in the fibre, as we have seen.

How, when, and how much to exercise are points of further interest in connection with this question.

There are many ways for taking exercise, as walking, working, riding, croquet playing, etc. Walking is a very excellent method, because it brings into action nearly all of the muscles of the body. It matters little in what particular way the exercise is taken, if only the proper amount is obtained.

Many have an idea that morning exercise is especially beneficial. Charles Dickens speaks of frequently walking twenty or thirty miles before breakfast. We are very doubtful of the propriety of this early exercise for invalids, at least. In the early morning the general vigor of the body is low. The best time of all for exercise is about ten o'clock in the forenoon, when the system is most vigorous and the circulation most rapid.

The amount of exercise to be taken will always differ with various individuals. It should always be just sufficient to produce slight weariness. Exercise taken in this way is one of the most valuable means of securing rest at night. The reason why many people cannot sleep nights is that they have not done anything which entitles them to sound sleep. If a person wishes to rest, he must first get weary. One who will not exercise when able to do so, has no right to sleep. "The sleep of the laboring man is sweet."

The New Treatment of Fever.

[UNDER the above heading, a recent number of the *Inter-Ocean* publishes the article which we copy below. It is really gratifying to see that editors as well as doctors are beginning to see light on this great question. The principles which we advocate are permeating the time-hardened shell of prejudice and ignorance which has for so many centuries held in bondage the human family. We should correct one error in the article by remarking that the tepid bath is sometimes found even more effectual than cold applications in allaying fever.—ED.]

Here is a patient who has a high fever. How shall we treat him? We have been in the habit of proceeding somewhat after the following fashion: Put him in a warm room, in a warm bed, before a hot fire. By all means keep the windows closed; pile on the blankets; put his feet in hot water; put hot cloths on his head, and more hot cloths on his stomach. Cover him with mustard plasters, and keep them in their places with brisk bricks. Give him cayenne pepper tea, and if he should by his struggles get an arm or a foot from under the sweltering bed-covers, draw the blankets quickly over the exposed limb, as a breath of air might be fatal. Then for the powders. Give 'em to him lively, the earlier and oftener the better. If a half dozen doses do not make him deathly sick, give him a dozen. He must be made to suffer as much as possible. Perhaps, if we are diligent, the effects of the medicine will be so horrible after a little as to make the patient forget his fever, and when he shall die, as he soon will, unless most stubborn and obstinate, it will not be the fever that killed him, but "a complication of maladies."

The treatment which we have been giving fever patients in the past has not been quite so bad as the above, perhaps, but the picture is not greatly overdrawn. And now that our attention is called to the matter, we wonder why intelligent physicians, who have made the human body and its ailments a study and a business, have not discovered, during all the past eighteen hundred years, that such a course is absurd, or that, when they failed to discover this, sensible men have not thrown such physic to the dogs, and used a little mother wit in doctoring themselves. But we are more timid, and doubtful, and hesitating in matters pertaining to life and health than anything else, and so we have plodded on, going from blood-letting to calomel, and from calomel to blue mass and laudanum, and from laudanum to quinine and whisky, and so on, until at last a few physicians have awakened to the fact that the whole treatment of fever has been wrong, and that after all the true way is the sensible way. And now that it comes out, we wonder that we should have been such consummate fools all this time. Take a man in a state of nature, or one who had not been educated in a different way, and when he found himself burning up with heat, he would try in all possible and reasonable ways to cool off. If his skin was dry and parched, he would tumble into a tub of cold water. If his mouth and throat seemed on fire, he would quench it with ice-cold draughts. And just what he would do naturally, had he been left to himself, the physicians are discovering, after all these centuries, should be done.

We believe a German physician has been first to advocate this mode of treatment. At any rate, the subject has now been taken up in this country by a number of eminent practitioners, and in one of the lectures delivered before the Toner Association in Washington, and published by the Smithsonian Institution, it is distinctly affirmed that fever should be treated with a purpose of lowering the unnatural temperature, and that the rational process in this, as in other things, is the best. Doctor Wood, the lecturer, thus remarks:—

"In a fever, the pulse-rate and the nervous disturbances, for instance, are dependent upon various circumstances. I expect to show that they are due simply to the elevation of temperature.

"The demonstration shall consist in proving the following propositions:—

"1. External heat applied to the body of the normal animal, so as to elevate the temperature, produces derangement of the nerve functions, of circulation, etc., etc., precisely similar to those seen in natural fever, the intensity of the disturbance being directly proportionate to the rise in temperature.

"2. Heat applied locally to the brain or to the heart produces in the functions of the organ those disturbances which are familiar phenomena of fever, the intensity of the disturbance being directly proportionate to the excess of heat in the organ.

"3. The withdrawal of the excess of heat in fever is followed by a relief of the nervous and circulatory disturbances."

Dr. Wood gives the result of many and varied experiences, both with men and animals. A dog or cat shut up in a box, heated by artificial means, has a rise in pulse, the breathing becomes rapid, and as the temperature increases the symptoms of fever develop, until finally death results. In some cases after consciousness had been lost, the animal was revived by being plunged in a bucket of cold water. In one instance, a man in a Philadelphia hospital who had become speechless, nearly unconscious, and appeared to be dying, was revived and finally wholly cured by the rational mode of treatment. Of course it is impossible to give the minutiæ of this treatment in a newspaper article, but it seems that the most eminent physicians now unite in saying that the main object in fever should be to decrease the temperature, and that when this is done the other symptoms will generally disappear. In accomplishing this, the cold bath and cold applications to the head and other parts are the most effective, as they are the most sensible."

People's Department.

A New Danger.

In these days when men are in such haste to get rich, and the greed for gain is so unscrupulous that it is next to impossible to obtain anything which is not in some respects a humbug, it becomes necessary to examine carefully everything concerning the history of which we are not fully informed. Adulteration of food is being constantly exposed in every city of any size. Many articles of household use are grossly sophisticated. The poisonous properties of many kinds of wall paper we have often called attention to. But now our notice is invited to a new source of danger as described in the following paragraph from the *Boston Journal of Chemistry*:—

"A New Kind of Poisonous Dress Goods.—Professor Gintl says that in some English and Alsatian print works the expensive albumen is partially replaced by glycerine-arsenic acetate of alumina. Some of the dress goods in the market contain three or four grains of arsenic in a yard of the stuff. Muslins and cambrics with little white spots, circles, stars, or flowers on a violet ground, and those printed with brownish yellow or reddish brown patterns, have been found to contain arsenic; and these are colors which have never before been considered with any suspicion, and would be purchased by the uninitiated without any foreboding of the danger that would attend the wearing of such dresses. The danger, as the *Manufacturer's Review* remarks, is no slight one; for aside from the large quantity of arsenic in it, the compound is not an insoluble one. If the goods are soaked in water, there is dissolved out a sufficient amount of arsenical salt to give a distinct reaction. This latter peculiarity is explained by the supposition that the goods, being comparatively cheap, are not washed or rinsed after printing, but sent directly to be finished."

Overfed Ministers.

We are glad to see that at least one of the great religious leaders of the day is awake to the fact that there is some connection between the brain and the stomach. If all ministers would recognize this fact, might it not be possible that we should soon see an improvement in the tone of religious teaching in general. The following paragraph is from the *Christian at Work*, edited by T. De Witt Talmadge:—

"What is more delicious for a minister than to accept an invitation to a parishioner's house, and sit an hour or two in the evening at the table with a collection of pleasant people? But that is what kills ministers. Hot waffles, fresh biscuit, oysters, and cold tongue at seven o'clock in the evening, have given many a 'man of God' dyspepsia, a dull brain, poor sermons, short pastorate, and an early decease. Rich and late suppers are doing a bad work for some of our best clergymen. We know of ministerial clubs where the members assemble Saturday afternoon to discuss religious topics, tarrying until evening, when a sumptuous table is provided for them. As a consequence, they do not sleep well on Saturday night, and the congregation on Sabbath see what they suppose is heavenly pallor on their pastor's cheek, when his wife knows it was hot biscuit at tea the evening before that did the business. If you invite your minister out to eat, better have him at noon or thereabouts; or, if calling him to tea, then let it be in the early part of the week, giving him time to get over his gustatory indulgences. The most of ministers have a powerful appetite for good food, and capacity to resist temptation in that direction is not one of their strong points."

One Hundred Dollars Saved.—A gentleman who spent some time at our Health Institute and there learned to value health reform, writes as follows from Moline, Ill., where he is engaged in a large manufacturing business:—

"I do what I can to lead my neighbors to attend to the laws of health, but most seem to think I am about half crazy; yet one man said to me a few days since, 'That book (the Health Reformer) which you persuaded me to take last fall has saved me $100.00 already. I have used one hundred and fifty pounds of lard in my family per year; now I use none. I have used tobacco very freely; I am now determined to stop using it.' This is some encouragement."

Such reports are indeed encouraging. If all those who have been benefited by health reform would be equally energetic in promulgating its principles, how many more such reports we might have. All reformers meet

with opposition and reproach. If a man dares to deviate ever so slightly from the beaten track of custom, he is at once stigmatized as a fanatic, a fool, or a lunatic. But time will always show who is right and sane; for nature never disappoints her followers when they obey her laws. She is as prompt in her rewards as inexorable in her punishments; and no argument ever tells so strongly in favor of these reforms as a practical demonstration of their efficacy to accomplish what is claimed for them. Who can send us a report of another convert gained? Let us hear from our friends of their success.

Carrying Things too Far.—The writer of the following, who signs himself "A Subscriber," thinks "that some things are carried to far." According to his request we will notice his letter through the REFORMER; and in order that no misunderstanding may arise, we have instructed the compositor to follow copy to the letter.

Mr Editor. Dear Sir

I have taken your Journal for some time. And think its teachings in some respects good but do not fully endorse the whole It seems to me that some things are carried to far I have known some who would work from fifteen (15) to Sixteen (16) hours daily and eat but two (2) meals a day and in a few years they were a perfect wreck of what they had been. And still all the time they would say they enjoyed such good health

To be sure I confess I know but little about health—reform but I have always believed that a man should eat as he worked

I have always eaten three (3) meals a day and I enjoy the best of health Now if this two (2) meal system is so much the best why do so many break down their constitutions while living in this way

You throw away all the things we always have enjoyed on our tables as the gifts of heaven You say that sugar peper salt and spices of every kind are injurious to the humane stom ache and not fit to be used by any one Now Mr editor what in the name of common sense would you have us eat Oh I suppose you will say eat brand bread and and apple sauce and be healthy bud do not say healthy look at some of your health reformers beautifull specimens of humanity aint they Yes look at them walking skeletons they look as though though the soft breeze of summer would blow them to nothing Yes look at them the verry sight of a hog would cause them to faint or throw them into fits it seems to me that a less extreme view of things would suit our time better I know to men one is a health reformer of the most extreme kind who cannot bear the sight or sound of a hog and he looks as solemn as a funeral procession he looks pale as death and when he walks he goes as though he was going to be hung and is a verry sickly man the other man is a tall man weighs over 200 bbs is strong and healthy and he eats fine flour bread uses salt peper and even stoops to pollute his mouth with that awful disgusting creature the hog

Now Mr editor if your theory be right the reformer should be healthy and the pork eating Gent should be visa versa there are many in this community who think as I do and we would like to have things harmonized through the Journal

Our friend evidently tells the truth when he says that he knows but little about health reform. It is also quite evident that he has a strong prejudice in favor of the hog. Now if our friend and those in his community who think as he does (who are doubtless few), will take the pains to learn a little more of health reform, they will find that it teaches no such inconsistencies as he imputes to some who profess to be reformers. They will also find, by a practical trial, that a man will not starve to death on two meals a day, even without pork; and that a loaf of graham bread contains more real nutriment than three times the quantity of fine-flour bread.

Hygiene Unpopular.—The following is from a lady in Kansas: "My husband and myself have been trying to live up to this reform as much as we are able, but sometimes under, what seems to us, great difficulties. We are in the midst of a community of unbelievers, who just laugh at us for our so-called self-denial—punishing ourselves, they say; for nothing. We are connected with a church which believes in festivals and sociables as a means of replenishing the church coffers and of keeping the membership in a flourishing and edified condition, and of course we are obliged to perform our part in all this, as well as to respond to invitations to dinner parties, teas, etc., and then return the compliment in kind. There is only one way to remedy all these difficulties, and that is to separate ourselves from a society which is very pleasant, and all

that, which I, or we, do not like to do. My mother always said to her children, Keep away from those who do not act right; for if you do not influence them, they will you."

We like your mother's advice, and think it a very safe rule to follow, though it requires no little amount of self-denial and decision of character in many cases. Many times the cross of doing right is far less heavy than it appears to be. Perhaps you may find it thus in your case. A firm stand for principles might win converts to your views more readily than appearances might lead you to expect.

How Farmers Live.—The Board of Health of Massachussets makes the following report respecting the diet of the farmers of that State:—

"1. Good bread is scarce.

"2. There is too little variety in food.

"3. Meat is apt to be fried.

"4. Baked beans and salt pork too generally used.

"5. Pastry and cakes are used to an injurious extent.

"6. Too little time is allowed for meals.

"7. Coffee and tea are too freely used.

"8. Water is used to excess.

"There should be more fresh and less salt meat; less frying and more boiling, broiling, and roasting; a greater variety of vegetables and fruits; less pies and cakes; more well-kneaded bread, raised with yeast; less tea.

"It is a somewhat singular fact that farmers live so little upon their own productions. They send their fresh vegetables, fruits, eggs, and poultry, to market, and live, themselves, upon salt pork, pies, and saleratus.

"The poor cooking which prevails doubtless results from *hurry*—frying requires but little time and skill, saleratus bread can be made in a jiffy, and the bread and pastry we eat are heavy and sodden, because kneading requires time."

In view of such flagrant violations of all dietetic principles, is it any wonder that so many farmers' wives become invalids in spite of the invigorating influences usually attendant upon life in the country? It may be fairly said that there is not a civilized nation on the globe that live so illy as do Americans, notwithstanding all our boasted superiority in many respects. The men suffer much, but the women more; for the latter are more closely confined in-doors, thus losing the beneficial influence of out-of-door exercise and wholesome air and sunshine, and being forced to inhale almost constantly the sickening odor of burnt grease arising from fried pork, fried potatoes, fried beef, and fried bread. Of all the methods of preparing food, frying is the most abominable.

Doing Wonders.—Mrs. H. L. Cook writes from Dakota Territory: "Your REFORMER is doing wonders here. I have only one copy left, having given them all away, also one dollar's worth of almanacs. A gentleman came to my shop a few days ago. I observed that he went right to reading while waiting. As he left, he lay my Hygienic Almanac upon the stand, saying, That is sensible; can't I have the address of that? Yes; I replied, here is a HEALTH REFORMER worth a thousand dollars. I gave it to him, and he never felt so well in his life as he has since reading and profiting by the lessons it teaches. He is a clerk in a store here, and tells me he is now a subscriber.

"The meat markets here have fewer customers than they have ever had before, owing to the REFORMER striking the truth so closely."

Thus it appears that hygienic truth has reached even to distant Dakota, and its influence is already being felt and manifested. Nothing is needed but united effort and earnest personal labor to send the light of this reform to the remotest bounds of civilization. Those who are candid, intelligent, and thoughtful, can scarcely resist the arguments which are adduced in its favor. They always carry conviction with them.

Too Big a Pill.—An Illinois friend sends cash to renew his subscription to the REFORMER for his hotel for another year, and says:—

"Please continue to send your good monthly to this house. It is well perused by the traveling public. I have obtained several names by the reading of it upon our sitting-room table. I think they will become permanent subscribers. The Health Almanac also takes well and is read very generally by nearly all. A very large number have remarked after reading the article on "Pork-Eating," that they had eaten their last meal of pork, as 'that was a little too big a pill.'"

We have heard of scores who have abandoned the use of pork from reading the tract upon that subject. All this reform needs to gain acceptance is to be placed before the people.

Questions and Answers.

EXERCISE AND VITAL FORCE.—D. H., Rochester, N. Y., writes: "I have a question or two to ask you which is of great importance, not only to myself, but also to a number of young men, especially fellow-students. 1. Is it advantageous in regard to physical health for the college students to attend gymnasium and pursue athletic sports. 2. Is it good for young men who do not pursue regular studies, but are in business? Those who object to such physical exercise maintain that it is an unprofitable use of vital force."

Ans. Moderate physical exercise is of great importance to students and all whose occupations or professions necessitate a sedentary mode of life. The lack of exercise is one of the great evils which results in congested brains, dyspeptic stomachs, and nervous debility in students. Many of the broken constitutions which are attributed to overstudy are really due to deficient exercise. A student can accomplish more mental labor by spending a short time each day in physical exercise than though he devoted his whole time to study. There are those who advocate rest as the great restorer and conserver of vitality. These philosophers go upon the supposition that vital force is an entity, a thing, of which every man has a certain quantity assigned to him at birth. Consistently with this view, they hold that when a man has used up his stock of vitality, he dies. Then, since every act requires the expenditure of vital force, these persons reason that the less a man does, the longer he will live. They even go so far as to gather up statistics to show that lazy men live the longest of any class. This they can readily do; for, as an eminent writer says, "You can prove any thing you like by statistics." The amount of vital force a man has is not measured by the number of years he has lived, by the amount of work he has performed, or by the amount of vitality which he had at the outset; it depends entirely upon the condition of the minute elements of which the body is composed. When the integrity of these is least impaired, vitality is greatest. We should add, in this connection, the caution that students are very apt to overexert themselves by too violent exercise upon the trapeze.

EYES AND EARS.—Says M. S., Ont.: 1. What is proper treatment for eyes that are failing in sight; should glasses be worn or not? 2. What is the proper treatment for the ear that is getting dull?

Ans. 1. The treatment of failing eyesight must depend upon the cause. If glasses are needed, and improve the vision, they are the proper remedy. They should be adjusted by a good oculist. 2. The hearing will often become dull in old age in spite of every effort to avoid such a result. When old age is the cause of defective hearing, nothing but an ear trumpet of suitable form will assist the ear. When catarrh is a cause, as is frequently the case, considerable improvement may be looked for.

VAN BUSKIRKE'S ZOZODONT—NERVOUS DEBILITY.—W. J., Ont., asks: 1. What do you think of Van Buskirke's Fragrant Zozodont for the teeth? 2. What do you think is the matter with me? Studying makes my head dull and stupid. Sometimes I feel first-rate, at other times, very low spirited. My diet consists of white bread, potatoes, beef, butter, and pies. Am a little cositive sometimes. Please let me know what I should do to get rid of this stupid feeling in my head.

Ans. 1. We cannot recommend any of the popular preparations for the teeth. Many of them are decidedly injurious. The best material for use upon the teeth is fine toilet soap with precipitated chalk. If this is faithfully applied three times a day, the teeth will be kept as cleanly as need be. 2. You are evidently suffering from nervous debility. The only prudent course for you to take is to begin at once to attend carefully to all the laws of life. The importance of adhering strictly to a hygienic diet cannot be exaggerated in your case. White bread, butter, and pies, had better be exchanged for graham gems, fruit, and oatmeal pudding.

CATARACT—BALDNESS.—Mrs. H. L. C., Dakota, inquires: 1. A lady wishes to know what will remove a film off from her eye. It has been growing nearly three years, and now covers the sight almost entirely. 2. A young gentleman wants to know what will thicken the hair on the top of his head as it is so thin that it hardly covers his scalp.

Ans. 1. If the "film" is a cataract, as it may be, it should be removed by a competent surgeon. If it is upon the exterior of the eye, it may be only a pterygium. Excision is also the proper remedy in this case. 2. Bathing the scalp with cold water and applying vigorous friction with a stiff hair brush once or twice a day is the best remedy for baldness. If the hair follicles have not become entirely destroyed by disease, they will usually be stimulated to activity by this treatment. It is also important that the general vigor of the whole system should be improved by careful hygienic living.

DIETETICS.

Unwholesome Food.

PERHAPS the following item taken from the *Springfield Republican* may be interesting to those who are fond of nice tender meat, though placing it in the columns of the REFORMER may not bring it before the eyes of many such. It shows what delicious food the lovers of high living feast upon in the large cities.

"The Boston police are raiding on the venders of bob veal again, and they find a very bad state of things at some of the Brighton slaughter-houses. Calves too weak to stand are killed and sent to market, and it is too evident that a good many carcasses fit only for the offal heap are sold every week."

Perhaps those who are determined to gratify their appetites at any cost may console themselves that the law forbids the sale of such unwholesome food, and that the above item shows that the law will be enforced. But this law is probably about as effective as was the "prohibitory" liquor law. Those living in Massachusetts for the past two years know that, though the law permitted no intoxicating liquors to be sold except for medical or mechanical uses, and though the State constables made occasional "raids" on the saloons and bar-rooms, and the "rum-sellers" were occasionally brought into court, neither the liquor traffic nor drunkenness were apparently diminished while the law was in force. The liquor-dealer generally knew when to expect the advent of the constables, and thus be prepared for them; and as soon as they were gone, he resumed his business with renewed energy.

There are the same inducements for selling unwholesome meat as for selling intoxicating drink; and it can be done with less liability of detection. There are plenty of men who are ready to do almost anything for dollars and cents.

In going from the place where he boarded, several months ago, to his occupation, the writer met, as often as two or three times a week, droves of cattle, sheep, and hogs, going to the slaughter-house. With each drove of sheep or hogs was a wagon, in which were carried the animals too weak to carry themselves. It cannot be said what was done with them, but they would bring a higher price, dressed and sold for the table than for soap-grease, and, no doubt, they would make fully as tender meat as the stronger ones. Some of those not carried, looked and acted as if they were but little more fit to eat than those that were carried. A sure way to avoid such food is to eat no meat at all. It may be said that there is liability of being imposed upon in obtaining grains, fruits, vegetables, etc., as, indeed, it is stated that most of the graham flour in market is either adulterated or made from an inferior quality of wheat; but the poor quality of graham shows for itself, and good may be procured with a little pains. And then, graham flour, made from an inferior quality of wheat, or containing more than its own quantity of bran, would be far preferable to diseased meat. Fruits and vegetables in their natural state cannot be adulterated without detection, and are free from disease.

F. R. RICHMOND.

Recipes.

PUMPKIN PIE WITHOUT MILK OR EGGS.

A FRIEND brought us some eight or ten pumpkins some time since. Now, said I, we can have some pumpkin pies; but the next thing was to get new milk, which I found was not so easy, as milk is rather scarce in the city in the winter season. So, setting my wits to work, I made some pies which we found were quite as palatable as made the old way with milk and eggs.

As I have never seen a recipe of the kind, I will send it for those who may wish to try it.

Stew the pumpkin in sufficient water to cook it until tender, only do not dry it down as your mothers used to do; mash it fine, and to about four quarts add a dozen tart apples also stewed and mashed fine, with a good handful of raisins prepared by being cut. Sweeten with good white sugar, about two or three tablespoonfuls to the above quantity. Some people always use molasses for pumpkin pies, but I find good white crushed sugar is by far the cheapest, as well as being the most healthful. There is so little probability of getting molasses or syrup free from adulteration that the safest way is to use none at all. Add one-half teacup of white flour to the above mixture, sift in slowly so as to leave no lumps in it, then make quite thin with water. The flour will thicken it sufficiently to hold in place of eggs. A good hot oven with a steady heat is necessary to have them good; but be careful and not let them scorch or boil over before they are cooked through. The crust can be made in any of the various ways described in the Cook Book. A scalded wheat-meal crust answers very well for these; it should be made as soft as can well be handled, and without much of a rim, as this is apt to burn before the filling is quite done.

I will also send a recipe for

CORN AND GRAHAM GEMS.

Scald one cup of corn meal, stirring it till free from lumps, then pour in two cups of cold soft water—or hard water that has previously been boiled, settled, and cooled—thicken with graham flour to quite a stiff batter, so they will not settle flat. Put them into the gem pan when it is hot upon the stove. The oven should be quite hot, and the pan should be set first upon the upper grate to receive a slight crust on the top, then set down to finish baking. Or, if the oven is hot enough to bake on all sides alike, it does not matter where it stands. The object being to form a crust as quickly as possible, so that the air that is stirred in while beating them may expand in the tiny loaves and cause them to be light and porous. If these directions are strictly followed, you will have as delicious gems as one need ask for with only flour and water; but if you want something a little better yet, try the

CORN AND OATMEAL GEMS.

For these, scald the same quantity of corn meal, and thicken with oatmeal. They are rarely delicious. The above recipe will fill an ordinary gem pan twice.

MRS. M. E. MCKEE.

Candy Poisoning.

ITEMS like the following are constantly appearing in print, and yet many people continue to supply their children with presents of confectionery on holidays and other festive occasions, under the mistaken notion that they are doing them a kindness. The habit of eating candy is one of the most flagrant violations of the laws of health, and is a most potent agent in the production of dyspepsia and all forms of digestive derangements and bowel disease. The following paragraph is from the *N. Y. Sun*:—

"At a birthday party given by a German family near Wheeling, recently, the children were furnished with candy apples, colored very highly, which they ate with a relish. One of the children sickened and died the next day, and two others are in a most alarming state. The apples were colored with analine and the leaves with arsenic."

Mr. O. A. Johnson, a friend of the REFORMER, sends us the following question and answer relating to candies, which he clipped from the correspondent's column of the *Inter-Ocean*:—

"Is the paint in candies poisonous to children, and what is the paint made of?

"*Answer.* In many instances the coloring material in candies is poisonous, and in cheap confectionery this is *always* the case. The red color is given to fine candies with cochineal, which is harmless, but in cheap sweetmeats it is analine, a deadly product of coal tar; for yellow, gamboge or chrome yellow is used, both of which are highly injurious; for blue, indigo, which is comparatively harmless, is sometimes used, but more frequently ultramarine. Verdigris, Brunswick green, and other mineral poisons are extensively employed, nor are pure white candies of the cheaper sort to be used without great caution. Sometimes one-half the substance of candy is composed of plaster Paris, and is the cause of one-half the diseases of the stomach and bowels among children. So with the flavorings employed. An enormous quantity of oil of turpentine is used with oils of peppermint, cinnamon, lemon, and most of the bitter almond flavoring is nothing more than prussic acid, one of the most deadly poisons known to chemistry. Pineapple flavoring is made from rotten cheese and sulphuric acid, and fusil oil is used largely with the poisonous acids for other fruit flavors."

Eating Horses.

THE consumption of horse flesh as food seems to be steadily gaining in popularity among the French. The one great argument in its favor seems to be its economy. It really does seem to be a shrewd way of managing to get as much work as possible out of a dumb beast while he is alive and then kill him and eat his carcass when he has outlived his usefulness and has got about ready to die.

"A banquet of a novel character took place in Paris on Saturday, when some seventy persons sat down to a varied repast of horse, mule, and donkey flesh. Several ladies were present. The chairman gave a history of horse flesh as an article of food, and in the course of his speech said that an honorary medal would be given to any one willing to make the attempt to establish a horse butcher's stall in London, as well as £20 to be distributed to the poor of the district."

The Alcoholic Strength of Various Bitters.—Mr. Henry Vaughan, State Assayer of Rhode Island, has made a chemical examination of thirty-five samples of "bitters," including all the more important ones found in the market. His report to Sheriff Holden gives the follow-

ing percentages of alcohol in the various samples :—

	Per Cent.
Hostetter's Stomach Bitters	43.20
Baker's Stomach Bitters	40.57
Drake's Plantation Bitters	30.24
Sol Fank's Panacea Bitters	37.20
Mishler's Herb Bitters	36.80
Rush's Bitters for the "Stomach's Sake"	34.20
Dr. R. F. Hibbard's Wild Cherry Bitters	35.89
Dr. Fisch's Bitters	32.16
Baker's Orange Grove Bitters	25.70
Speer's Standard Wine Bitters	25.49
Traveler's Peruvian Bitters	22.40
Dr. Clark's Sherry Wine Bitters	22.40
California Wine Bitters	18.20
Dr. Wheeler's Tonic Sherry Wine Bitters	14.66
Atwood's Quinine Tonic Bitters	40.10
Dr. Holmes' Golden Seal Bitters	34.24
Dr. Job Sweet's Strengthening Bitters	31.41
Webber's Strengthening Bitters	26.87
Flint's Quaker Bitters	22.99
Restorative Bitters	20.54
Luther's Temperance Bitters	16.68
Richardson's Bitters	59.14
Armington's Bitters	33.26
Davis' Bitters	30.50
Colton's Nervine Bitters	29.73
Dr. Warren's Bilious Bitters	29.60
Hartshorn's Bitters	27.35
Atwood's Jaundice Bitters	25.60
Puritan Bitters	25.60
Dr. Langley's Bitters	24.41
Dr. Hoffland's German Bitters	20.85
Oxygenated Bitters	19.28
Walker's Vinegar Bitters	7.50
Dr. Pierce's Bitters	6.36

—*The Laboratory.*

We publish this list in order to show to those who still have some faith in the so-called "tonic" influence of bitters that the chief medicinal agent which they contain is alcohol. Hence if they would take the pure article, they would get quite as much benefit, and at a saving of expense. The injury which these filthy compounds have wrought is almost inestimable. They lead the way to drunkenness ; in fact, they will themselves intoxicate. It will be noticed that "Walker's Vinegar Bitters," the so-called temperance bitters, contain a larger percentage of alcohol than lager beer. Beware of them all. They are poisonous.

LEAD IN POTABLE WATERS.—Public attention has lately been drawn, by some painful cases of disease and subsequent death, to the danger of drinking water containing lead, and as there can be no doubt that leaden pipes and cisterns are still used to a great extent for the conveyance and storage of water, it becomes a matter of great importance to ascertain under what conditions water so conveyed or stored becomes impregnated with the metal in sufficient quantity to be injurious to health and life.

The general impression among chemists has hitherto been that soft water has the power of acting upon lead, while hard water fails to do so ; but it has been proved that the very soft water of Loch Ness had no effect upon the metal after passing through it for six years, and experiments upon other waters of an equally soft character showed that they remained unaffected after long contact with lead.

There are, however, certain conditions under which water is found to take up an appreciable quantity of lead, and one of those conditions is the presence of oxygen in the water.

Now, under favorable circumstances, one hundred volumes of water is capable of absorbing three volumes of oxygen, and as this gas forms one-fifth of the bulk of the atmosphere, it follows that the longer a water, during its passage from its source to the cistern, is exposed to the air, the more oxygen it is likely to absorb, and consequently the greater will be its solvent power upon lead. Experience proves that these conditions are exactly fulfilled in many cases, especially in the water supply of some country houses ; and the well-known deleterious effects of even minute quantities of lead upon the human body render it highly desirable that so fertile a source of disease should be avoided. Of course, the remedy which most naturally suggests itself is the removal of the lead fitting, and the substitution of some less noxious material, but in many instances this is impracticable.

There is, however, one very simple method of guarding against lead poisoning, and that is filtration. It is well known to chemists that charcoal, in some forms, has the property of decomposing the salts of lead, and rendering them innocuous.—*Chemist and Druggest.*

Effects of Paris Green upon Vegetables.

WHETHER Paris green, used in the destruction of potato-bugs and other insects, is poisonous to vegetable life is a question of much interest to all. Dr. William McMurtie, of the Agricultural Department at Washington, has devoted considerable time and experiment to the elucidation of this question. Among other experiments, he planted peas in boxes of soil impregnated with a solution of arsenic of different strengths, the object being to ascertain if arsenic could be absorbed in sufficient quantity by plants to become injurious to the health of the consumer, and if not

taken up by the plants during growth, whether it exerted a poisonous influence upon the plants themselves. The plants were found to be affected in proportion to the amount of the arsenical compound used, the size of the growing plants decreasing regularly as the amount of poison was increased.

A chemical test of these plants, after being so affected by this poison, revealed no trace of arsenic, and the conclusion arrived at was, that arsenic cannot be absorbed and assimilated by plants in the process of growth, though plants may be injured by the presence in the soil of about nine hundred pounds of Paris green to the acre. With the quantity of Paris green actually used, perhaps five or ten pounds to the acre, no effect upon plants or their consumers is possible.—*Sel.*

SEASONABLE HINTS!

Look Out for Nuisances.—We have now again reached the hot season of the year when we must begin to keep up a sharp lookout for the causes of disease if we would avoid those grave maladies which annually make such havoc among all classes of the people, especially in cities. Such diseases as dysentery, diarrhea, cholera morbus, and cholera infantum, almost invariably arise from the introduction into the system of the products of organic decomposition. Hence the importance of attending well to the removal of everything that can undergo putrefaction. Garbage, sewage, and offal of every description, should be wholly removed from the premises every day to insure against danger of poisoning from the noxious gases to which they give rise.

Whitewashing.—Pour boiling water on unslaked lime, that is, lime in the shape of stones, which have not fallen apart by exposure to the dampness of the atmosphere; cover the vessel over to prevent the steam from carrying away the finest particles of the lime, which are needed to permeate the smallest crevices; add one pint of salt to four gallons of the whitewash, stir it well, and apply it where desired; the salt unites with the lime, and forms a smooth, hard, white surface, lasting next to paint. A good whitewashing of all the fences and out-buildings of a farm house adds so much to the cheerfulness, tidiness, and healthfulness of the premises, that every intelligent farmer owes it to himself, his family, his neighborhood, and the general interest of the community in which he resides, to make it a point, at least once a year, to use a liberal supply of good whitewash wherever it may be applied with advantage, with the assurance that it will make his place much more salable, besides more healthful.—*Sel.*

To Preserve Fence-posts.—Fence-posts can be preserved for a great length of time by painting the portion which is set into the ground with the following preparation: Mix very thoroughly equal parts of coal tar and raw linseed oil. To this add as much finely pulverized charcoal as can be made to adhere to the timber when applied with a brush. Apply a thick coating of this preparation, allow it to dry a day or two, then set the posts and they will be found to be almost indestructible.

A Cheap Fumigator.—The following will be found to be a cheap and pleasant fumigator for sick-rooms, diffusing a healthful, agreeable, and highly penetrating disinfectant odor in close apartments, or wherever the air is deteriorated. Pour common vinegar on powdered chalk until effervescence ceases, leave the whole to settle, and pour off the liquid. Dry the sediment and place it in a shallow earthen or glass dish, and pour upon it sulphuric acid until white fumes commence arising. This vapor quickly spreads, is very agreeably pungent, and acts as a powerful purifier of vitiated air.—*Sel.*

Water-proof Coating for Walls.—The following coating has proved very effective in preventing the penetration of moisture on the weather side of walls: Pitch, fifty pounds; rosin, thirty pounds; red ocher, six pounds; fine brick-dust, twelve pounds; all boiled together, with constant stirring, and then sufficient oil of turpentine—about one quarter the volume of the above—added to cause it to spread readily. It is to be laid on as thin as possible with a bristle brush.

Glue.—A teaspoonful of saltpeter added to a large potful of glue will effectually prevent it from smelling bad; besides, it causes it to dry faster and harder than it would without it.

A Lotion for Fetid Feet.—Permanganate of potash, one-fourth ounce, rain water, one quart. The feet to be washed twice a day with the lotion. They are then to be carefully dried and powdered either with potato starch or lycopodium.

SCIENTIFIC.

Vegetation as a Disinfectant.—In a paper advocating the utilization of sewage for agricultural purposes, Dr. Alfred Carpenter says that, if a certain weight of rye-grass seed be sown in wet sand, without allowing the contact of any water which contains nitrogenous matter, the plants will grow to a certain size, that is, until they have used up all the matter contained in the seed, and then growth is, to a great extent, arrested. This has been shown experimentally by growing rye-grass under glass. All growth has been arrested for want of nourishment. On adding to the water solutions of fresh organic matter (meat-juice), the plant has at once begun to grow, and in a few days has doubled its size, while a test set of plants to which such organic matter has not been added has remained stationary. Another basin and glass cover with sand not containing rye-grass, but to which organic matter had been added, became putrid in a few days, but no such putridity appeared when the rye-grass was growing. A fourth case had put into it an amount of nitrate of ammonia corresponding to the amount estimated to be contained in the meat-juices which were used in the first case; but here the growth of the plant was by no means so luxuriant as when the living nitrogenous matter was added; although a fresh start was made, the plant soon dwindled away and died. Thus it appears that living vegetation acts as a powerful disinfectant, assimilating directly the nitrogenous principles of organic substances.—*Pop. Sci. Month.*

Action of Absinthe and Alcohol.—In an essay which received a prize from the French Academy of Sciences last December, Dr. Magnan states as follows the comparative action of absinthe and of alcohol: Whether injected into the stomach, pulmonary passages, cellular tissue, or vascular system, these two agents produced different effects. Essence of absinthe, in weak doses, causes vertigo and sudden contractions in the muscles of the anterior portion of the body; in strong doses, epileptic attacks and mental disorder. The well-known effects of alcohol are muscular debility, staggering, relaxation of the limbs, and finally comatose sleep, without any epileptic symptoms. Injected simultaneously, alcohol and absinthe, instead of neutralizing, intensify one another, and the absinthine phenomena are in part masked under the alcoholic. The substances used in the manufacture of the *liqueur absinthe*, viz., the essences of anise-seed, angelica, sweet-flag, marjoram, fennel, mint, possess no toxic action. Hence all the injurious effects of the liqueur are due purely to the wormwood. Epileptiform symptoms never follow from the use of alcohol, and they are characteristic of absinthe.—*Pop. Sci. Month.*

The Prevailing Hour of Death.—Dr. Lawson has recently published some curious observations regarding the time of the day when the greatest and least number of deaths occur. He finds, from the study of the statistics of several hospitals, asylums, and other institutions, that deaths from chronic diseases are most frequent between the hours of eight and ten in the morning, and fewest between like hours in the evening. Acute deaths from continued fevers and pneumonia take place in the greatest ratio in the early morning, when the powers of life are at their lowest, or in the afternoon, when acute disease is most active. The occurrence of these definite daily variations in the hourly death-rate is shown, in the case of chronic diseases, to be dependent on recuring variations in the energies of organic life; and in the case of acute diseases, the cause is ascribed to the existence of either a well-marked daily extreme of bodily depression, or a daily maximum of intensity of acute disease.—*Jour. of Chem.*

The Effect of Emotion.—It is related by Sprengel in his "Geschichte der Arzneikunde," that the Arabian physicians sometimes relied with great success on moral means, of which the following is a striking instance. One of Haroun Al-Raschid's wives suffered from paralysis of both arms. Dschibrail, the court physician, induced the caliph to summon all the leading nobles to a large hall in his palace, and then introduced the lady to the assembled multitude. Without a word of preface he raised her veil, when feelings of shame and fear restored strength to the palsied arms. The lady hastily drew her veil down again, and was cured from that hour.

Literary Notices.

REPORT ON THE HYGIENE OF THE UNITED STATES ARMY, Washington: Surgeon-General's Office.

This is a quarto volume of 567 pp. It contains a vast number of valuable and interesting facts, which are arranged under the following heads: 1. Habitations; 2. The food of the army and its preparation; 3. The clothing of the army; 4. The hospital and medical supplies.

Items for the Month.

☞ A BLUE cross by this paragraph signifies that the subscription has expired, and that this number is the last that will be sent till the subscription is renewed. A renewal is earnestly solicited.

☞ We are just preparing a new edition of the Cook Book, and would be happy to receive suggestions from all who are interested in hygienic cookery.

☞ We commence in this number a series of "Parlor Lectures" which are condensed from lectures delivered at the Health Institute on Monday afternoon of each week. We shall aim to make each lecture of practical interest to both hearers and readers.

☞ We are sorry to be obliged to go to press this month without the usual article on Bible Hygiene. Eld. White writes us that he is unable to supply it on account of the urgent press of other duties. Many readers are deeply interested in this phase of the subject of health, since it affords to them the strongest confirmation of the truth of hygienic principles when they see the harmony existing between them and the Bible.

☞ We publish in this number the balance of the "Discussion of the Salt Question." It has only been with much hesitation that we have devoted so much space to this question in the last three numbers, especially after publishing quite a lengthy article on the same subject in the first numbers of this volume. Our object in this controversy has not been to exaggerate the evils resulting from the use of salt, or to magnify the importance of the subject, as we have elsewhere stated. It has rather been to enable our readers to see a fair display of the arguments on both sides.

DRESS REFORM PATTERNS.—The subject of dress reform seldom receives its due share of attention, notwithstanding the patent fact that it is one of the most important of all questions which relate to health. Many entertain the notion that a reform in dress can only be made by sacrificing all ideas of taste and propriety and becoming masculine and uncouth in appearance. This idea is wholly erroneous. All the more important reforms in dress can be effected without attracting the attention of any, except it be that attention would soon be called to the increase of color in the cheek, elasticity in the step, and general vigor of the whole frame.

According to our announcement last month, we give below a brief description of the several garments for which we can furnish patterns. The advantage which these garments afford, is that they secure the four desiderata which physiology tells us should be embodied in the clothing of the body, which are as follows :—

1. Unimpeded action of all the vital organs.
2. An equable temperature of the whole body.
3. Suspension of the clothing from the shoulders instead of from the hips.
4. Reduction of the weight of the clothing.

The following is a list of the garments with the prices of patterns :—

No. 1. A flannel undergarment to be worn next to the skin. It covers the whole body from neck to wrists and ankles. Price, 50 cts.

No. 2. A garment combining chemise and drawers, arranged with buttons so as to support the skirts and stockings from the shoulders. To be worn next to the preceding garment in cold weather. Price, 50 cts.

No. 3. This garment combines chemise and drawers, and also supplies the place of the corset so efficiently that those who have been accustomed to wearing the latter article are happy to dispense with it after a single trial of this dress. It is cut to fit the bust perfectly, thus affording all desirable support. Price, with cloth model, 50 cts.

No. 4. Gabrielle Dress. This may be made either long or short to suit the taste of the wearer. When worn with pants it should be from six to nine inches from the floor. Those who do not wish to adopt the pants may wear the dress two or three inches from the floor with dress drawers and leggins. Price, 50 cts.

We can also furnish patterns for skirts, pants for short dress, and dress drawers with leggins, at 25 cts each.

Those who wish to secure a good fit should send the following measurements :—

1. Bust measure, number of inches. 2. Under bust measure. 3. Waist measure. 4. Length of waist under arm. 5. Hips, three inches below the waist. 6. Width of back across shoulders. 7. Length of drawers from waist down. 8. Length of back from neck to waist. 9. Length of sleeve inside. 10. Length of sleeve outside. 11. Length of shoulder. 12. Around neck. 13. Around arm-size (high up).

When desired, garments will be made at as reasonable rates as possible and sent by express. The patterns will be sent, post-paid, on receipt of the prices marked. We employ an experienced dress maker to cut patterns and make garments, so that all may feel sure of obtaining a good fit if proper measures are sent. We hope that our friends will not fail to avail themselves of this opportunity for obtaining just what they need for their health, comfort, and convenience.