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THE ESSENCE OF BEAUTY — EXERCISE AS A BEAUTIFIER.

BY J. H. KELLOGG, M. D.

BEAUTY is, in its essence, a quality, not of matter, but of soul. Back of everything beautiful, whether animate or inanimate, there must be soul beauty; there must be perfection of character, of which that harmony of color or of form, of movement or of sound, which we call beauty is but the physical expression.

Every beautiful face is the outgrowth of a beautiful mind and heart, a noble character that lived sometime, somewhere. Every beautiful thing in nature, — the rainbow, iridescent with the splendors of all the diamonds of Golconda; the sunset with its marvelous procession of colors from brilliant, gorgeous, golden hues softening to neutral somber tints and gray; the landscape with its subtly changing atmosphere which no artist ever captures; the wonderful kaleidoscopic painting of the aurora borealis, in which one can almost see the mysterious Artist hand at work; the exquisite grace of flowers and foliage; the Eolian music of the wind; the melodious murmur of the waves, — everything in all the universe that appeals to the esthetic sense of intelligence is only an expression of the infinite beauty of that all-pervading, creating, and upholding force which the Athenians worshiped as "The Unknown God," and which Herbert Spencer calls "The Unknowable Intelligence." Hence the lutimate source of beauty is God himself, and to love beauty in the true sense is to love God. Beauty is only an expression of God.

The truly beautiful, then, must be truly good, and the truly good must likewise be beautiful. Sin cannot be beautiful; beauty cannot be sinful. As we sometimes find diamonds in the mud, so beauty may be hidden by its unbeautiful surroundings; and the beauty of goodness, like that of the diamond in the rough, may not appear until the polishing has been applied.

To be handsome is one thing; to be beautiful, quite another. A handsome face may be so marred by unbeautiful signs hung out upon it as to be positively repulsive; while a less regularly formed countenance may be fairly luminous with the beauty of character behind it. Goodness, health, grace, beauty, are one and the same thing. Goodness is the perfection or beauty of character; health, the perfection or beauty of body; and grace, the beauty of activity. The ancient Greeks seem to have had a glimpse of this truth when they placed over the entrance to their temples the maxim, "A sound mind in a sound body;" but they fell short of their aim because they failed to recognize the fact that perfection of character is an element essential to the development of bodily and mental perfection; for the highest beauty can only be

attained by the harmonious development of spirit, soul, and body.

That person only whose whole being is attuned to the grand symphony which all nature sings in the universal expression of beauty in form and sound and color, is truly prepared to worship God "in the beauty of holiness."

Soul beauty is to be found within, not upon the surface. Real beauty is more than skin deep. It cannot be acquired by "surface work" of any sort. This is just as true of physical as of moral beauty; indeed, it is impossible to separate physical and moral beauty so as to make a comparison between them; for both spring from the same root — beauty of character, genuineness, and purity.

The most beautiful thing which God ever made, that which appeals most constantly and forcibly to the esthetic sense, is light. The glorious light which emanates from the sun is the source of all energy and activity in this world, and is at the same time the universal beautifier which by its magic touch paints the flowers and the leaves with all the tints and hues of the rainbow and the sunset sky. It was the greatest of teachers who said, "God is light." Truly, no other emblem could so fitly represent the life-giving, beautifying power of the infinite Intelligence which stands behind all the phenomena of nature.

To be truly beautiful the body must be full of light, full of the divine energy which comes from God, which he ministers to the earth through the sunshine, storing it up in plants, in fruit, in grains and nuts. The same light which thus energizes the body, being also the divine universal beautifier, must fill the body with beauty as well as with strength. In saying that the body must be full of light we are but quoting the words of Christ, who said, "If the light that is in thee be darkness, how great is that darkness."

Living things are transparent; the little living jelly drop which is the basis of life, the so-called cell represented in the white blood corpuscle, and in the ameba, represents living substance in its most thoroughly alive form. Hold an earthworm up to the light, and we see that its tissues are transparent, or at least translucent. Hold up to the light of a bright flame or an electric lamp a baby's hand or arm, and it will be found to be likewise translucent. This is not true of the tissues of the old man, of the rheumatic, of the dyspeptic, of the man whose liver is torpid, who gets up in the morning with a bad taste in his mouth, feeling that he has committed the unpardonable sin and that the whole world is against him. The tissues of such a person are veritably filled with darkness. The tissue débris, the products of vital activity, the so-called waste substances which ordinarily pass out of the body through the lungs, skin, kidneys, liver, and bowels, not being properly burned up or removed, but having been left to accumulate, have destroyed the natural transparency of the living tissues. This state of things is the natural result of old age through the decline of the activity of the lungs, liver, skin, and kidneys, but it ought not to be found in young persons or persons of middle age. When present, this lack of tissue transparency, shown by a dingy condition of the white of the eye, and by the tawny, dingy skin, is an evidence of disease and premature decay.

This condition is most often found prematurely in persons whose habits are sedentary, as is too often the case with the business or professional man, the merchant, the banker, the lawyer, the doctor, the teacher, and the opulent woman who lives a life of luxury and ease. Exercise is one of nature's means for keeping the tissues of the body transparent, so that

MISS WILLARD IN THE DRAWING-ROOM, THE COTTAGE, REIGATE, ENGLAND, 1895.

the vitalizing and purifying sunlight may penetrate all the hidden nooks and corners and recesses of the body. The tissue wastes, the organic dirt of the system, the rubbish, the ashes, soot, and clinkers which are the natural result of the vital fires, and of all the bodily activities are, under the influence of the sunlight, burned up by the oxygen which is introduced into the body. Oxygen is the great house-cleaner, the great deodorizer, the great disinfectant, the great cleansing, purifying agent whereby the highways of the body are kept clean and free from obstructing accumulations.

The degree of vital activity of which we are capable is gauged exactly by the amount of oxygen we breathe. The bird which soars above the clouds has enormous lungs; even its hollow bones are utilized for breathing purposes; it may almost be said that a bird breathes to the very tips of its toes. The frog, on the other hand, has no chest, has merely a small breathing bag, which it fills at comparatively long intervals. Compare the activity of the swallow, easily keeping pace with the lightning express, with that of the frog, croaking amid the slime and miasma of a stagnant pool. A person who, with untrammeled lungs, stimulated by vigorous exercise of the limbs in walking, bicycling, or other wholesome modes of exercise, with brain swept clear of mental cobwebs, with pure blood energizing every muscle and nerve — such a person, and only such a person, will find it possible to soar, to rise above the clouds, to live in the glorious light of perpetual sunshine; while the person who stagnates in an office, who loafs, who spends hours in listless reverie, in novel reading, who lives an easy-chair existence, either from inclination or from a lack of appreciation of the need of daily and vigorous bodily exercise — such a person cannot rise far above the earth, and can never soar. He is of the earth, earthy. He will live a frog's life, floundering in the quagmires of disease.

The wise man said: "Light is sown for the righteous." Righteousness means right doing, hence the righteous man is the one who obeys God's laws. The ten commandments are a part of the code of principles which relate to the welfare of mankind. They are not arbitrary enactments, but principles of conduct which grow out of the nature of things, out of the relation of man to his Maker, to his fellow men, and to his environment.

No person can be truly beautiful without that light which penetrates to the innermost recesses of his being,— that light which only a pure, consistent, and rational life is capable of receiving.

When the Creator introduced Adam to Eden, he assigned to him the duty of keeping the garden. He was given out-of-door employment whereby his body might be actively exercised. After his fall, the Creator said, "In the sweat of thy face shalt thou eat bread." Unfortunately, the majority of human beings regard the necessity of sweating as a calamity, and to dodge sweating, to earn one's livelihood in some other way, seems to be the special aim of a growing multitude in all civilized lands. But sweating is a blessing in disguise. The Scripture maxim teaches us that if any will not work, neither shall he eat. Nature tells us, "They who will not earn an appetite cannot digest," and further, she says with equal emphasis, "He that will not work shall not sleep." Under normal conditions, the appetite for sleep as well as the appetite for food, must be earned by effort, by the expenditure of energy,— in other words, by work.

Exercise is one of the first things essential for purity of the blood, soundness of the nerves, clearness of the skin, and elasticity of the spirit.

LEGACIES OF THOUGHT.

HER lavish mission richly wrought,
Leaving great legacies of thought.
— *Tennyson.*

THIS body of ours was meant to be the temple of the Holy Spirit, but enemies have taken possession of it, and dimmed or well nigh extinguished the Shekinah. The alcohol and nicotine poisons, leagued with bad food, unnatural dress, bad ventilation, and ill-proportioned exercise, are the demons that hold the sacred citadel.

We call ourselves a science-loving people, and think we care to know God's reason why. His laws, "written in our members," we pass lightly over that we may learn man's formula for parsing a verb or construing a foreign quotation. Even the Saxons knew that "every man has lain on his own trencher;" that what we eat, more than all other contingencies, determines what we are; but we pass over these weightiest matters of the changeless laws of hygiene that we may tithe the mint and cummin of grammatical punctilio and mathematical accomplishment. Even when we study the natural sciences, we soar amid the stars, and hammer the rocks, or dissect flowers, but place the study of our own more splendid organism at the foot of the list, instead of building the whole edifice of education upon this solid rock, against which the gates of hell shall not prevail. Our obliquity of vision at this point is fatal to the logical sequence of our entire scheme, and will be the amazement of wiser and happier generations.

In the light of twenty years' work as a teacher of total abstinence from alcoholic poisons, I solemnly aver that had I the power, our system of education should be so changed that the course of study for every pupil, from the kindergarten toddler to the high-school graduate, should be grounded where God grounds our very being — on natural law. They should know the laws of health first of all, since their physical being is the firm base of the whole pyramid of character. "According to law" is the method, as it is the philosophic explanation of the universe so far as we can spell it out.

The deformed waist and foot of the average fashionable American never seemed so hideous and wicked, nor the cumbrous dress of the period so unendurable as now, when from studying one "poison habit," our minds, by the inevitable laws of thought, reach out to wider researches and more varied deductions than we had dreamed at first.

In the schools of the future carefully trained hygienists will be steadily at work studying the habits of the children, and teaching them, on scientific grounds, how they may form those upon which physical sanity is conditioned. Clothing that imposes a ligature upon any organ or member of the body will not be tolerated; the eating of highly seasoned food will be condemned; the use of pork as an article of diet will be shown to be a relic of barbarism, and the physical sin of using stimulants and narcotics will be denounced with all the emphasis of a "Thus saith the Lord." For we shall never get beyond that dictum of the wondrous Hebrew nation.

Frances Ellen Q

A TRIBUTE TO MISS WILLARD.

BY BISHOP JOHN H. VINCENT, D. D., LL. D.

FRANCES WILLARD was a rare woman, of good blood, of the best early training, with experience in all grades of schools, as pupil, teacher, president. She was a gifted talker, an able writer, an inventive genius, and had superior administrative power. She associated with the best of human society. She was honored by the great as well as by the lowly. The crowds followed her, and listened spell-bound when she talked. She was versatile and broad-minded. She saw human need, and it melted her soul into eloquence and invention and service. She was catholic spirited, and loved all souls who accepted in any measure the mission of the Man of Nazareth. She traveled everywhere, planning and doing good. She put other people at work, showing them what to do and how to do it, and keeping them at it.

But her crown of glory was her spirit of charity. She loved much, like the Lord himself, with a patient, persistent, never-wearying love. She was the thirteenth chapter of 1 Corinthians incarnate. She was an exposition and a demonstration of it. I don't believe any one ever vexed her into a frown or a knitted brow. She gave love for criticism, love for taunts, love for scorn. Her smile was her sweet answer to her enemies. In her, love conquered. She was not perfect in judgment, but she came nearest being perfect in love of any one I ever knew. My mother was like her. They two stand together in my thought; diverse in other qualities, alike in the fulness of unfailing charity. I pay this tribute to Frances E. Willard's memory. We differed on the question of woman's sphere, and especially concerning woman suffrage. I sometimes said things on these subjects that ought to have irritated her. But she gave kindness and patience and cordiality, and won me by her nobleness, if not to faith in her theories, to profound respect and affection for herself.

As one thinks of her, — the fair, pure, loyal, loving woman, devoted to every good work, — one must pay tender and tearful tribute to her memory. May all the saints come to love God and man as Frances Willard did!

THE W. C. T. U. IN HYGIENIC REFORM.

BY MARY HENRY ROSSITER.

A WAG once remarked that "W. C. T. U." must stand for "Washing Contracts Taken Unconditionally." To those who have watched the evolution of the Woman's Christian Temperance Union from the little bands of women who went crusading and worked for the reformation of drunkards, to the great organization which is active to-day in every kind of social cleansing and national purifying, this interpretation of its object is far from inappropriate. The W. C. T. U. believes in washing the whole world, nationally and individually, from every habit, custom, or influence that leads to disease, immorality, or spiritual decadence. It does not wait to find out whether an undertaking is likely to be profitable or successful. Its contracts are taken "unconditionally," if the well-being of the home is at stake.

Miss Willard said, "Society needs mothering," and the W. C. T. U. has gone to the ends of the earth and into manifold activities in an earnest effort to "mother" the weak and the suffering everywhere.

DR. LOUISE C. PURINGTON.

In one sense the organization as a whole is devoted to hygienic reform, for every department of work is striking steady blows in some way at the evils which are ruining the bodies and souls of men. But there are at least seven departments directly engaged in promoting principles of health. These are the department of Health and Heredity, of Purity, of Scientific Temperance Instruction for Schools and Colleges, of Anti-Narcotics, of Physical Culture, the Loyal Temperance Legion, and the National Temperance Hospital.

Of the department of Health and Heredity, Miss Willard said, "It ought to be the very pilot of the engine." The national superintendent, Mrs. Louise C. Purington, M. D., of Dorchester, Mass., states its purpose as follows: —

"It is the foundation-stone, department number one, in the Woman's Christian Temperance Union. It dates from the garden of Eden. Its deepest relation is to unborn children. It relates to the whole of life, here and hereafter.

"It is eminently a department for study. The worker must know how to *live* — must be clean, pure, sunny, and strong; rightly nourished, rightly dressed, and with a generous capacity for fresh air, outdoor exercise, sunshine, rest, and sleep. The worker must have experienced full salvation as to health, temperance, self-control, before he or she is ripe to reach the intemperate, or any victim of unhygienic conditions."

"Studies in this department must include: —

"(*a*) The relation of health or temperance to dress, food, air, exercise, cleanliness, ventilation, recreation, rest, sleep.

"(*b*) The relation of health, temperance, or self-control to the mind and morals, the government of the passions and control of the emotions.

"(*c*) The relation of right being and doing to right living; antenatal conditions; education and heredity; hereditary intemperance.

"(*d*) Also, hygiene of the home, the school, the community, and all that is included in environment.

"Finally, health is all-inclusive; purity of life, physical exercise, the knowledge of alcoholic and narcotic poisons, of sanitation and domestic science, are necessary to health."

It is interesting to notice the outline of health and heredity topics for systematic study, prepared for use in local unions,

each topic furnishing material for one year's investigation.

"1. *The Home:* its furnishings, temperature, atmosphere, ventilation; the sleeping-rooms, use of single beds, value of sunlight, fresh air, and great cleanliness and caution; the nursery, the kitchen, the cellar.

"2. *Environment:* the yard, the street, the outlook; the daily associations, the books, the occupation, the friends.

"3. *Sanitation:* the water-supply, plumbing, filters, wells, drainage, stagnant water, the disposition of garbage.

"4. *Food:* the different kinds; individual adaptations; arguments for vegetarianism; for the use of meat; for a healthful variety in food; air and water as food; digestion.

"5. *Dress:* anatomical and physiological study to adapt the clothing to the needs of the body; materials, weight, etc.; evil effects of compression; foot-wear, shoes, etc.

"6. *The Law of Descent:* inherited tendencies; how overcome; antenatal conditions; the power of habit; the effect of education.

"7. *School Hygiene:* the books, the drinking cups, the dress, the ventilation.

"8. *Nerve Health:* the care of the two nervous systems; how to avoid overwork, worry, idleness, nerve dissipation."

There are about thirty State superintendents in this department, and the work is growing in interest and favor. Special effort is being made to reach local unions, mothers' meetings, domestic science, and woman's clubs, with leaflets and other literature helpful along this line. The national superintendent has written a series of articles upon "The Question of Diet," which is having wide circulation. She says, "We have, in health and heredity studies, crystallized into daily living the key to the whole question of temperance."

There are four national lecturers in this department, Dr. Mary Wood-Allen, Ann Arbor, Mich.; Dr. Sarah Hackett Stevenson, Chicago, Ill.; Dr. Annette J. Shaw, Eau Claire, Wis.; Dr. Louise C. Purington. Dr. Shaw was national superintendent of the department for three years. She is State superintendent of the Purity and Legislative work for Wisconsin, and is devoted to the W. C. T. U. State home for unfortunate girls, being not only financially responsible for the enterprise, but also taking a deep motherly interest in every girl who comes to her for help and friendly counsel.

DR. ANNETTE J. SHAW.

Dr. Mary Wood-Allen is national superintendent of the Purity work. This department has for its aim: —

"To abolish Ignorance by Knowledge;
To eradicate Vice by Virtue;
To displace Disease by Health;
To dispel Darkness by Light."

Its chief agent is the *New Crusade*, a monthly magazine designed to help parents and teachers in all phases of child training. In it delicate topics are discussed with great tact from the standpoint of the latest scientific research. Dr.

DR. MARY WOOD-ALLEN.

Wood-Allen believes in positive rather than negative teaching, in emphasizing goodness, in appealing to the nobler nature of every man, woman, or child. She has written many books of great value in her department. Among them are, "Teaching Truth," "Almost a Man," "Almost a Woman," "Child Confidence Rewarded," "The Marvels of Our Bodily Dwelling." Mrs. S. M. I. Henry, who for many years was one of the leaders in social purity work, writing and speaking constantly along that line, has recently written a book of great value to this department, "Studies in Home and Child Life." The Little Body, Training the Appetite, Dress, Authority, are some of the topics treated in a way to be of inestimable help to parents who would have their children grow up pure in body and in mind.

The Purity department also works through special branches. Constant efforts are being made to secure legislative reforms along the line of protection to the young. During the last year, as a result of petitions and agitation, the "age of consent" was raised in Utah to 18, in Louisiana to 16, in Washington from 12 to 18. In Florida the seduction law was raised from 16 to 18, and the rape law was changed, fixing the penalty at death. In the line of White Cross and White Shield societies there has been great progress. White Cross work is being carried on in every State except Utah and Florida.

The work of Mothers' Meetings and of Child Culture circles is also flourishing. Some of the tangible results of this special education are the establishment of kindergartens and curfew ordinances a more vigorous warfare against the saloon, and everywhere uplifted and newly inspired lives and homes. Mrs. J. H. Kellogg, who is now general secretary of Child Culture circles, has long been connected with the work for purity and health. From 1882 to 1886 she was national superintendent of the department of Hygiene, and held numerous health institutes in different parts of the country. She has done much to show the relation between unhygienic living and intemperance. More than ten years ago, in public addresses, she discussed the question

MRS. J. H. KELLOGG.

of "Hygiene *versus* Intemperance" in a strong and logical argument. In 1886 she became associate superintendent of the Social Purity department in connection with Miss Willard. Her special charge was Mothers' Meetings. For ten years she held this responsible position, until in 1896 she became secretary of the Child Culture Circles. All through the years her ripe experience and able counsel have been invaluable to this work.

The W. C. T. U. more than any other organization has been the godmother of the scientific temperance education movement. Mrs. Mary H. Hunt, of Boston, has for many years been at the head of this department. In 1878 the thought came to her, "Teach the children the scientific facts about alcohol to-day, and you save the nation from drunkenness to-morrow." She quickly saw that the public school system must be the vehicle for this scientific temperance instruction, and that suitable text-books must be prepared. She has been instrumental in securing laws on this subject in all the States and Territories, except four, Virginia, Georgia, Arkansas, and Utah.

A strong bill, with all the specifications of the latest and best statutes, passed both houses of last winter's legislature in Utah, and only failed to become a law through not being properly engrossed. Petitions for a temperance education law are being circulated in Virginia, to be presented to next winter's legislature. An educational bill, which has passed one branch, is now pending before the other in the Georgia legislature.

Dr. Geo. F. Shrady, editor of the *Medical Record*, of New York City, and one of the leading physicians in the United States, in commenting in the *Forum* upon this work, said: —

"The universal scientific temperance education of the children in the public schools of this country, as now required by law, is one of the great events in the progress of true physiological science in this nineteenth century."

Dr. Baer, of Berlin, the foremost specialist in Europe, after a careful examina-

MRS. MARY H. HUNT.

tion of the temperance text-books endorsed by the W. C. T. U., said:—

"Not one volume among the twenty-three contains or disseminates teachings not in harmony with the attitude of strict science. The statements in regard to alcohol presented in these books are correctly made, and are well adapted to the youthful understanding."

In her last annual report the national superintendent said:—

"The future of our great nation is menaced because of the demoralizing influence of alcohol upon its citizenship. The stronghold of that menace is the misapprehension of the people as to the nature of alcohol. Science is pouring in its light, showing that the confidence of the people in alcohol is misplaced; that instead of being a helper, as they suppose, it is a stealthy narcotic destroyer. In other ages the testimonies of science have stayed pigeon-holed for long years after their discovery before they have reached the people. Kepler said, when the story of his astronomical discoveries was being burned, 'As God has waited six thousand years for an observer, I can wait one hundred years for a reader.' But such delay in the march of truth is not the method of the rapidly moving cycles of time in these last days. Notice the conjunction of events. As the truth needed for the people's emancipation from the thraldom of strong drink is proved true, nearly every schoolhouse in the land is under legal obligation to give that truth to the 16,000,000 children of school age receiving public instruction."

Mrs. Hunt is in regular communication with both American and foreign specialists on different phases of the alcohol question, and receives their reports when issued. A skilled linguist is constantly employed at the department headquarters in Boston, translating these foreign documents as soon as received; and when thus translated, they are given to the world through the *School Physiology Journal*, a monthly magazine published by the department, dealing with the subject of temperance physiology as required by the laws of forty-one States and all the Territories.

This department published and sent through the mails to all parts of our land, last year, more than four and a half million pages of original total abstinence matter, fully three millions of which were given away. The expenses of the department for the year for printing, postage, secretaries, translators, clerical hire, and other direct expenses for national work were $8,188.42.

The department of Anti-Narcotics, under the superintendency of Mrs. E. B. Ingalls, is one of the most active and efficient. Anti-tobacco leagues are formed, medal contests held, the *Anti-Tobacco Gem*, the only strictly anti-tobacco paper published, is circulated, and thousands and thousands of pages of literature are distributed. In New Jersey alone last year 23,579 pages were given away, while 1,088 children and 257 adults signed anti-tobacco pledges. In Pennsylvania last year 44,773 pages of literature were distributed, and nearly 3,000 signatures to pledges taken. In the District of Columbia there are 3,723 members of the Anti-Cigarette League.

Important legislation is also being secured. In Indiana a cigarette law was recently passed making it unlawful to sell, barter, or give away to any minor any cigarettes, cigarette paper, or substitute for either, and fixing as the penalty for the first offense, upon conviction, a fine of not more than $50 or less than $1, to which may be added imprisonment in the county jail for any period not exceeding sixty days. The State president of the W. C. T. U. consecrated her entire energy and talents to this work until it was accomplished.

In Maine an attempt was made to se-

cure a law forbidding the manufacture, sale, and gift of cigarettes. Over 16,000 signatures were secured to this petition. The W. C. T. U. had a bill before the temperance committee at the Legislature, and the bill passed the House by a large majority. The Senate did not agree, but finally a bill passed prohibiting the sale or gift to persons under twenty-one years of age.

A new law has been secured in Nebraska, which forbids the giving away, sale, or furnishing of cigarettes to any one under twenty-one years of age. A fine of not less than $100, nor to exceed $200, is the penalty.

In Physical Culture, the W. C. T. U. is putting itself in harmony with the best sentiment and teaching upon the subject. Public school methods in various States are being investigated, and plans formed to compel the physical education of pupils upon a scientific basis. There are twenty-four State superintendents in this department. Mrs. Frances W. Leiter is national superintendent.

The inspiration of the work of the W. C. T. U. for children, crystallized in the Loyal Temperance Legion, has long been found in the enthusiasm and sympathy of their leader, Miss Anna A. Gordon. She is the Loyal Temperance Legion superintendent of the World's W. C. T. U., and associate of the national superintendent in our own country, Mrs. Helen G. Rice. Miss Gordon has done much to unify the work of the children in all countries. Her success is shown by the "Little Cold Water Girl" statues erected by the children of the World's Legion in front of Willard Hall, Chicago, in a park in London, and in Bombay. In the Loyal Temperance Legion systematic temperance studies are pursued, and the children are trained in many lines of benevolent work, such as pasting scrapbooks for hospitals and other places, clothing poor children so that they can attend the meetings, visiting the sick, erecting drinking fountains, holding services in prisons, soldiers' homes, and almshouses, preparing for and holding sales, crushing cigar stubs, sending picture cards and papers to the children of immigrants, distributing books and leaflets, dressing dolls for Christmas boxes.

In one Legion, composed of the poorest children, pennies were saved to help

ANNA A. GORDON.

educate an African girl. The prison authorities of a city in New York gave another Legion ten dollars for services held by the children in the prison.

There is no more encouraging work than that for the children. "In one instance," says the national superintendent, "a saloon-keeper of fifteen years' standing was induced to give up his business through his boy's connection with the Legion. The leaders of another society, becoming disheartened, decided to ask the children: What good does it do

to have a Legion? Such replies as these were received: 'Well, it stopped me from using cigarettes, and now I'm telling other boys.' 'I don't carry beer any more.' One little fellow said in a whisper, 'I go home and help mama when she expects papa to come home drunk.'"

The National Temperance Hospital was founded to demonstrate that alcohol in medicine is not only unnecessary but injurious. Almost every patient goes out from this hospital with total abstinence principles forever fixed in his mind. Dr. Sarah Hackett Stevenson, of Chicago, has recently been made president of the Hospital board. Her name gives assurance that wisdom and energy will more and more be exercised in this important enterprise. Dr. Stevenson is also invaluable as lecturer in the Health and Heredity department. Her life is devoted to good works. Through her influence a free maternity hospital and training-school for nursery maids has recently been established on North Clark Street in Chicago. Its objects are to care for poor women in childbirth, at their homes or in the hospital, until they are well and able to work; to train physicians in the science and art of obstetrics; to train obstetrical nurses and nursery maids; to substitute trained physicians and nurses for ignorant midwives; to prevent baby-farming, and to find occupation and homes for the patients and their children when necessary. Dr. Stevenson also has charge of "The Model Workshop and Lodging House Association," at the corner of West Polk and Halsted streets, where women in need may find lodging at the rate of fifteen cents a night or its equivalent in work, where each lodger is given clean night clothes and a bath, as well as moral and spiritual help and encouragement.

DR. SARAH HACKETT STEVENSON.

Through all these agencies the National Woman's Christian Temperance Union is actively at work for sanitary and hygienic reform. As individuals also the women of this great organization are thoroughly awake to the physical as well as the moral evils of the age, and thoroughly alive to the importance of doing everything possible to put their own lives, as well as those of others, upon a perfectly healthful and therefore natural basis.

In the Memory of

Frances E. Willard.

By Katharine Lente Stevenson.

O white soul, born of heaven's eternal light;
O prophet-voice, ape heralding God's truth;
O life that sprang from his immortal youth,
O spirit strong in sweet, compelling might!
How may we face this world of inky night
Which reaches out before us, now thou 'rt gone?
How may we, weary, bear life's burdens on,
Missing the cheer of thine own presence bright?

So say our hearts in sorrow's anguish keen;
So cry our souls beside thy flower-strewn bier;
And yet, we know God reigns; his path is seen
Upon the wind-swept waves, in storms severe.
Thou 'lt know "how beautiful to be with God."
We, too, shall learn, and follow where thou 'st trod.

UNDER THE MANTLE.

BY MRS. S. M. I. HENRY.

It seems to have been a special inspiration which led Miss Willard, a few years ago, in view of her failing health, to call for the creation of the new office of Vice-President at Large in the National W. C. T. U., and to nominate Mrs. L. M. N. Stevens to fill it. Why should any one doubt that He who organized our work in the first place, and has so often manifested his will and power as presiding officer, did especially move her to this act, which, it has been demonstrated, was so vital to many far-reaching interests?

The loyalty of the women would have led them to rally about any one whom Miss Willard had especially named to occupy the office made vacant by her death until the next election; and their sympathies would have come quickly to her support upon whom so heavy a responsibility should have fallen, whether she had been a first or last choice.

Among the questions asked by interested spectators of our proceedings after the death of our leader, have been these: "What effect will it have on your work?" and "How will Mrs. Stevens compare with Miss Willard? Can she fill her place?"

In the answers to these questions we find the evidence of that wisdom that never fails to appear when it is needed in the work of God. It would be foolish to

attempt to fill Miss Willard's place. Any woman who should aspire to this, or who should attempt to take for herself one leaf from her laurels, would suffer such loss as nothing could make good.

When Frances Willard stepped out of the place that had known her so long, the chamber was sealed; it remains vacant forever. Not that she was the only woman capable of leadership; not that she alone was loved; but that she had been lifted for a special purpose to a special position,— a position equivalent in all hearts to the work given her to do, both of which must cease with her. Whatever follows must be in many respects different, perhaps entirely new.

A woman between whom and Miss Willard comparisons would instinctively be made, would suffer and lose, day by day, in spite of all efforts to support her; and that "manifold wisdom" which has always been our resource is manifested in the fact that there exists no possible ground of comparison between Miss Willard and her successor. Your first thought on seeing them together would be, "How utterly unlike!"

MRS. L. M. N. STEVENS.

One thing was always noticeable when Miss Willard, on leaving the platform,

called Mrs. Stevens to the chair; there was an involuntary change of expression and position all through the house,— not a disagreeable change, not a sign that Mrs. Stevens was not welcomed as she came forward and took up the reins— far from it. No one could for a moment so interpret the feeling which found expression in the little readjustments which were so noticeable. It was the instinctive recognition of another and entirely different personality; and since we knew *she* would be resting not far away, to return again, the change was even refreshing, because of the new turn which it gave to whatever was under way in the convention. It was like "standing on the other foot" for a little while.

Mrs. Stevens has the gifts that make a splendid leader. As a presiding officer she is strong, alert, just. Her voice, although on a lower register, was always "in chord" with that of her chieftain's; and while it will never bring back those thrilling tones by so much as the faintest echo, yet it will not be difficult with the inner sense to hear them like a sweet refrain mingling with Mrs. Stevens's sturdy accents, as sometimes a deep-throated contralto seems to be accompanied by some soft lute which plays only to the sympathetic listener.

The fact that Mrs. Stevens is a product of the "Maine-Law State," that she has been surrounded by prohibition all her life, and had Neal Dow for a neighbor, never tended to that sort of self-righteousness which has led many less consecrated and true to say, "What does the saloon mean to me?" Instead, as she herself naively confessed, "When I heard about the Ohio crusade, I thought, 'That means me too.'" She at once joined the "Army," and has from that day to this given time, strength, and means to the most practical forms of gospel and rescue work.

She is a winsome woman; your heart goes out to her at once, and although certain little tones and manners about her are such that you almost suspect yourself of having fallen in love with her brother in thus freely giving your love to her, yet you cannot help it, nor would you if you could.

She is eminently a Saint Courageous. She is never afraid of discussion; she has such faith in the power of the truth to vindicate itself that she does not fear to give it a chance to "have it out" with error. "Bring everything into the light," might well be taken as her motto. "Prove all things and don't worry," might be another. "If anything stands the proof, well and good, then let us tie to it; but if it does not, of what use in the world can it be to us?" is written upon the very atmosphere that she breathes out.

She has no use for anything that *hurts* anybody. She would never make an inquisitor, and yet, if it were necessary, she could stand by and hold the hands of her best beloved under the most painful ordeal that could befall. She might possibly faint at the memory later on, but I hardly think so.

Mrs. Stevens is a Christian with the direct, childlike faith of an honest soul that believes all things, hopes all things, and fears nothing; since God is God, and Christ is all and in all.

As a speaker she is forcible and reliable. She does not indulge in flowers of rhetoric, but her clear-cut statements are always convincing. You never feel that there is the least danger that she will be carried off her feet by enthusiasm, or lead an audience into any form of impulsive expression; but you are sure they will listen to the end, be sorry when she stops, and know a great deal more than when she began.

Amid all the perplexities of those first weeks of sorrow, there was little real apprehension for the future of our work;

for "Stevie," as Miss Willard called her, was at the helm, and communicated all along the line such comfort and courage that we could not despair. Under unwise leadership it would have been easy for some disaster to have followed the blow which has fallen upon the work of the W. C. T. U., but the hearts of all can safely trust in her who was called of God to meet this emergency. And yet none the less does she need a safe anchorage in all hearts, and sympathy of the most substantial order.

Mrs. Stevens was born in Maine in 1844, was married in 1865, and in 1874, on the occasion of Miss Willard's first visit to Old Orchard Assembly, assisted in the organization of the Maine W. C. T. U. She was then elected State president, and has been unanimously re elected every succeeding year. In 1880 she was made assistant recording secretary of the National W. C. T. U., in 1893 recording secretary, and in 1894 vice-president at large. Without doubt the next election will lay upon her shoulders by formal ballot the mantle which has fallen at her feet.

MAN'S NATURAL DIET.

BY J. H. KELLOGG, M. D.

(Continued.)

Disease Resulting from the Use of Flesh Foods.— Enormous sums are annually expended by State and city governments in all civilized countries for the purpose of preventing disease. No expense is spared to secure an abundant supply of pure water. Great attention is given to the suppression of coal-smoke fumes from chemical works and the odors arising from decomposing animal and vegetable matter, sewer-gas, and other sources of air contamination. A government inspector takes care to see that the beer and whisky manufactured is up to the standard. But in many countries, especially in the United States, little or no attention is given to the fact that in the use of the flesh of animals as food, far greater risk of disease infection is incurred than in any other way.

If a leper is known to exist in a community, and his whereabouts are learned, he will be avoided with the most scrupulous care. Many of those whose business compels them to pass through the street on which he lives will take care to "pass by on the other side;" and yet these same persons will swallow without question the flesh of dead animals which were never inspected, either when alive or after death, notwithstanding the assertion of Professor Gamgee, the eminent English sanitarian, that disease among animals has become "so common that at least one fifth of the meat which is sold in the public markets is diseased." In a number of European countries, animals are inspected with greater or less care before killing, and their dead carcasses are examined afterward, yet this examination is so superficial that it is generally admitted by sanitarians that the amount of diseased and unwholesome meat seized and condemned constitutes but a very small fraction of that sold and eaten. In the great markets of London more than four hundred tons of meat are sold daily. The annual report of the inspector shows nearly a thousand tons of diseased meat, but the amount eaten is doubtless far greater than this. The ancient Romans required inspection of all meat offered for

sale, and the Jews have from time immemorial made a very careful inspection of animals used for food both before and after death. All orthodox Jews still observe the ancient laws in this particular, and absolutely refuse to eat flesh which has not first been examined by a "bodek." A learned Jew who had acted in the capacity of "bodek" for many years in Chicago, stated to the writer some years ago that he was compelled to condemn fully nineteen out of twenty animals which he subjected to examination. The condemned animals were of course sold to the general public.

In view of the great care that is taken to prevent the extension of such infectious diseases as smallpox and scarlet fever, it is certainly singular that greater pains is not taken to prevent the consumption as human food of diseased animals, since it must be apparent that the taking into the body of infected flesh must be the most effective possible means of infection. Nevertheless, we have no particular plea to make in favor of inspection, as there is no method of inspection whereby the consumption of diseased flesh could be altogether prevented. While jaundice, fever, tuberculosis, and a few other maladies leave behind them evidences of disease sufficient to condemn the flesh of an animal which has suffered from one of these maladies, there are numerous other diseases which are so subtle and inconspicuous in character that they may be easily overlooked. Indeed, there are maladies arising from the use of flesh against which the most critical chemical investigation and the most careful microscopical examination would be no protection.

A Deadly Alliance.— The association and relationship existing between human beings and the so-called food animals is such as to tend in the highest degree to the development of disease in both. Most domestic animals are subject to many of the same diseases from which human beings suffer. The reverse is also true. By means of the intimate association between man and the domestic animals and the artificial conditions of life to which the poor brutes are exposed in fattening and otherwise preparing them for consumption as food, the best possible opportunity is offered for an interchange of maladies ; that is, man communicates disease to the lower animals, and they, in turn, communicate to him either the same diseases or others of equally grave character. In other instances, as in the case of tapeworm, the relation existing is such that this association between man and the lower animals is a necessary condition for the perpetuation of disease, each animal playing its part in the development of the parasite and the completion of its life history. In the case of the disease named, both men and animals would cease to suffer if the flesh of animals were no longer used as food.

The diseases resulting from the use of flesh food may be divided into several classes : —

1. Those which are directly communicable, as parasitic diseases and diseases due to specific germs.

2. Those which result from the use of decomposing flesh or fish.

3. Those which result from the use of the flesh of healthy animals, and which are the penalty of the transgression of physiological laws relating to diet. We will briefly consider each of these classes.

Tapeworm.— There are many varieties of tapeworm, some of which inhabit the human body, others being found only in the bodies of lower animals. Of the few parasites to which human beings are subject, all are derived from the use of infected meat. This fact is so well known at the present time that it is not even necessary to quote authority for its sup-

port. The tapeworm does not inhabit the stomach, as is generally supposed, but the small intestine, in which the animal sometimes grows to enormous length. The parasite is made up of short sections, each of which is provided with means for holding on to the walls of the mucous membrane. Each section of the worm is continually throwing off eggs, which, finding their way through sewers into streams, are swallowed by cattle and other domestic animals. In the bodies of some of these animals the young tapeworms develop active embryos, which work their way into the blood-vessels, and are by this means distributed throughout the body. Reaching the muscles, they become established and undergo further development. Beef or pork which contains these cysts, or tapeworm embryos, is said to be "measly." When measly flesh is eaten, the cyst walls are digested off by the gastric juice, and the embryo is set free; passing into the intestine, it fastens itself to the mucous membrane, where it commences rapid growth, and produces all the distressing and inconvenient symptoms arising from the presence of the parasite in the alimentary canal.

Contrary to the general supposition, as pointed out by Dr. Leidy, the famous Philadelphia anatomist, the tapeworm is, in the great majority of cases, derived from the use of raw or underdone beef. In only about one tenth of the cases is the disease derived from pork.

From this brief sketch of the natural history of the tapeworm parasite, it is apparent that the use of flesh food by man and the intimate association of men and domestic animals afford the best possible opportunity for the perpetuation of this disease. A person who carries about with him a tapeworm is continually throwing off into sewers and similar places immense numbers of tapeworm eggs. When these sewers empty into rivers and other bodies of water, the water becomes infected. Cattle, hogs, and other animals drink the water, and the use of their flesh by men becomes a mode by which the disease is rapidly dispersed over a large territory. When it is understood that every human being having a tapeworm may discharge from his body daily many thousands or even millions of tapeworm eggs, each of which is capable of giving rise to tapeworm in another human being, it no longer remains a matter of surprise that the disease is so rapidly spreading at the present time. The writer has encountered a number of cases of tapeworm infection in which the history of the case showed very clearly that the parasite was derived from the use of slightly cooked scraped beef.

At the rate at which the tapeworm infection is at present extending, it would seem likely that the time is not far distant when people of civilized countries will be in the situation of the dogs of Iceland, where every dog has his tapeworm.

Trichinæ.— This parasite, first discovered in a human body in a German medical institution about half a century ago, has become now so widespread and so well known that a description of it is scarcely necessary. It is more than probable that the majority of cases of trichinosis are never recognized as such. In its symptoms the disease so closely resembles cerebral and spinal meningitis, muscular rheumatism, winter cholera, and other maladies, that it is very likely to be overlooked.

This disease is almost universally contracted by the use of lean pork, most commonly in the form of ham and sausage, although within the last few years instances have been reported in which trichinæ have been found in fish. In its natural history the trichina somewhat resembles the tapeworm. In flesh infected

with trichinæ, the parasites will be found enclosed in small cysts. The cyst walls are dissolved by the gastric juice when the flesh is eaten, and the parasite is thus set free. It soon develops numerous young parasites, and these quickly bore their way into the blood-vessels, in which they are swept along by the blood to the muscles. Here they lodge, becoming encysted in little capsules, where they may remain in a quiescent state for years, giving rise in some cases to no further inconvenience than rheumatic or neuralgic muscular pains. In severe cases, however, other symptoms arise, such as purging and vomiting, set up by the irritation of the millions of parasites boring their way through the intestinal walls. During the migration of the parasites through the body, the patient suffers from fever, severe muscular pains, perhaps cramps or spasms, and other symptoms resembling rheumatism, spinal meningitis, and other maladies.

Not infrequently many scores of persons have been made sick simultaneously by the consumption of pork in the form of ham sandwiches or sausages on the occasion of some great feast. The infection of American pork by this parasite has become so general and so well-known that at present it is forbidden entrance to several important European countries until first thoroughly inspected. In order that the great pork industry might not suffer, the government has established an inspection service in connection with the great pork-packing establishments of our large cities, by the aid of which an attempt is made to have a microscopical inspection of every slaughtered hog before preparing the same for shipment to European markets. Strange to say, however, no such protection has ever been proposed for the benefit of the American people. At least there exists no established system of inspection by means of which the public may be protected. When we remember that the disease is incurable, and that the parasites, when once they have obtained a foothold in the system, can never be ejected, the gravity of the danger to which the public is continually exposed will be appreciated. The public is constantly advised, through the newspapers, works on dietetics, and other writings, to avoid the use of raw pork because of the imminent risk of trichina poisoning.

Certainly it is safer to eat cooked trichinæ than to swallow the parasite alive, but the only wholly wise and reasonable course is to discard the use of pork altogether as a food utterly unfit for consumption. The hog is by nature a scavenger, and should be allowed to pursue unmolested his divinely appointed calling.

The Influence of Flesh-eating upon the Urinary Secretions.— It was long ago shown by Quincke (see Landois and Sterling's physiology) that the free use of meat gives rise to a great increase in the quantity of urine. The great German chemist, Dr. Lehmann, of Leipsic, showed many years ago that the increase in the quantity of urine produced by a flesh diet is due to the increased amount of poisonous matters, particularly in the form of urea, which the kidneys are required to eliminate. For example, he showed that while the amount of urea produced in twenty-four hours was 346.5 grains in a man living upon a purely vegetable diet, a diet of flesh gave rise in the same man to much more than double this quantity, or 819.2 grains. On a mixed diet, the quantity of urea was 500 grains. The amount of uric acid resulting from an animal diet was increased from 15.7 to 22.64 grains in twenty-four hours. As the urine is simply an extract of the tissues, it is evident that the appearance in the urine of such a large increase of poisonous matters is an

evidence of contamination of the body by the use of flesh foods.

The Body a Factory of Poisons.— But the full significance of the facts above noted cannot be wholly appreciated without an understanding of some of the interesting results of modern physiological investigation in relation to the results of the vital activities constantly taking place in the body.

The researches of Liebig, Lehmann, Claude-Bernard, and especially those of Brieger, Gautier, and other recent explorers in the mine of physiological chemistry, have developed a vast fund of novel and interesting facts which have a most important bearing upon practical dietetics, and especially upon the question of the consumption of animal flesh as food. As the result of these laborious and painstaking laboratory studies, a remarkable fact has been developed,— that the animal body is a manufactory of poisons. The production of CO_2, urea, and a few other poisons, has long been known, and the modes of their production and elimination have been carefully studied; but it has remained for the present generation of physiological chemists to discover the fact that the poisons named, and others which have long been known, are comparatively non-toxic and harmless when contrasted with any one of a multitude of newly discovered bodies which are found to pervade the tissues of all classes of animals.

Brown-Sequard discovered, some years ago, in the breath of human beings and other animals, a poison which in the most minute doses produces deadly effects upon lower animals,— a fact which the writer saw experimentally demonstrated by Professor Brown-Sequard in his laboratory in Paris a few years ago.

Bouchard, another French physiologist and chemist, has within a few years demonstrated the presence in the urinary secretions of human beings, as well as of lower animals, of a half dozen most deadly alkaloids in addition to the urea, uric acid, and other less toxic bodies previously known. One of the poisons in most minute doses produces death with violent spasms; another causes rapid fall of temperature until death occurs; another influences animal temperature in the opposite direction; still another produces death with most profound coma. These substances are so small in quantity that they are not discoverable by any of the means employed in ordinary chemical analysis of the urine, but their presence and deadly properties are quickly demonstrated, as shown by Bouchard, by the injection of a small quantity of urine into the veins of a rabbit or other small animal.

As Bouchard and other investigators have clearly shown, the urine may be considered as an extract of the tissues, constituting the residuum resulting from the vital work of the body. The kidneys do not manufacture poisons *de novo*, but simply separate from the blood, poisons found in solution therein, which have been washed by the blood current from the tissues which it bathes in passing through the capillary network of the systemic circulation.

The amount of poisons produced in the body and the extremely poisonous nature of these substances may be inferred from the rapidity with which death occurs when there is any serious interruption in the process of poison elimination; for example, suppression of the action of the kidneys results in death within a little more than forty eight hours, from the accumulation within the body of the poisons which it is the special duty of the kidneys to eliminate. Interruption of the normal activity of the skin in poison elimination, by the application of a coating of varnish, produces death in a

few hours with a notable fall of temperature — the result not of an increase of radiation, as was formerly supposed, but by the accumulation in the body of the temperature-lowering poison discovered by Bouchard. Interruption of the action of the lungs results in death within a few minutes, not directly because the supply of oxygen is cut off, but because of the failure of the lungs to expel from the body the deadly toxic substance which Brown-Sequard has demonstrated to be a constant constituent of the breath.

The eminent French physiologist, Bouchard, a few years ago discovered that the most delicate of all tests for determining the relative quantity and quality of the poisons present in the urinary secretion is the effect of these poisons upon the living animal. He accordingly devised a method of determining the toxicity or poisonous properties of any given specimen of urine by injection into the veins of an animal, care being taken to note the exact amount of urine required to kill an animal of a given weight.

In his investigations of the toxicity, or poisonous property, of the urine, Bouchard noted that the use of a flesh diet increased urinary toxicity — that is, the amount required to kill a rabbit of a given weight — more than fifty per cent. Further investigations made in other laboratories have since shown that in a person subsisting upon a purely flesh diet the toxicity may be increased to fourfold the normal; that is, the amount of urine required to kill a rabbit of a given weight may be only one fourth the ordinary amount, in consequence of the great quantity of poison contained in the secretion.

(To be continued.)

SYMPOSIUM.

Miss Jane Addams, Superintendent of Hull House, Chicago.
Anthony Comstock, Secretary of the New York Society for the Suppression of Vice.
Rev. Milton S. Terry, D. D., Garrett Biblical Institute.
Hon. Henry W. Blair, Ex-United States Senator from New Hampshire.
Mrs. Jessie Brown Hilton, National Lecturer of the W. C. T. U.
Mrs. Clara C. Hoffman, Recording Secretary of the National W. C. T. U.
Mrs. Helen M. Barker, Treasurer of the National W. C. T. U.
Mrs. J. H. Kellogg, National Secretary of Child Culture Circles.

The growth of Miss Willard's sympathy with and her interest in the labor movement during the last decade of her life is most remarkable. That she should hold her mind open and receive so willingly this new manifestation of the continued effort toward social righteousness shows how large minded and free from prejudice she was to the very last.

Jane Addams.

Cleanliness is next to godliness. A clean body is essential to a sound mind. An intemperate person is always unclean and unsound. Miss Willard taught godliness, temperance, and loving-kindness. Her aim in life was to prevent the degradation of her race. She saw and realized in a superior sense that intemperance and sensuality were the seeds from which misery, shame, and ruin sprung — by which health and happiness were wrecked. She recognized these evils as the two greatest

crime-breeders of the day. She sacrificed her health and her life in brave and heroic efforts to stem these tides of corruption. Her sympathies were with the fallen, the tempted, the tried, and with every laudable effort to destroy the tempter, to prevent the spread of evil influences, and to sustain those who labored for the defense of moral purity. Promoted from earthly labors to heavenly joys, her works do follow her.

Antony Comstock.

She was a health reformer in the highest sense. Gifted with the intuition of a universal sympathy, her life-training and ever-enlarging work made her the most cosmopolitan woman of the century. The little girl who loved with passionate affection the garden and woods and fields about her early forest home, and made with tender hand a graveyard for her pet rabbits and kittens, would be certain, as years increased, to feel and hear —

"The still, sad music of humanity."

Her school life and later experience as a teacher and principal developed in her a subtle power to fascinate and lead the most cultivated minds. Her lofty spiritual nature, so susceptible to heavenly calls that, as she often told us, her sister Mary's death changed all the earth to her and made the world invisible the only real world, thrust her out, like Joan of Arc, with an almost superhuman ambition to labor "for God and home and native land." Her sisterly heart, like the blessed Christ she worshiped, was deeply touched with a feeling of all sorrows and infirmities, and she laid down her life a loving sacrifice for the weal of others. Such a woman must needs rank high among great reformers who, being dead, yet ever speak of better things to come.

Milton S. Terry

WASHINGTON, D. C.,
March 29, 1898.

I am not specially familiar with the record of Miss Willard as a health reformer, but alas! whatever of good she may have done the human race by the advocacy of temperance in eating and drinking proper foods and of total abstinence from all poisons to the use of which it is addicted, she herself at last died the victim of intemperance, for she worked herself to death for others.

It is a question whether she did right in this; for, if there should be moderation in all things, certainly it is a duty to preserve our powers of usefulness as long as possible.

As it is, however, and "what though short her date," she accomplished the labor of many lives, and has left us all looking up to see where she has gone.

Miss Willard naturally fought all chains and slavery of body and soul, and in helping to unfasten the bandaged, cramped, and fettered form of woman so that she can once more walk, leap, and praise God by unrestricted and happy motion, as in the perfection of bird and animal life, it may yet appear that she did the best of her great work.

Henry W. Blair

Miss Frances E. Willard believed in healthy, educated womanhood. Therefore, once a month, when dean of the Woman's College in Evanston, she had a woman physician lecture to the

girls on practical subjects. We were spurred to careful thoughts of health because it was said that girls had not the physique to stand a heavy course of study. Miss Willard wanted us to prove, by our bright color and general good health, that we could do it. She also felt that we made better associates in the class room, if we were neat and clean and healthy. Miss Willard believed that health makes it easier to be moral, and this has been the key-note to many departments in our temperance work. Miss Willard combined all mental, moral, and intellectual forces, and by the study of the relation of each to the others brought out into life strength and courage and purpose.

Jessie Brown Hilton.

Our beloved leader, Frances Willard, believed that good health is Christian duty; that it is Christian grace and beauty, to be sought and cultivated persistently.

She gave heartiest endorsement to every means tending to this end. With spirit-illumined sense she saw that even as no family can hope for immunity from disease, with clogged sewers in the house, decaying vegetables in the cellar, and pools of stagnant and poisonous filth near at hand, so no community, State, or nation can guarantee good health, physical, mental, or moral, while the conditions permitted and protected engender vice and encourage uncleanness.

When this conviction was firmly implanted in that great, tender heart, touched with deepest sympathy for the sorrowing and sin-laden, she threw herself without reservation into the Herculean task of changing conditions and environments.

In this most Christlike work she had absolute singleness of purpose. She neither faltered, hesitated, nor turned aside. Herein we find the reason that the very gentlest of women became the bravest, most persistent, determined leader against alcohol, narcotics, and the lust that eateth like canker.

Hence her burning, convicting eloquence against the debasing, destroying conditions produced by this triune curse; hence her "peaceful warfare" against the customs that make reputable, the political parties which perpetuate, the laws that protect, these evils which constitute the sum of villainies.

When in all history has any human being organized a crusade like unto this? When has the world before witnessed a movement like that inaugurated by Frances E. Willard — a crusade for the dignity, sobriety, and purity of the human race, a crusade for the wholeness and good health of the world?

Clara C. Hoffman

Frances E. Willard was a reformer born, not made. Every aspiration of her sensitive nature was for freedom. She not only recognized that the victim of strong drink was a slave, and that those in poverty were prisoners, handicapped on all sides, but she early awoke to the fact that women were slaves to barbarous customs of dress, and that through their own ignorance in matters of hygiene they were likely to remain in a bondage that meant mental and physical deterioration. As a reformer she built upon a broad foundation. This led to her "do everything" policy. Early in the history of the Woman's Christian Temperance Union, as an organization, she recommended a department of hygiene and heredity, believing that if mothers could be taught the principles governing their own beings, it would lead to generations

of children better equipped to withstand temptation and with appetites less depraved, hence with brighter outlook for the future. She said in one of her addresses ten years ago : —

"But woman's everlastingly befrilled, bedizened, and bedraggled style of dress is to-day doing more harm to children unborn, born, and dying, than all other causes that compel public attention. With ligatured lungs and liver as our past inheritance and present slavery, the wonder is that such small heads can carry all we know ! Catch Edison and constrict him inside a wasp-waistcoat, and be assured you 'll get no more inventions ; bind a bustle upon Bismarck, and farewell to German unity ; coerce Robert Browning into corsets, and you 'll have no more epics ; put Parnell in petticoats, and Home Rule is a lost cause ; treat Powderly in the same fashion, and the powder mine of failure will blow up the labor movement. Niggardly waists and niggardly brains go together. The emancipation of one will always keep pace with the other ; a ligature around the vital organs at the smallest diameter of the womanly figure, means an impoverished blood supply in the brain, and may explain why women scream when they see a mouse, and why they are so terribly afraid of a term which should be their glory, as it is that of their brothers, viz., strong-minded."

This systematic study of the principles of hygiene led the women to the knowledge that much of our modern cooking was unhealthful, and had a tendency to give to children inflamed conditions that naturally led them to strong drink, and Miss Willard was an ardent advocate of a reform diet. She said in her address at the Atlanta Convention in 1890 : —

"Within the last twenty-five years the fruit-producing resources of the United States have increased just ten times as fast as the meat-producing resources. Apples, oranges, and grapes are getting cheaper every year, but meat is getting dearer. This means clearer heads, cooler blood, and better equipoise of brain and brawn. It is a more distinct blow at alcoholism than anything else this year reported. Would that the drink habit, developed by meat eating and peppery food, might be antagonized by scientific cooking in every woman's kitchen."

Later on she awoke to the fact that women might dress properly, and eat fruit, and well-cooked and nutritious food, and yet be illy prepared for life's duties, by reason of too great confinement within doors, and too much inertia, and she became an enthusiast for out-of-door exercise. She also became an expert cyclist, and spent much time in the open air. She urged the establishment of a department of physical culture, and a national superintendent was appointed, whose duty it became to secure gymnastic exercises as a part of the curriculum of every high school and every public school in the country.

In her annual address at Boston she said : —

"Scientific temperance instruction and physical culture in the public schools means better bone and brawn, better tissue and nerve ; hence it means children better born and homes more permanent and happy, stimulants at a discount, and God's laws loved. It is the gospel of peace literally written upon the fleshly tablets of the heart. Therefore no greater good can be accomplished by us for the human race than to raise the standard of bodily health among women. There is no physical reason why women should be more feeble or diseased than men, and among savages, if there is a difference, the woman has occasion to and does endure the most physical stress and hardship. Health writers tell us that

when Stanley went to the interior of Africa, they gave him two hundred negro women to carry his supplies, and he declares that they were the best porters he employed. We all know that in Europe the heaviest work is done by the women, who carry on their heads loads of vegetables and other material that the average man in this country could hardly lift. This is because the muscles of the waist and trunk in these women are thoroughly developed, and they do not suffer from the characteristic ailments of wealthy women of their own and other nations. Indian women carry all the household goods, and two or three babies into the bargain, while their husbands walk beside them, pipe in mouth and gun in hand. Of an equal number of male and female infants there will be found, at the end of the first year, a larger number of girls alive than boys. This discrepancy continues up to the age of fifteen or sixteen, after which the mortality becomes greater among girls. At the age of forty or fifty the death-rate is about equal in both sexes, and finally 'the oldest inhabitant' is always a woman, thus showing that her constitutional vitality is naturally greater."

After her own nervous system had begun to feel the strain that she had put upon it by too constant mental work, she said at the Cleveland convention: —

"We may overreach one another, but Dame Nature can by no means be overreached. She has written a law in our members which says that the equilibrium between brain- and hand-work must be maintained or the individual must suffer. If he is wholly occupied with brain-work, his hand is dwarfed; if he is wholly occupied with hand-work, his brain is dwarfed; the sluiceways of the blood are atrophied, and insomnia bears him onward in its phantom chariot away from the pleasant land of Nod into the pitiless Sahara of nervous prostration. If he would occupy his physical energies for two or three hours daily in some useful reaction on the forces about him, his thought would be far more electric, his sympathies warmer, his happiness incalculably increased. On the other hand the unduly heavy task of his brother, the hand-worker, diminished by these blithe activities of the brain-worker, would leave leisure to the laborer for mental discipline, so that both would be far finer men and better comrades, and the labor question would have solved itself to the incalculable advantage of him who is now a hand-worker, and by that fact a fractional man.

"These reasonable views of life are coming to be held by most of us in these last languid days as theories at least, and we have a right to hope that the next generation will hold them as every-day methods of common-sense behavior. But we do wrong when we live beneath our privilege; and knowing that we ought to exercise every day, we sin when we yield to the constantly deepening habit of the sedentary life. If we sin knowingly in this particular, it is easier for us to break the laws of God in any and every other detail of our lives. For myself, I do not believe that any form of conversion is so much needed by me as conversion to that physical exercise which advancing years render more and more distasteful."

While fully intelligent and alert as to all these scientific truths, yet we have to regret that under the stress of work that came upon her as the leader of a great movement, she did not always heed her own admonitions. She worked when she should have rested. She bore burdens that others should have carried, but her fertile brain was ever in advance, and she could not always wait for the faithful ones who moved at a slower pace; so she often laid upon her own slender shoulders duties that willing comrades would have

gladly borne. Her life was brief, counted by years, but measured by noble deeds for humanity, she reached a ripe old age.

Helen M. Barker

Subjoined is the facsimile of a petition sent by the National W. C. T. U. about fifteen years ago to many of the prominent publishers of magazines using fashion-plates. The petition received about thirty thousand signatures, and was influential in modifying the styles presented in a number of periodicals. The six signatures reproduced below were the first upon the list.

PETITION

TO THE PUBLISHERS OF.....

DEAR SIR: Knowing that the fashion in woman's dress which requires the constriction of the waist and the compression of the trunk of the body, is one which not only deforms the body in a manner contrary to good taste, but results in serious, sometimes irreparable injury to important vital organs; and, believing that the existence of the widespread perversion of natural instincts which renders this custom so prevalent, may be fairly attributable, in part at least, to erroneous education of the eye, and the establishment of a false and artificial standard of symmetry and beauty, which probably is largely the result of the influence of the popular fashion plates of the day; we, the undersigned, most respectfully petition you that in the the name of science and humanity, you will lend your aid toward the elevation of woman to a more perfect physical estate, and consequently to the elevation of humanity, by making the figures upon your fashion plates conform more nearly to the normal standard and the conditions requisite for the maintenance of health.

NAME.	ADDRESS.
Frances E. Willard	Chicago
Nat. Pres. W.C.T.U.	
Caroline B. Buell.	New York.
Cor. Sec. N.W.C.T.U.	
Mary A. Woodbridge.	Ravenna, O.
Ref. Sec. N.W.C.T.U.	
Esther Pugh	
Asst Rec Sec N.W.C.T.U.	Cleveland O
L. M. Stevens.	Portland Maine
Asst Rec Sec.	
Mrs J. H. Kellogg	
Supt Dept of Hygiene N.W.C.T.U.	Battle Creek, Mich.

TOBACCO, AND ITS EFFECTS UPON THE HUMAN SYSTEM.

BY W. H. RILEY, M. D.,

Superintendent Colorado Sanitarium, Boulder, Colo.

(Concluded.)

Effects of Tobacco upon the System.— Tobacco is recognized and treated by the system as a foreign element, a deadly foe. What agonizing efforts does the stomach make toward vomiting when the boy takes his first taste of tobacco! How nature rebels at its presence, and how deathly sick is the user! Nearly every user of the weed remembers distinctly his first experience with the habit, and those who did not suffer in this way escaped only because their bodies were already poisoned with the drug, due to the tobacco habit of the father, who had probably given as an inheritance to his son an appetite for that which he has himself so devotedly worshiped. The use of tobacco, then, being unnatural, is a reason why it should be discarded.

We will now consider its immediate general effects, and its specific effects upon various organs and functions of the body.

1. *Immediate Effects.*— Moderately taken, tobacco quiets mental and bodily unrest, and produces a state of general languor and indifference which seems to have great charms for those habituated to the impression. In large quantities, it results in confusion in the head, vertigo, stupor, faintness, nausea, and vomiting, and general depression of the nervous and circulatory functions, which, if increased, eventuate in alarming and even fatal prostration.

2. *The Nerves.*— Like other narcotics, tobacco has a pronounced effect upon the nervous system. Here it is, in fact, that the greatest evil is done. Through the nerves, nearly all the vital organs are affected, in addition to the results coming from the direct contact of the poison with the organs themselves.

At first, the effect of tobacco, to one accustomed to it, seems to be to soothe and quiet the nerves, giving them tone and power; but this is very deceptive: what seems to be an addition of nervous energy from without is in reality a subtraction of energy which has been laid up for future use. The time will come when the system will draw on this reserve fund of nerve force, and if tobacco or other stimulants have already drawn heavily on this fund, the body will not have the necessary power to furnish, so that death is hastened, and the life curtailed in years, perhaps, which might have been productive of usefulness and happiness.

After a short time, the stimulating effect of tobacco ceases, and the nerves are more tremulous than before it was used. Hence we see tobacco-users suffering from many forms of nervousness. One may be affected especially in his temper, becoming irritable and impatient; another may not be able to sleep well; a third is troubled with trembling of the hands, especially noticeable in the handwriting; others are easily startled and excited.

Professer Oliver, of the Annapolis Academy, said he could indicate the boy who used tobacco by his absolute inability to draw a clean straight line.

Tobacco affects the nerves controlling various muscles, causing a gradual loss of muscular power and resulting in paralysis.

There are many forms of tobacco paralysis, affecting different portions of the body. Eyesight is frequently impaired by the use of tobacco, due to the paralyzing of the nerves controlling the iris, or paralysis of the optic nerve, sometimes resulting in absolute loss of sight. A paralyzing effect upon the respiratory nerve-center is indicated by deep, gasping, irregular inspiration of the lungs. Death may result from respiratory failure due to spasm of the chest muscles, or from paralysis of the heart.

Dr. Brodie, president of the Royal Society, says that one of the worst cases of neuralgia he ever saw was caused by tobacco-using, and ceased with the habit.

3. *The Brain.*— The effects of tobacco on the brain might properly be considered in connection with the nerves, as they together form the nervous system, and what affects one affects also the other.

Upon the exhausted brain tobacco has a soothing effect; upon the fully nourished brain it acts as an irritant. With those who have educated their body to the drug, and who feel the need of its stimulus, it may have the effect upon the brain to excite it temporarily to undue activity.

The following is from Dr. Solly, surgeon of St. Thomas Hospital, England: —

"I know of no single vice which does so much harm as smoking. It is a snare and a delusion. It soothes the excited nervous system at the time, to render it more irritable and feeble ultimately. I have had large experience in brain diseases, and am satisfied that smoking is a most noxious habit. I know of no other cause or agent that so much tends to bring on functional disease, and through this in the end to lead to organic disease of the brain."

Tobacco-using is productive of insomnia. Every smoker is familiar with the fact that a change of tobacco or an unusually strong cigar is apt to keep him awake nights. Smoking in the evening causes wakefulness, as the nicotine acts as a cerebral irritant, and interferes with the vasomotor centers to such an extent that the vessels are unable to adjust themselves forthwith to the condition required for healthy and enjoyable sleep.

Dr. Bremer, late physician to St. Vincent's Institute for the Insane at St. Louis, has recently called attention to the fact that the use of tobacco by the young is productive of mental and moral deterioration, while in older persons the weed produces brain disease and insanity. He attributes the obscure, unintelligible literary style of the philosopher Kant to his excessive use of tobacco.

4. *Effect upon the Intellect.*— The relation between mind and body is so close that one can hardly be affected without a corresponding impression on the other; and if the use of any article is weakening and detrimental to the body, it is not at all surprising that it should likewise affect the mind. It is now a recognized fact that tobacco is injurious, not only physically, but intellectually as well. Consequently we see a number of our best universities and colleges taking a stand against its use, and the results in schools where tobacco has been discarded are said to be very encouraging. Boston University has issued an ordinance against the use of tobacco on the university grounds, and if students are unwilling to comply, their fees are to be returned to them and their names taken from the college books. The Ohio Wesleyan University forbids students the use of tobacco in any form. For some years the use of tobacco by students in the public schools in France has been forbidden, on the ground that it is weakening, both physically and mentally. It is said that for a

period of fifty years no tobacco-user stood at the head of his class in Harvard.

It is sometimes protested in support of tobacco that many men of great intellectual talent have used it. True; but is this evidence that tobacco improves the mind? Is it not rather evidence that these men had such strong minds that they were able to accomplish much in spite of the hindering influence of tobacco? And might they not have done much more, if they had not been users of it?

5. *The Blood.*— It is by means of the blood that the nourishment received from food is carried to the tissues for the purpose of restoring the wear of the body which is constantly going on; and by means of the little corpuscles in the blood, oxygen is carried to all parts of the body in order that energy may be obtained with which the muscles may move and the various organs perform their several functions. Hence, anything poisoning the blood and hindering it in its work affects in an injurious way all parts of the body. The investigations of Dr. Richardson, of London, have shown that tobacco is very detrimental in its influence on the blood.

After he has been smoking for some time, the blood of the smoker is found on examination to be thinner and paler. Bleeding from a cut surface is difficult to stop, even in opposition to remedies. The red blood corpuscles are very much changed. Their number is diminished, and from a round form with a smooth outline they are changed to an oval irregular shape. Their oxygen-carrying power is diminished, and instead of clinging together in clusters, as in health, they lose this power and lie scattered about. The ammonias present in tobacco smoke have the power also of dissolving these corpuscles, without which life would cease. Hence it is seen from the effects upon the blood that tobacco really exhausts the vitality of the user as long as he continues its use.

6. *The Heart.*— Tobacco has an immediate effect upon the heart, as shown by the following from a recent medical journal: —

"Dr. Schall, house physician of the Hahnemann Hospital, wishing to test the effect of cigarettes upon the nervous system and the circulation, recently obtained the consent of a young woman of almost perfect symmetry of form and robust health to submit to an experiment. In the presence of two or three physicians, the sphygmograph was attached to her wrist, and a tracing taken of the heart-beats. The first tracing showed not one particle of variation from perfect health. The whole venous and arterial circulation was perfectly normal. At the end of fifteen minutes, however, after she had smoked half of two cigarettes, the tracing showed a manifest disturbance of the heart's action; and at the end of forty-five minutes, after parts of six cigarettes had been smoked, the tracing showed the beat of the heart to be unequal, at times rapid, at times in jumps, evidently under the effect of some powerful drug agent."

The pulse of every habitual user of tobacco will show irregularities in the heart's action. Tobacco-users frequently suffer with palpitation, angina pectoris, and other symptoms of derangement of this organ. There is a disease of the heart resulting from tobacco poisoning known as "narcotism of the heart." Statistics show that about one fourth of those who smoke have this condition.

7. *The Eyes.*— The use of tobacco sometimes so affects the eyes as to result ultimately in total blindness. This is at first color-blindness, taking red to be brown or black, and green to be light blue or orange. In nearly every case the pupils are very much contracted. It has been found that chewing is much worse

than smoking in its effects upon the eyesight, probably for the simple reason that more of the poison is thereby absorbed. The condition found in the eye in the early stages is that of extreme congestion; but this, unless remedied at once, leads to gradually increasing disease of the optic nerve, and then of course blindness is absolute and beyond remedy. Hence for treatment to be of any value it must be immediate.

Dr. F. Dowling, of Cincinnati, after a study of 3,000 persons employed in local tobacco factories, found that ninety-five per cent. suffered from visual troubles of nicotine origin.

8. *The Nose.*— The effect of tobacco, especially if smoked and exhaled through the nose, or snuffed, is to paralyze the sense of smell. Snuff is allowed to sisters of charity in France, as it renders the nose insensible to the bad smells of slums and hospitals.

9. *The Throat.*— There is a disease of the throat known as "smokers' sore throat." The mucous membrane becomes dry and irritable and much inflamed, the tonsils become large and soft, and pain is experienced in swallowing. A physician recently stated in a meeting of a medical society that he had been so long accustomed to recognize the ill effects of tobacco-smoking upon the throat that he was able to tell, by the examination of the throat alone, whether or not an individual was a smoker, and also whether he had abstained for a few days.

Tobacco injures the voice, and the best singers abstain from using it before a public appearance, and sometimes for several weeks before some special effort.

10. *The Lungs.*— Inhaled into the lungs, tobacco acts as a mechanical irritant of the mucous membrane of the bronchial tubes, and if bronchitis be present, it maintains an irritable state of the membrane and keeps up the cough. The absorption into the blood of the various poisons inhaled causes a general enfeeblement of the system, the carbonic acid causing incomplete oxidation of the blood, the nicotine producing various nervous phenomena, and the ammonia compounds having a solvent power on the blood corpuscles. Thus by lessening the bodily vigor, the person is unable to withstand disease, and, if he inherits weak lungs, may easily become a prey to the tubercular bacillus.

11. *The Stomach.*— The effect of all narcotics, of which nicotine is one, is to lessen the secretion of gastric juice, giving rise to dyspepsia. The salivary glands are excited by tobacco to oversecretion; and if the saliva is swallowed, it conveys the poisons to the stomach, causing irritation and inflammation of the mucous membrane. The muscular contraction of the stomach and intestines is increased. In moderate smokers this acts as an aperient; but if smoking is carried to excess, the muscles may become paralyzed, and constipation result.

12. *Muscular Strength.*— It is the plea of the majority of tobacco-users that they can work better with tobacco than without it, and that it gives them muscular strength. The first statement is no doubt true, for tobacco holds them in a sort of bondage from which they cannot break; the second statement, however, is not true. The tobacco may stimulate the muscles temporarily, as it does the brain, but no real endurance comes from it. It is an interesting fact that no tobacco-user can obtain membership in the rowing crews of Oxford and Cambridge Universities, where the best physical strength is desired.

13. *Physical Development.*— To show the effect of tobacco in stunting physical development, we will refer to statistics prepared by Dr. Seaver, of Yale University, which have attracted attention in

various medical journals. They are based upon observations of a college class of one hundred and eighty-seven men during their first and final years. The growth of the men in four of the principal measurements, of varied character, is as follows : —

	Weight in pounds	Height in inches	Chest girth in inches	Lung capacity in cubic inches
Non-users.....	11,87	.804	1.74	21.6
Irregular Users	11,06	.788	1.43	14.45
Habitual Users	10,66	.721	1.27	12.17

Dr. Seaver's conclusions as to the dwarfing effect of tobacco are fully corroborated by the investigations of Professor Hitchcock, M. D., of Amherst College.

14. *Predisposes to Disease and Hastens Death.*— Since tobacco contains such a poison as we have found nicotine to be, we may expect to discover its ill effects, even though the user may claim that it does him no injury. The poison acts slowly, but none the less surely. It kills by inches. Its use gradually undermines the health of the strongest man, and for years he may not realize it ; but let an attack of severe illness overtake him, and he is unable to withstand the ravages of disease, because his system is saturated with a narcotic poison, and he must succumb to an attack from which one who is not a tobacco-user might readily recover. By continually drawing on the reserve fund of nerve force and vital energy, as we have already seen, this fund has been so reduced as to be unable to meet the draft made upon it by the attack of disease, and the victim dies prematurely.

15. *Diseases Caused by the Use of Tobacco.*— We will here make a simple enumeration of the results of the tobacco habit, as given by various medical authorities : —

Paralysis ; cancer ; dyspepsia ; torpid liver ; diarrhea ; constipation ; asthma ; impotence ; imbecility ; suicidal horrors ; congestion of the brain ; heart-disease ; nervousness ; blindness ; vertigo ; sore throat ; laryngitis and pharyngitis ; epilepsy ; deafness ; loss of taste ; loss of sense of smell ; loss of memory ; insomnia ; neuralgia ; angina pectoris ; hypochondria.

Hereditary Effects.— A man may indulge himself with tobacco for years, and the effects of it not be recognized as such, but in his children will be seen the result of the habit. The children of excessive tobacco-users are generally born with a lack of vitality, with a tendency toward disease, and a certainty of premature decay. Sir Benjamin Brodie says, "No evils are so manifestly visited upon the third and fourth generations as the evils which spring from the use of tobacco."

Tobacco Leads to Alcoholism.— Horace Greeley once said, "Show me a drunkard who does not use tobacco, and I will show you a white blackbird." Tobacco and the liquor habit go hand in hand. Smoking induces dryness of the mucous membrane of the mouth and consequent thirst. The partially paralyzed nerve terminals want something more stimulating than water to afford relief, and this stimulant is found in alcohol. A physician recently said, "Only a few days ago a poor drunkard told me that so long as he abstained from tobacco, he could keep sober, but if he smoked a few cigars, his craving for whisky became irresistible. This young man's experience is that of many."

Comparison with Alcohol.— Tobacco does more injury than alcohol because of its more universal use, and because of the respectability of the habit which comes from its use by a certain intelligent part of the race, including teachers of morals and physics, and even temperance reformers. When we read of a physician's rewarding the brightness and aptness of his boy by a strong cigar, and of the trouble arising

from an attempt to exclude the use of tobacco among a conference of clergymen, we do not wonder at its increasing popularity and the consequent increase of intemperance.

An Unwholesome Habit. — A man cannot smoke or chew tobacco without defiling his mouth, his teeth, his breath. The unsightly spittle is encountered in every place, the air is poisoned with its fumes. How revolting is the filth of the barroom or the smoking-car; how intolerable the fetid odor of the breath of the tobacco-user, even at the distance intervening in ordinary conversation! Is there anything about the uncleanly sight and unwholesome smell occasioned by tobacco that is in any way conducive to greater respect for its user? We cannot see anything attractive in this habit to one who appreciates and desires clean, sweet, wholesome surroundings.

Tobacco, in whatever form used, defiles the atmosphere which we are obliged to breathe, and others are compelled to suffer from the poison. Tobacco in the system is constantly being thrown off into the atmosphere by perspiration and exhalation from the lungs; the poison arising from tobacco spittle and smoke contaminates to a still greater degree the pure atmosphere which is the property of all. We claim, therefore, that it would be a blessing to humanity if there should be a revival of the laws of two hundred years ago, forbidding the use of tobacco near a house or in the presence of a stranger.

An Expensive Habit. — Tobacco-using is a most expensive indulgence. It costs health, money, and the strength and fertility of our richest land.

The money expended yearly in the United States for tobacco is estimated at $700,000,000. How much good would accrue should this immense sum be devoted to the establishment of schools and educational institutions, to public improvements, to benevolent objects, instead of wasting it for the vast amount of suffering and death that comes as a result!

The culture of tobacco is immensely exhaustive to the soil. No other plant makes such enormous drafts upon its strength. Whole sections of fertile country have been blighted in this way.

In view, then, of the great evil of tobacco in destroying life and health, in wasting vast sums of money, in wearing out the earth, is it not a work well becoming the philanthropist to labor for a reform in this line? And is it not the wisest, the safest, the best course for the one who has been a user of this fascinating narcotic drug to give it up at once, to hasten to assist nature in recovering from the injury done her, and during the added years of life and health to work for the similar salvation of like unfortunate fellow men who, perhaps, are ignorant of the evils it invites?

We should fill all the hours with the sweetest things,
If we had but a day;
We should drink alone at the purest springs
On our upward way;
We should love with a lifetime's love in an hour,
If the day were but one;
If what we remember and what we forget
Went out with the sun.

— *Mary Lowe Dickinson.*

THROUGH THE GOOD HEALTH SPY-GLASS.

ANTON SEIDL, the famous musical director and composer, died, it is said, from the effect of eating fish.

The great law of hygiene has been defined as that of the least effort; "to obtain with the least possible effort the most desirable results."

A United States senator has calculated the expense of saloons to the nation at $15 per capita, and the revenue from them at $1.69 per capita, more than $13 clean loss.

A friend of the *Health Magazine* said that of all the delegates he met at a certain convention he liked the one best who on being asked his business or profession said, "I am a cheer-up-odist."

The word "therapeutics" can be traced back to remote antiquity in Egypt, where the healers of the people were often called *Theraputæ*, and were said to be inspired by certain divinities.

A Russian writer, Jakubowitsch, in the *British Medical Journal*, speaks of Russian children between four and five years of age who have had delirium tremens. He says that drunkenness is spreading among children in Russia.

As civilization becomes complex, the brain acquires more convolutions to the square inch, and its delicate tissues are torn more ruthlessly by the coarse intruder, alcohol.—*Frances Willard.*

The man who says: "I can carry more liquor than any other drinker in the town, and yet keep a level head," gives by that claim an inventory of goods already badly damaged. For since alcohol is pre-eminently a brain poison, men of the most brain grow dizzy first, and Hottentots stand steady longest, while genius shrivels under drink like a snow-wreath in the sun.

A report made from the records of the Paris institute for the saving of infant life by the use of infant incubators shows that of one hundred and eighty-five prematurely born infants received, weighing from one and three-fourth pounds to six pounds, six ounces, one hundred and thirty-three left the institution healthy and in good condition, forty-eight died, and four were still under treatment.

Who invented "child-study"? asks the *Pennsylvania School Journal*, and "proceeds to give it up" as follows: "This is too hard. Froebel and Pestalozzi knew something about it. It is said of one who lived even before these men, 'And he took a child, and set him in the midst of them.' It is even possible that mother Eve devoted a few years to scientific child-study in the early history of the race."

The Moors are inveterate coffee drinkers, says Snaitken, according to the *Medical Review*, especially the merchants, who sit in their bazaars and drink continually during the day. When these coffee drinkers reach the age of forty or forty-five, their eyesight begins to fail, and by the time they are fifty, they become blind. The number of blind men seen about the streets of Fez, the capital of Morocco, is very noticeable, and it is always attributed to the use of coffee.

Dr. Nansen states in a Belgian journal that his experience has led him to take a decided stand against the use of stimulants and narcotics of all kinds. He car-

ried no intoxicants with him on his recent expedition. He says it is obvious that one can get nothing in this life without paying for it in one way or another, and that artificial stimulants, even if they had not the directly injurious effects which they undoubtedly have, can produce nothing but a temporary excitement that is always followed by a corresponding reaction.

A report and a bill recently presented to the Iowa State Legislature are of interest to vegetarians. The secretary of the State Board of Health made the report, upon a case of leprosy. He stated that there was no present demand for legislation for the suppression of leprosy, but that something was needed to drive out the disease tuberculosis, which is becoming so prevalent, and from which it is said that five thousand people in Iowa die yearly. The bill was a "cattle inspection" bill, directed against this very disease, tuberculosis, but it was fought to the death by a stock-yards company.

"Questions of hygiene," says Dr. A. Coustan, as quoted in the *Journal d'Hygiène*, "are closely connected with social questions. Of what use to point out the natural elements of food to the poor fellow who has not a morsel of bread; to speak of the necessity of changing the linen frequently to one who has to cover himself with some rag bought of the old-clothes man and carrying germs gathered during successive transfers; of what use to insist upon the salubrity of the dwelling house to the head of a family who must shelter his wife and his five children, often his parents also, in one room, provided with one window opening upon a little court where all the neighboring housekeepers must dry their clothes?"

"True humor consists of a kernel of truth surrounded by a hull grotesquely unfit for it," says an editorial writer in the *Dietetic and Hygienic Gazette*, "and so the humorist habitually expresses a physiological fact when he makes John Bull in the cartoon plump and succulent and Brother Jonathan hard and dry." The writer claims that the American is a drier individual, not only in his speech, but also in his tissues, than is the European, and asks: "What is the poor American to do? He is threatened with mummification if he does not drink water; he is appalled by the horrors of gastric catarrh if he does drink water. The answer is obvious: Drink water *between meals* rather than at meals." The drier the meals, the less dilute the gastric juice, the better is the digestion.

The *Christian Register* is authority for the following story: "When a certain bishop was about to make a visitation of his diocese, his wife said to him: 'Now, bishop, remember you mustn't eat any mince pie, for you know it never agrees with you.'

"'No, I won't,' said the bishop, and for a while he withstood the temptation in various quarters. But at last he succumbed to an especially choice piece, and it was so good that he ate another. That night he was taken violently ill, and the physician who was summoned was greatly surprised to find how extremely nervous his patient was over his condition.

"'Why, bishop, surely you are not afraid to die?'

"'Oh, no,' said the bishop, 'I am not afraid to die, but I am very much ashamed to.'"

A CORRESPONDENT of the *British Medical Journal* relates "a disquieting occurrence which recently befell him." The cook, when she came to dress the turkey for a party of children, thought the liver "looked bad," and put it aside.

The fowl was prepared and was eaten by the children. The correspondent found the liver of the turkey, which came from a responsible firm, to be "studded all over with tuberculous masses," this diagnosis being confirmed by microscopical examination. He learned further that the bird had been reared in one of the home counties where the firm bought annually more than two thousand turkeys. While as yet there is not much ground for believing that avian tuberculosis can be transmitted to man by ingestion, the story is not likely to make a fastidious person more addicted to poultry.

FRUITS, THEIR QUALITIES AND USES.

BY J. H. KELLOGG, M. D.

FRUITS, of all foods, are probably the most neglected. It is generally known that fruits are chiefly composed of water, and it is hence supposed that they can hardly be looked upon as nutrients. They are usually taken, not as foods, but merely as appetizers, and rather as concomitants of a meal than as a part of the meal. Fruit is commonly offered as a dessert at the close of the meal, when the person has perhaps already eaten more than he should of a number of miscellaneous things which are indigestible, which contain all sorts of unwholesome food elements — sweets, fats, and starches variously combined. Taken under such circumstances, it not infrequently causes indigestion, [not because it is bad, but because there is a natural incompatibility between good things and bad things; and when good fruit is taken into a stomach filled with unwholesome and indigestible articles, there is likely to be war,— not war between the fruits and other things, but war between the germs and the fruits.

Fruit has the peculiarity that while it is easily digestible, it is at the same time easily fermentable, at any rate, under certain conditions. In some combinations it is not wholesome, and this fact has given the idea to many people that fruit itself is unwholesome, which is the very opposite of the truth; fruits are, in fact, the most natural and the mos wholesome of foods.

There is an old adage that "fruit is golden for breakfast, silver for dinner, and lead for supper." This is an error, for fruit is golden all the time; it is golden for breakfast, golden for dinner, and golden for supper. The best food for supper, if you feel it necessary to take supper, is to eat nothing but fruit. When fruit disagrees with other foods, it is the combination that is at fault, and not the fruit. Water and oil do not combine well; while oil alone is bland enough, and water is liquid enough, they make a disagreeable and unhappy combination. So fruits, while wholesome, delicious, and extremely digestible when eaten by themselves, if taken with unwholesome foods, they form a combination which is quite indigestible and likely to produce serious disturbance in the alimentary canal.

Let us look at our every-day fruits, and examine their special characteristics. Perhaps the most prominent characteristic is the presence of acids. We do not find acids to any great extent in any other foods except milk. In fruits there are three acids,— citric acid, which we encounter in lemons, limes, oranges, the shaddock, and the grape fruit; malic acid, which is found in apples, pears, plums,

cherries, and most acid fruits; and tartaric acid, which is found abundantly in grapes, and also to some extent in apples and other fruits, but is chiefly present in grapes, of which it is the important constituent. In the tomato, which is a kind of fruit, there is a small amount of oxalic acid, so that it is not quite so wholesome a fruit as some others. This is the acid of the pie-plant, or rhubarb. In vegetables we find a small quantity of acid, and in grains none.

The acids of fruits are different from the acids of minerals, in that they are decomposable in the system. When taken into the body, changes result so that these acids no longer appear as such, and do not have in the body the effect produced by any of the common acids. Vegetable acids are decomposable; when burned, they produce CO_2, like charcoal or carbon, whereas other acids will not burn. The vegetable acids are all capable of burning when in a solid state, as they are of an organic nature; so they are, to some degree, digestible.

Another characteristic of fruits is the large amount of sugar which some contain; vegetables, as a rule, contain very little sugar. The beet and a few others are about the only exceptions to this rule. Sugar is found in fruits; it is also found in the sap of a few classes of trees at a certain season of the year, but it is in fruits and flowers that it is present in greatest abundance. The sugar of fruit is levulose; it is the sweetest of all sugars. Associated with levulose is dextrose, which is not so sweet as some other sugars. Levulose is the sweetest of sugars; that is why honey is so sweet,—because it contains such a large proportion of levulose. Levulose is most abundant in fruits.

The amount of sugar present in fruits, then, is considerable; although some fruits contain little. In the peach, the apricot, and the plum we have a small amount of sugar, varying from one and six-tenths per cent. in the peach to a little more than two per cent. in the plum, averaging, perhaps, about two per cent. In those delicious fruits, the raspberry and the blackberry, which are very nearly alike, there is an average of about four per cent.,—a little less than four per cent. in the raspberry and a little more than four per cent. in the blackberry. In the strawberry, the whortleberry, the huckleberry, the currant, and the prune we have a larger proportion of sugar, about six per cent. There are some currants which contain acids. In the apple we have about eight per cent. of sugar, and in the sour cherry almost nine per cent. The sweet cherry contains eleven per cent., and the sweet grape nearly fifteen per cent. of sugar.

There is less acid than sugar in fruits. The majority of fruits contain not more than one half of one per cent. — from one-half to two-thirds or three-fourths per cent.— of acids. The currant, however, contains as much as two per cent. of acid, while the sour orange has about 2.4 per cent., the cherry, about one per cent. In sour cherries there is a large proportion of sugar, but the acid is stronger than the sugar, and neutralizes it. Fruits that we call acid may contain a considerable proportion of sugar, so as to be sweet, while other fruits containing sugar also contain a large proportion of acid, so that they are sour. The sweet grape, for example, contains tartaric acid, and the sour cherry a large proportion of sugar; the currant also has considerable sugar, but as the acid is stronger than the sugar, although not in so large a percentage, the fruit is sour.

There are some other fruits that are sweeter still; for example, the fig, which contains about fifty per cent. of sugar; also the date in the form in which we

receive it. These facts show us at once that fruits possess nourishing qualities. True, they contain only a small amount of albumen, but sometimes we do not need much albumen. Fruit, then, is a very valuable food. The dry strawberry contains a larger percentage of iron than any other natural food. If you have poor blood and wish to enrich it, eat red strawberries,— that is, if you wish to make blood out of iron. That kind of iron is certainly better than that which is found in the blacksmith shop or the drug-store, for the iron shavings found at the drug-store are no more nourishing than those found at the blacksmith or machine shop.

The fig contains as much as four per cent. of albumen, while in the best bananas — ripe, well-cooked bananas — we have often five per cent. of albumen. In the ordinary fruits there is only about one half of one per cent. of albumen. In grapes, however, there is much more; there is perhaps as much albumen in a pound and a half of grapes as in an ordinary egg. There is, then, considerable nutriment, even of the nitrogenous or proteid kind, in these fruits. Grapes differ, some being nearly all water. In a pound of Malaga grapes there is as much albumen as in an egg. When we take into account the fact that grapes contain fifteen per cent. of sugar, and a large amount of albumen, we see that they are by no means a useless article of food.

Let us next consider the way in which nature "does up" fruits. Fruits are very precious, and so they are done up aseptically,— they are canned by nature. The grape and the apple are canned; nature puts a perfect covering over the apple and a little wax on the outside. The outside of the peach is protected by a sort of bloom which sheds water. Fruits are protected against the weather. Rain does not penetrate their covering, and wash away their soluble, palatable flavors.

Because of their natural covering, the pear, the plum, the apple, the grape, and all our best fruits are capable of being kept a long time; the skin that encloses them is impervious to germs; it is not only water-proof, but germ-proof. That is the reason why, when the apple dries up and withers, it may be perfectly sound. The russet, for example, has a very thick skin; that is why this fruit keeps so well, while other fruits, like the snow-apple, which has a thin skin, decay very quickly. Winter pears keep a long time because they have a thick skin, whereas some pears with thin skins keep poorly. But the very smallest puncture of the skin will cause fruit to decay. Whenever there is a slight break in the skin, if a fly bites it or a bee stings it, the fruit will decay because it has been inoculated with germs; its water proof and germ-proof envelope has been punctured, and it is like canned fruit when the can has a little leak in it and a few germs get in. If fruit becomes bruised, it may decay, and it may not; whether it decays or not depends upon whether the skin over the bruised portion is broken or not. Even fruit that has been punctured may resist decay for some time.

We do not usually look upon fruit as a live thing, but there is a circulation taking place in it analogous to the circulation of blood in animals. If an apple is rotten on one side, by means of this circulation you can taste the rotten flavor on the other side; and if a sound apple is in the barrel with other apples which are decaying, you can discover the rotten flavor in the sound apple, showing that it absorbs, that its skin is not absolutely water-proof. An apple or a pear that has been picked goes right on with the process of ripening and maturing.

Another peculiar characteristic of fruits is that they contain almost no starch. Ordinary fruit contains so little starch

that it is hardly mentionable; the banana contains a very small amount. There are a few fruits which form an exception to this rule: the bread-fruit, so called, contains a considerable amount when ripe. But green fruit always contains a large percentage of starch. This is why the green apple is hard. By the process of ripening, the starch is changed into sugar and dextrin and delicious flavors. The tannic acid which gives the fruit its bitter taste disappears, being converted into something more palatable and wholesome. Thus the acids of fruits disappear during the process of ripening. The apple that was sour when green becomes almost entirely sweet when ripe.

The flavors of fruits can be imitated. They are manufactured from butyric acid, or rotting cheese, or coal-tar, which can be made to yield almost every flavor in the vegetable world, and is the most prolific source of all kinds of medicine, coloring matters, and flavors.

There is another constituent of fruit which is conspicuous by its absence, and that is fats, which are not plentiful, as a rule, in fruits. The raisin contains a small proportion of fat, and the fig contains a large proportion,—as high as 1.4 per cent. There is one fruit which contains a large amount of fat, and that is the olive. The olive is a very interesting fruit; it furnishes a source of fats for a large number of people. Far be it from the writer to recommend pickled green olives,—they are about as digestible as marbles. Those who eat green olives are in a very unhappy state. They are in a condition comparable to that of the ravens that are caught by Tartars. The Tartars do not raise these ravens from young birds, but catch them when they are about half grown; they leave a handful of small pebbles which have been smeared with blood, in the underbrush, and when a raven has swallowed a number of these pebbles, it is unable to fly, and is easily captured. So there are a great many people who have pebbles in their stomachs and cannot rise; they cannot get above a low level, because they are weighed down by the pebbly foods they have eaten. But with ripe olives the case is different. The writer has experimented upon himself with ripe olives, and could not discover the least unfavorable effect. The experience of others also testifies that ripe olives are wholesome. The salted ripe olive should be well soaked in fresh water to remove the salt before eating. When mellow, it is found to be palatable; but an appetite for green olives must be cultivated, like the appetite for slate-pencils, clay, brick-bats, and similar articles which are entirely unnatural edibles.

We have shown that in fruits there is an abundance of sugars, wholesome acids, savory flavors, dextrin, levulose, and a small proportion of albumen. But we have practically no fat and no starch.

We shall in our next number consider some of the uses of fruits which are based upon their special characteristics.

(To be continued.)

THE PROPER FEEDING OF INFANTS.

BY KATE LINDSAY, M. D.

THE human body consists of a combination of a certain number of primary elements; of the seventy-three known primary elements, thirteen enter into its formation. Oxygen makes almost two thirds of its weight; carbon, the next most abundant element, forms about one fifth. These with hydrogen, nitrogen, a pound of phosphorus, three pounds of lime,— six elements all together,— make the bulk of the body.

A man of average size, weight one hundred and forty pounds, height five feet eight inches, is a compound of about ninety pounds of oxygen, thirty-one and six-tenths pounds of carbon, fourteen and six-tenths pounds of hydrogen, and four and six-tenths pounds of nitrogen. This matter in the human body is held in combination in a very unstable form, and the phenomenon we call life is the result of continuous changes which are taking place in every tissue. The destruction and the continuous reforming or recombination of these elements constitute nutrition. It requires that a continuous supply of these elements be taken into the body daily, also that a like amount of waste be expelled.

In the child, during the period of growth, more matter is taken in than is excreted; in the adult the amounts approximately balance; in old age waste exceeds repair, more being given off than is retained. Air, food, water, are the materials with which the body repairs structure, the means by which it grows and works. If any of these important elements of nutrition are withheld, or improperly administered, there is always a disturbance of the bodily functions. Mental as well as physical work is hindered, and pain and wasting follow.

One of the most important duties of the nurse is to provide suitable food for her patients, so that what they eat will improve instead of hinder nutrition. Florence Nightingale wrote that for those who have to settle what patients should eat, "to watch for the opinions given by the patient's stomach is of more importance than to read analyses of food." Not only the stomach, but all the other organs of the body should be interrogated as to what is their opinion of the food given the patient. If this were done, many a life would be saved and much disease and suffering prevented.

Not long ago the writer visited a town where, during the last year, more than 80 children out of every 100 born in it had died during the first year, the great majority of deaths being due to diseases of the digestive organs. Most of the children were bottle fed, and although this food caused all manner of symptoms of disordered digestion, and the overworked organs protested as loudly and decidedly as they could against the dirty, spoiled food, given in long-tubed bottles, no one paid any attention to it. On the same journey the writer rode in the same railway compartment with a mother and her ten or twelve months' old baby. The baby was bottle fed on condensed milk thinned with cold water out of the railway water-tank. The bottle was slightly rinsed with the same water, but the eight inches of narrow tubing was never cleansed at all. After the first day on the cars, the baby, which had never been well in its life, was taken very ill. It had a high fever, and a severe attack of diarrhea. This made it very thirsty, and although it vomited a great deal, and had much pain after each nursing, the kind

mother did not understand this simple protest of nature against filthy feeding. When reasoned with in relation to the matter, she would say, "See how hungry the poor little fellow is," and no one could convince her that it was the want of water and not food that made the baby nurse so ravenously. It was not until the food passed through the alimentary tract almost as soon as taken, while the child was nearly in convulsions, that she consented to discard the dirty food and bottle, and to purchase some boiled water and feed it to the baby with a spoon. Even then she would not believe the food had anything to do with its illness, but simply said that it was suffering from "car sickness."

The most important period of life, so far as nutrition is concerned, is the first year, and the only opinion that the patient can express of the food given him or the method of its administration is in the way the digestive organs dispose of it, and in the way every organ of the body grows and develops functional power. There is but one natural food for the child during its first year, but it does not always follow that this is kindly received by the stomach or that it fulfils its function of nutrition. If, after nursing, the infant suffers from colic, is troubled with gas, and vomits, it is a sign that it is taking too much at a meal, that it is eating too often, that there is some disorder of its digestive organs, or that the difficulty is with the food. This may be faulty in composition or wanting in some important element, or some element may be in excess while others are deficient.

The mother, on account of her surroundings, food, habits of life, or inability to control her temper, or on account of physical disease, may be making virulent poison of the milk formed in her breasts for the nourishment of her little one. When the baby habitually vomits after eating, it is a symptom that the stomach has been overfilled, and is giving its opinion of this overdistension, and calling for a diminution in the amount of food it is compelled to receive. It is cruelty to that suffering member immediately to put in more, as is so often done. In time this will result in dilation; the stomach will lose power to contract and empty itself; the surplus food will then be retained, and the next opinion expressed by the stomach and intestines will be in the formation of gas in colic pains and catarrh of the bowels. The alimentary tract expresses decided opinions of fermenting food, and protests against foul gases and germs. Sometimes sour and ill-smelling masses of curds passed by the bowels indicate that the overtaxed organs are doing the best they can to get rid of the germs and surplus food and all that in any way poisons and injures the integrity of the digestive and absorbing mucous surfaces. Often the child is understood to be calling for food, and is fed, when in fact it is only calling for water, the food, even though mother's milk, only making it more thirsty.

AN OMINOUS SYMPTOM.

When the infant, after the first week, remains stationary in weight, the tissues are expressing themselves through the scales, saying plainly that there is some fault in the quantity, quality, or manner of preparing the nutriment brought to them by the blood. When this occurs in the breast-fed baby, it indicates that for some reason the milk is not fulfilling the purpose of nature. The nurse should at once try to find out the reason why. It may be that the mother has a bad stomach, or is overworked, is nervous and irritable, and does not sleep enough, or she may be overfed, or underfed. She may be a drudge, and unable to secrete good

milk because she has to use up all her vitality and energy in hard physical work. She may be wealthy and indolent, wasting her health and deranging the functions of her body in fashionable dissipation. In the one case more rest is needed, in the other, more exercise and less food. It is here that the analysis of the milk aids the observation of the symptoms expressed by the tissues. A great deal of time, money, and labor has been spent making experiments to find some infants' food which would take the place of the mother's milk. So far all such experiments have resulted in partial or complete failure. On the other hand, very few experiments have been made to improve the health and strength, and to regulate the habits of nursing mothers, so that they would be capable of furnishing perfect infant food. No one seems to have thought of educating young girls, who are the prospective mothers of the race, in the proper development of the body, so that they may grow up physically perfect, with every organ prepared to do normal functional work.

THE EVIL EFFECTS OF IDLENESS.

Dr. Rotch, in his recent work on children's diseases (*Pediatrics*) mentions the case of a woman engaged as a wet-nurse, whose child corresponded in age with the infant she was engaged to nurse, and was well nourished and normal in growth and development; both she and her child were taken into the family, well-housed, and the woman was plentifully fed. At first she nursed both children. Within twenty-four hours after her change of diet and adoption of a more sedentary life, both infants were suffering from colic, with green fecal discharges. After she was given a lighter and more liquid diet, and made to exercise by walking several miles daily, the quality of the milk improved, the colic ceased, and the excretions became normal in both babies, so that she was able to continue nursing her foster child successfully so long as it needed a wet-nurse. Another wealthy patient of the same physician was ordered to walk two miles twice daily and to live on a more abstemious diet. The digestion and nutrition of her child not improving as was expected, the doctor found that she walked in tight, narrow shoes, with French heels, so that the pain and discomfort she suffered in her feet did away with the good result of her exercise. Wide-soled, easy shoes, and a more careful observance of the rules given for the regulation of her diet, resulted at once in improvement in the infant's digestion and nutrition.

DANGEROUS MENTAL INFLUENCES.

The writer knew a case in which serious illness resulted from the infant's being nursed by its mother while she was in a very nervous state caused by sudden fright. A few hours after the nursing and fright, the little one began to vomit, had a high fever, pain in the bowels and purging. All the symptoms of irritant poisoning were well marked. It was several days before it recovered from the acute symptoms, and many months before it was the plump, laughing, well-nourished child it was before it was poisoned by its mother's milk. In another case a baby was killed outright by nursing its mother shortly after she had had a violent quarrel with her husband. So virulent a poison had the milk become from the changes in and the damage done to the secreting functions of the mammary glands, resulting from the severe shock and derangement of the nervous system, that it destroyed the life of the little one as quickly as if it had taken some strong poisonous drug, and the little life was extinct before the physician reached the house.

The mammary glands are not mere re-

ceptacles for containing natural infant food until it is needed by the baby for its daily meals, but they are vital laboratories, where the food elements are combined and arranged into the complex milk. This is a fluid food containing approximately eighty-seven parts of water and thirteen parts of solid food. During the period of lactation these glands are the most active working organs functionally of any in the body. At this time a great amount of blood flows to them. They are constantly and actively secreting, and the nerve centers controlling their nutrition and functions are stimulated by the demands of the organs for an increased amount of nerve energy. The functions of any organ are more easily disturbed at this time.

Every farmer knows that it will injure his young stock and hinder their development into first-class animals if their dams are harassed or fretted in any way, if they are overfed or underfed, overworked or not exercised enough. For the sake of the money value of these animals, they are taken care of intelligently, and surrounded with conditions favorable to growth and development. The mother is provided with the proper environments to insure the welfare of the young colt, lamb, or calf. It would be well to consider whether it would not pay to exercise a little thought and intelligence about the environment and treatment of human mothers. There are the life, the health, and the future welfare of the child at stake, in this the most important time in its existence. Its body is being formed of the material it takes into its stomach; its physical health and development, its mental ability and moral strength, are all dependent on how its mother feeds it. If she nurses it, the manner in which she eats, drinks, sleeps, dresses, or controls her emotions may determine whether it lives and grows up into a healthy man or woman, or dies in early life, or lives on to be crippled and hindered from making life a success because of physical weakness, mental impairment, or lack of moral strength. From its very earliest life, then, the protests of the digestive organs and of the disturbed nutritive functions should be considered, and care taken to trace the trouble to the underlying cause.

(To be continued.)

THE POWER OF A MOTHER'S VOICE.

A MOTHER sang to her child one day
A song of the beautiful home above;
Sang it as only a woman sings,
Whose heart is full of a mother's love.

And many a time in the years that came
He heard the sound of that low, sweet song;
It took him back to his childhood days;
It kept his feet from the paths of wrong.

A mother spoke to her child one day
In an angry voice, that made him start
As if an arrow had sped that way
And pierced his loving and tender heart.

And when he had grown to man's estate,
And was tempted and tried, as all men are,
He fell; for that mother's angry words
Had left on his heart a lasting scar.

— *Charles S. Carter.*

BATTLE CREEK SANITARIUM QUESTION BOX.

BY J. H. KELLOGG, M. D.

1. WHAT will cure absent-mindedness?

Ans.— Absent-mindedness is a nervous disease, and must be cured by discipline.

2. Have you ever known a floating kidney to go back into place and stay there?

Ans.— A floating kidney does not go back into place, but the movable kidney sometimes does. A floating kidney must be fastened in place.

3. How do you account for the lasting impression of tattoo marks?

Ans.— Tattoo marks are made with a permanent dye. The material put in is an insoluble substance, and remains. It can be removed, but it must be removed bodily in order to get rid of it.

4. Can you account for the fact that dreams, which are usually supposed to result from a diet of mince pies, etc., should come to one while eating purely hygienic foods?

Ans.— Yes, that is simply force of habit.

5. What is the cause of hiccough?

Ans.— There is a hiccoughing nerve center in the brain; and when this little center becomes excited, the diaphragm is made to contract suddenly, causing a quick expulsion of air. Coughing, which is also controlled by a nerve center, is a sudden expulsion of air, and hiccoughing is a sudden inhalation of air: one is a spasmodic expiration, and the other a spasmodic inspiration. The diaphragm contracts suddenly, jerking down a small current of air through the glottis, causing a sound when the glottis closes. Hiccough is really spasm of the diaphragm, with a simultaneous contraction of the glottis.

6. What is the best food combination?

Ans.— The best food combination is fruits, nuts, and grains. These all agree: fruits and nuts agree; and fruits and grains agree. Fruits, nuts, and grains are the best combination possible, fruits and nuts are the next best, then nuts and grains. Grains and milk are, perhaps, the next best combination to fruits and nuts. Grains and meats do not go well together, but fruits and meats might agree.

7. What is uremic poisoning, and what are its causes?

Ans.— Uremic poisoning is a term applied to a condition which sometimes supervenes in cases of Bright's disease or when the kidneys fail to do their work, and the poisons which are usually eliminated through the kidneys are retained. One of these poisons is urea. Because urea is the most abundant poison eliminated through the kidneys, the idea became prevalent among medical men many years ago that when a person died from inaction of the kidneys or suppression of the secretion of urea, as it is termed, death was caused by the retention of the urea, but at the present time we know this to be an error. The so-called uremic poisoning is poisoning with other substances which are more toxic and more deadly than urea; the proof is that it is difficult to kill an animal with urea. Urea may be administered in large doses without causing death — in much larger doses than the quantity produced in the length of time required to kill the animal from inaction of the kidneys; and consequently death must have resulted from other causes than the retention of the urea. Bouchard has pointed out the fact that there are seven poisons which are re-

moved through the kidneys, urea being one, but the others are more deadly, and it is to the retention of these other more subtle poisons that the condition which we call uremic poisoning is due.

8. What is a "hobnailed liver"? What causes it?

Ans.— A "hobnailed liver" is a liver which has been contracted, sometimes as the result of chronic inflammation, sometimes as the result of the consumption of alcohol, and again from other causes. It is the result of irritation by reason of which portions of the liver project beyond the rest, while other portions contract, so that the surface presents an appearance similar to that of the sole of an English cartman's hobnailed shoe. This and various other conditions of the liver which were formerly attributed to alcohol often arise from indigestion, so that we have the "liver of dyspepsia" and other forms.

9. What kind of diet is advisable for a person who wishes to reduce his flesh?

Ans.— Very little diet, the less the better. A great deal of hard work out of doors and in the gymnasium, and very little work at the dinner table, is the best prescription for a person who has too much flesh. It is not so much a question of the quality of the food, as it is of the quantity, because nature can make food out of all sorts of things. No matter what a person eats, if he eats little enough, his flesh will be reduced.

10. Are onions injurious?

Ans.— They cannot be recommended as an article of food. The onion contains an exceedingly irritating volatile oil, which has a disturbing effect upon the mucous membrane of the stomach. It may, however, be cooked in such a way as to extract this oil, and then it contains a considerable amount of valuable nutrient material.

11. Are eggs fattening?

Ans.— The whites of eggs are not very fattening. The yolks are largely composed of fat.

12. What is the vermiform appendix? What is its function?

Ans.— The appendix vermiformis is a pocket about the shape of the finger and just about as large; it is located at the lower end of the small intestine, and its function is to secrete a very slimy mucus which is poured out into the alimentary canal to lubricate it so that the mass which is passing through the large intestine can easily be discharged from the body.

13. What is the proper treatment for la grippe?

Ans.— The best thing is to shut yourself up in your room, and stay in bed; do not try to "tough it out," as people sometimes do, for such a course might result in pleurisy, pneumonia, or tuberculosis. The grippe seems to be a very curious malady. It reduces the system so as to make it ready to take on almost any disease. It sometimes attacks the bowels, sometimes the digestion, or the nervous system, and it may result in gastritis, inflammation of the bowels, bronchitis, or pneumonia. It may be that the central nervous system is affected, or the head; and cerebritis, or meningitis may ensue.

The treatment depends upon the particular form of the disease. Some one has suggested that the grippe is made up of a dozen different germs, which form a sort of conspiracy — a marauding band that is going around the world; sometimes one has his turn, and sometimes another, but they are all joined in a partnership, or conspiracy, and so affect the system in a great variety of ways. The grippe is contagious, and there is only one way to avoid it; that is, to keep above it, to live on a high level so that it cannot reach us.

BAD COOKING THE ALLY OF INTEMPERANCE.

BY MRS. E. E. KELLOGG.

IT is becoming more and more apparent that the curse of intemperance is so closely interlinked with every phase and department of life that many reformatory measures must be set in motion before we can expect to see it wiped away. We are beginning to realize that there are innumerable byways and side-paths that lead into the highway of inebriety, some of them so hedged about by hereditary prejudices and respected customs that their downward tendency is almost hidden from view. We are learning that we must be ever on our guard, that the only real hold upon the evil is to secure those who are in danger of being swept away, before they are drawn into the stream; that in the education of our children, in our social customs, in our methods of daily living, there may lurk severe temptations to indulge in the cup that, while it cheers, is certain ruin.

In nothing is this more true than as regards our manner of living. Our present habits of life, particularly those of eating and drinking, have many tendencies toward intemperance. It is a sad fact, but none the less true, that many a wife and mother is partly responsible for a drunken husband or son, through the improperly cooked food provided for her household. An insufficient meal, lacking not so much in quantity, perhaps, as in quality, or an abundant one so badly prepared as to be more or less indigestible, and served or seasoned with strong and thirst-provoking condiments, often creates a morbid craving which clamors for some narcotic or stimulant; the licensed or unlicensed neighboring saloon furnishes the stimulant, and the first step is taken on the downward road to drunkenness.

Says one who has given this subject much thought: "How often it happens that women who send out their loved ones with an agony of prayer that they be kept for the day, also send them with a breakfast that will make them half frantic with thirst before they get to the first tavern, doubtless with never a thought of the danger to which they are exposing them."

There is a dear little woman in one of our Western States, whose husband, like many another unfortunate being, has inherited an appetite for alcoholic drinks, an appetite which he nobly struggles to overcome, and which under favorable circumstances he is able to hold in check; but when he falls, the tempter comes to him, not through the alluring voices of his gay companions, or the flattering enticements of some wily dram-seller,— for, with a will like iron, he can resist these influences,— but through the food which he finds upon his daily board. Not that this food contains a trace of alcohol; his wife is too stanch an enemy to the drink fiend to allow that; but the poor man, partly by heredity and partly by acquirement, is a dyspeptic, and his noble wife, though she tries hard to help him overcome the drink habit, and often keeps poverty from their door with her needle, has so little knowledge of the nutritive value of foods and the requirements of the human system that she often unwittingly serves to him viands that cause such imperative thirst,— a result of the congested condition of the stomach induced by the food taken,— together with such feelings of pain and depression as hamper his willpower, that he is driven to drink in spite of everything. In his case, and it is but one out of thousands, the downfall is the result, not of outside temptations, but of

home conditions which it is possible with care to avoid,— conditions which do not demand new laws upon the statute-books, but which do require a knowledge and practise of the laws of God's health decalogue, by every wife and mother throughout our land.

All diseased conditions lessen to some extent the power of self-control. A morbid appetite for food that is harmful is quite as difficult to overcome as is the appetite for strong drinks, to which it so often leads. It is all very well to talk of moral heroism and will-power, but why should we demand heroism on the part of men and boys, to meet temptations which it is in our power to prevent? It is just as easy for women to furnish their tables with well-cooked, easily digested food, uncombined with deleterious substances, as to supply them with any other, if they only have the knowledge and the will; indeed, if they have the will, they will get the knowledge, which in this progressive age need not be far to seek.

The first purpose of food is to furnish material to repair the waste which is constantly taking place with each activity of the body. Every breath, every thought, every motion, wears out some particle of the delicate and wonderful house in which we live. Various vital processes remove these worn particles; to keep the body in health, their loss must be made good by constantly renewed supplies of material properly adapted to make the living substance needed.

This renovating material must be supplied by food and drink. Such important building material should be the very best obtainable in quality, and sufficient in quantity.

That we may develop our powers to the utmost, and make the most of our own lives in the consecrated work of saving humanity from the evils of intemperance,— even this sacred purpose, if there were no other, is sufficient reason why Christian temperance women should think and study about these things.

View it from what light we will, the links which connect the subject of food with that of temperance seem almost numberless.

The preservation of a healthy nervous system is particularly dependent upon proper nutrition. Poor food makes weak nerves; weak nerves are always more or less irritable, and this hypersensitive condition creates the desire for some stimulant or narcotic agent.

Of course not every weak-nerved person becomes a drunkard, or even the parent of a drunkard; but wherever there is a predisposition, there is danger, and that this danger is a great one, the history of hundreds of victims plainly shows. When we remember what a small proportion of women ever stop to think what food is best suited to the physical needs of their households, but prepare and place before them whatever happens to be most pleasing or convenient, much of it often largely deficient in the proper nerve- and muscle-forming elements, can we doubt that this may have much to do with the tendency of our youth toward dissipation?

The transmission of a drink-craving heritage is not the only way by which a weakened nervous system may propagate the evil of intemperance, nor are weakened nerves the only diseased conditions that lead to drunkenness.

In this age of rush and hurry, of competition and strife for existence and worldly gain, the weak have to compete on equal terms with the strong, and seek in consequence some artificial strength. Our natural source of vigor is the food we eat; if that be wanting, or deficient in proper elements, we shall lack correspondingly in strength of mind and body.

Doubtless many a case of reckless dissipation among college youths has its

origin in an unsuitable dietary. Stimulated by parents and teachers to efforts far beyond the capability of a weak and poorly fed body, recourse is had to some artificial means of exciting weak energies to increased efforts, and little by little the young man accustoms himself to the use of stimulants. If he had had the proper food, and sound physical health in consequence, this temptation would have been avoided.

Poor food is quite as often the result of bad cooking as of the poor selection of material. To serve the end for which it is designed, it should be both nutritious and digestible. The first requisite depends mainly upon its selection, the second upon its preparation. Cooking ought to make food more digestible; it should be a sort of partial, preliminary digestion of the food elements. Proper cooking changes each of the food elements, with the exception of fats, in much the same manner that the digestive juices change them; it also breaks up the soluble portions so that they are more readily acted upon by the digestive fluids. Cookery, however, by no means always attains the desired end; and often the very best of foods are rendered useless, unwholesome, and even dangerous by improper preparation. Poor cooking is far oftener the rule than the exception; it is rare indeed to find a table upon which some portion of the food is not rendered unwholesome, either by improper preparation, or by the addition of some deleterious substance which not only lessens its digestibility, but, as is too often the case, if that substance be a strong condiment, makes the food, through its irritating and exciting character, an incentive toward the acquirement of the drink habit.

That such condiments as pepper, mustard, curry-powder, cloves, pepper-sauce, are strongly irritating in character, may be readily demonstrated by applying any of them to a raw or tender surface. The intense burning and smarting they occasion is ample evidence of this. Some of them, like pepper and mustard, are capable of producing powerfully irritating effects when applied to a healthy skin that is wholly intact. It is surprising that it does not oftener occur to the mother who applies a mustard plaster to the feet of her child to relieve congestion of the brain, that an article which is capable of producing blisters upon the external covering of the body, is quite as capable of producing irritant effects upon the far more delicate lining of the stomach. The irritating effects upon the stomach are not so readily recognized, however, as when applied to the skin, simply because the stomach is supplied with so few nerves of sensation that a great amount of mischief may be done to it without producing so great a degree of discomfort.

It is, in fact, this irritating effect of condiments that leads to their extensive use. The irritation which they cause produces an artificial appetite, a craving for food and drink which is not at all a natural desire. The very fact that condiments stimulate the appetite is a sufficient argument against them. This property is one of the greatest causes of gluttony, as their use removes the sense of satiety by which nature says, "Enough."

To a thoroughly normal and unperverted taste, irritating condiments of all sorts are obnoxious. It is true that nature does accommodate herself to their use, as she does to the use of tobacco and other deleterious substances, to such a degree that they may be employed for years without apparently producing grave results; but this very condition is a source of injury, since it is nothing more nor less than the putting to sleep of the sentinel which nature has posted at the portal of the body for the purpose of giving warning of danger. The nerves of sensibility

having become benumbed to such a degree that they no longer offer remonstrance when irritating substances are taken into the stomach, the sleepy sentinels allow the enemy to enter into the citadel of life, often in the form of a stronger stimulant; for with this hushing of nature's warders the apparent effect of the condiment is diminished, and the user begins to demand an increased quantity or a stronger article; so that besides doing a direct injury to the digestive organs, condiments cultivate a taste for strong and pungent substances, and, as has been truly said, "The boy who has learned to eat catchup at his mother's table has already half learned to drink."

Water is incompatible with strong condiments and pungent sauces. It requires something less insipid than nature's sparkling beverage to quench the fire aroused by food that burns and stings.

Not, by any means, that all users of highly seasoned food and strong condiments must necessarily be, or become, drunkards; but there is certainly a strong connection between these branching rootlets and the mighty tree of intemperance; and all who have studied this matter will certainly agree that intemperance rarely, if ever, begins until there has been the habitual use of strong condiments and lighter stimulants, either in food or drink.

One of the strongest evidences that the use of proper food is conducive to temperance reform lies in the fact that the great army of drunkards never finds recruits from among those who advocate and use a plain, nutritious, and unstimulating dietary.

A LITTLE BED OF CROCUSES.

BY ARTHUR HENRY.

A LITTLE bed of crocuses
  Blooms just outside my door,
And with the passing of the years
  I learn to love them more.

Now listen to these dainty blooms,
  And you will hear them sing,
Through all the changing moods of March,
  "This is the spring! the spring!"

They falter not when nights are cold,
  Nor fear when tempests blow;
They lift their faces to the sun,
  And smile above the snow.

My blessed little crocuses,
  Ye are a joy to me;
For through all the changing moods of March
  Ye are as I may be.

Ye are as I may ever be,
  However brief thy stay;
For virtue dies not that endures
  The trials of a day.

Seasonable Bills of Fare.

SOME W. C. T. U. LUNCHES.

No. 1.

Pease Patties with Tomato Sauce
Nuttose Sandwiches Lettuce Salad
Whole-wheat Puffs with Canned Fruit
Sunshine Cake
Cocoanut Crisps Hot Caramel-Cereal

No. 2.

Nuttose Baked with Granola
Nut Butter Sandwiches with Beet Salad
Currant Buns with Stewed or Canned Fruit
Nut Sponge Cake
Fresh Fruits Caramel-Cereal

TRAVELERS' LUNCHES.

No. 1.

Wafer Sandwiches
Fruit Tarts
Toasted Granose Biscuit with Sterilized Nut Butter
Fresh Fruit with Ambrosia

No. 2.

Cream Crisps with Egg Relish
Fruit Crackers
Roasted Almonds
Whole-wheat Bread and Butter
Sunshine Cake

RECIPES.

Pease Patties.— Cook a quart of dried Scotch peas very slowly until perfectly tender, allowing them to simmer very gently toward the last until they become as dry as possible. Rub them through a colander to remove all skins. Season with a teaspoonful of salt and a half cup of sweet cream or nut cream. Beat well together, add one third the same quantity of toasted bread crumbs, shape into patties, and bake until dry, mealy, and nicely browned. Serve with a tomato sauce prepared as follows: Heat a pint of strained, stewed tomato, season slightly with salt, and when boiling, thicken with a tablespoonful of flour rubbed smooth in a little water.

Wafer Sandwiches.—Brown whole-wheat wafers nicely on both sides over glowing coals. Spread one side with sterilized nut butter, then with nuttose finely minced and seasoned with salt and lemon-juice, cover with a second wafer, buttered on one side, and wrap in tissue paper.

Nuttose Sandwiches.— Spread slices of good whole-wheat or graham bread with butter. Fill with minced nuttose as for wafer sandwiches.

Nut Butter Sandwiches.— Spread slices of thinly cut graham bread with sterilized nut butter, and then with chopped dates or figs. Finely minced celery is excellent used in the same manner.

Nut Butter Sandwiches, No. 2.— Season some sterilized nut butter with salt

and sufficient lemon-juice to make it quite sour. Spread this over slices of good graham bread with fresh lettuce leaves between.

Sunshine Cake.— Take five large, fresh eggs, one cup of granulated sugar (sifted), one cup of flour (sifted), one tablespoonful of lemon-juice, and a pinch of salt. Have the material, pans, and oven in readiness. Put the whites into a large bowl or a round-bottomed crock. With a Dover egg beater, beat the yolks rapidly until thick and creamy. Next add the sugar, which has been flavored with the oil of the lemon, and beat again very thoroughly, using the Dover beater in the form of a whip, not turning the crank, as it will make it too stiff. It should be very stiff when done. Set this to one side, add the salt to the whites, and with a wire-spoon egg beater whip until light and frothy, but not stiff. Add the lemon-juice, and beat until very stiff, so that it has a cooked appearance.

Next pour slowly into the whites the yolk and sugar mixture, stirring with a beater constantly, until thoroughly mixed. The stirring should be a sort of dipping down into the mixture at the side of the bowl, coming up through the center, then lifting the beater, and repeating, dipping in first on one side, then on the other.

Last add the flour very carefully, first sprinkling one half evenly over the top, and when this is partly mixed in, sprinkle the remainder on and mix until no dry flour can be seen. The mixing should be done with the same movement used in mixing in the sugar and yolks. If it is stirred much after adding the flour, it becomes tough.

This can be baked as a layer cake or as a loaf; if as a layer cake, bake in two layers for thirty-five minutes. It should brown the first twenty minutes, but should be getting light, and must be left in the pan until cold. If baked as a loaf, it should be baked about forty minutes, and should not brown for the first thirty or thirty-five minutes.

The "Misses Lisk Improved Cake Tins" are the best for all sponge cakes. Turn the pans upside down as soon as taken from the oven, and leave thus until cold.

Nut Sponge Cake.— Proceed same as for yellow sponge, or sunshine cake, except instead of using one cup of flour, use one-half cup of gluten meal (prepared by the Battle Creek Sanitarium Health Food Co.), No. 3, and one cup of finely chopped nut meats or nut meal. English walnuts, pecans, or hickory-nuts are the best in flavor for this cake; baked almonds may be used. Bake in a loaf the same as sunshine cake.

Fruit Tarts.— Moisten two thirds of a cup of granola with an equal quantity of almond cream (made by diluting almond butter with water). Let it stand a moment, then place a small portion of the moistened granola on the bottom of a patty pan or a saucer, and with a spoon spread it evenly and thinly over the whole surface. Fill with any tart fruit pulp, as prune, grape, or dried apple.

Toasted Granose Biscuit.— Split the biscuit twice or three times, and toast each piece on both sides over glowing coals, till nicely browned, spread with sterilized nut butter, pack the pieces together, and wrap in tissue paper.

Cream Crisps.— Make a dough of one cupful of thin cream and a little more than three cups of graham flour. Knead until smooth, then divide the dough into several pieces, and place in a dish on ice for an hour, or until ice-cold. Roll each piece separately and quickly as thin as

brown paper. Prick with a fork, cut with a knife into squares, and bake on perforated tins until lightly browned on both sides.

Fruit Crackers. — Prepare a dough with one cup of cold sweet cream and three cups of graham flour, knead well, and divide into two portions. Roll each quite thin. Spread one thickly with dates or figs seeded and chopped; place the other one on top and press together with the rolling-pin. Cut into squares and bake. An additional one fourth of a cup of flour will doubtless be needed for dusting the board and kneading.

Cocoanut Crisps. — Pulverize desiccated cocoanut by pounding in a cloth or in a mortar, or by pressing as much as possible through a fine flour sieve. Use the fine portion only. Take one-third cocoanut thus prepared and two-thirds flour (Pillsbury's best or entire-wheat flour). Mix to a dough with ice-water, knead lightly, roll with a rolling-pin into sheets scarcely thicker than paper, prick with a fork, cut into small squares with a knife or wafer-cutter, and bake.

Nuttose Baked with Granola. — Put one-half pound of nuttose through a vegetable press, or grate it quite fine in a grater. Mix together two cups of granola and three cups of warm water; season with a little salt and a little pulverized sage or minced celery. Put alternate layers of the seasoned granola and the nuttose in a pudding dish, finishing with the nuttose. Press together slightly, and bake in a moderate oven until lightly browned.

Egg Relish. — Mash the yolks of hard-boiled eggs, season with salt and lemon-juice. A little minced celery may be added if liked. Serve cold with crisps.

HYGIENIC HINTS.

FRUITS are nature's natural disinfectants.

Muffins or gems that are soft inside are unfit to eat: the doughy part is swarming with germs.

Most people do not drink water enough. One should drink, ordinarily, at least two or three pints a day.

The intensity and activity of a man's physical life depend upon the amount of oxygen he stores up in his body.

Bread, to be perfectly wholesome, should be baked at a temperature of at least 210°. It should be baked until it is slightly brown to the center.

Gout is a species of rheumatism, and is produced by meat-eating, and not, as is often claimed, by wine drinking.

Scurvy is a condition of malnutrition. To live on a diet of tea and toast would be a good recipe for bringing on this disease.

It is the dryness of food and not its hardness that produces the flow of saliva and encourages the development of gastric juice in the stomach.

In warm weather the system is likely to be debilitated by the heat, so that a more careful observance of the laws of health is necessary even than in winter.

EDITORIAL.

Total Abstinence and Longevity.

Many years ago Dr. Wm. Farr, of England, observed that the statistics collected by insurance societies ought, in time, to demonstrate whether or not total abstinence is or is not an aid to longevity. The following facts presented by the *Medical Standard* leave no room for doubt as to the value of a life of total abstinence, if one considers long life desirable :—

"The Independent Order of Rechabites is a teetotal workingmen's benefit society. It has an adult membership of 142,000 and a juvenile membership of 76,000. It has been in existence over sixty years, and financially is highly prosperous. Its mortality experience, as calculated by Mr. Neison, the actuary, shows that at eighteen years of age, Rechabites have an expectancy of life of 50.62 years, while according to the registrar-general, the expectancy of all males of the community is 41.90, and according to the institute of actuaries' life tables, that of healthy males belonging to the well-to-do classes, whose lives are insured and are at the age named, is 43.60 years. If the Rechabite figures are accepted as true, a very formidable conclusion will necessarily be drawn from them. They will be held, and rightly held, to show that all males in the country over eighteen years of age who use alcohol shorten their lives to the extent, on the average, of something more than seven years each."

He Could Not Shoot.

Rev. B. Fay Mills, the great revivalist, tells the story of a hunter who employed as a decoy for deer a peculiarly constructed whistle which closely imitated the voice of a young fawn calling its mother. With his rifle in hand ready for instant action, he was one day blowing his whistle, when suddenly a mother deer thrust her head out of the bushes and looked straight toward him. There she stood, trembling with fear, yet looking this way and that in search of the little one, which she supposed to be in danger. The hunter said, "As I looked into those eloquent eyes, anxiously glancing here and there with maternal anxiety, my heart melted: I could not shoot."

Let the deer hunter, and hunters of every other description, remember that every deer is a father deer or a mother deer, or a deer dear to some other deer, and that to kill an animal that possesses a mother instinct, that is willing to risk its life in defense of its helpless offspring, is nothing more nor less than murder. Man is a wholesale butcher, and we see verified in our daily experience the prediction in the words of Holy Writ, "The fear of you and the dread of you shall be upon every beast of the earth."

Deer are not afraid of cows: they often mingle with them in the pasture lot or on the prairies. Rabbits are not afraid of squirrels; they gambol together in the same thicket. But rabbits, squirrels, deer, are afraid of wolves, bears, tigers, panthers, and other ferocious beasts. They are also afraid of man, and for the very same reason. He is likely to kill them and eat them.

A thoroughly awakened human conscience regards all life as sacred. It was a heathen poet who said,—

"Take not away the life you cannot give,
For all things have an equal right to live."

Surely the genius of Christianity is as humane as that of paganism, though some Christians are found indulging in practises which are in the highest degree horrifying to some pagans. A Hindu looks upon the slaughter of an animal with the same dread and horror with which he would witness the taking of the life of a human being.

Millions of Microbes.

A lump of cheese, like a mine in the Klondike region, has millions in it — millions of twinkling, wriggling, poison-making microbes.

Not all cheeses contain worms, but all contain microbes or germs in great numbers. According to investigations recently published by Professor Adametz, who has made a careful study of the microscopic organisms that live in cheese. This food substance, so common and so popular, contains, besides worms, mites, and other larvæ, which everybody knows, a prodigious number of microbes of different sorts; every gram of fresh cheese has from 90,000 to 140,000. The population of a cheese twenty-five days old would rise to 1,200,000 microbes a gram; at the end of forty-five days it would be 2,000,000.

The microbes are much more numerous near the outside of the cheese than in the center, probably because the air favors their development. We find from 3,000,000 to 5,600,000 germs in a piece the size of a small marble; uniting these different observations, we may conclude that at an average every pound of cheese contains nearly twice as many germs as there are inhabitants on the surface of the earth.

The reader will doubtless follow with interest the results obtained in special researches made at the request of the writer, in his laboratory. The aim of these researches was to determine the influence of different articles of food upon the number of germs found in the stomach an hour after a meal.

With granose, zwieback, and other perfectly sterilized foods, no germs were found, the gastric juice being capable of destroying them all in the stomach. But when sixteen cubic centimeters of cheese were taken with 240 grams of water, the presence was shown of an innumerable quantity of germs that the gastric juice could not destroy; more than 100,000 in a dozen drops of liquid, taken from the stomach an hour after the ingestion of the cheese, together with a considerable number of molds.

The author has met a certain number of cases of fatal inflammation of the intestines, which could be directly attributed to the use of cheese. According to Professor Vaughan, of the University of Michigan, poisoning by cheese is due to the presence of an excessive quantity of a special poison, to which he has given the name of tyrotoxicon, and which always exists in cheese in larger or smaller quantities. Under certain conditions, the germs which produce this poison continue to multiply in the stomach and provoke symptoms of cholera.

Certain varieties of cheese, such as Roquefort and Brie, owe their characteristic qualities to the presence and the rapid multiplication of molds. Edam cheese owes its peculiar properties to certain bacteria which give a viscid appearance to milk.

A Natural Death.

An Illinois paper recently announced the death of Mrs. Catherine Butler, who died of old age at her home in Indianola, March 30, aged 93 years. She had never used a cane or a crutch, had never worn glasses, or taken a drop of medicine.

Death from old age is not a very common occurrence nowadays. The majority of people die violent deaths, killed either by accident or by their own misdeeds and violations of the laws of health. The natural limit of human life is estimated by naturalists to be somewhere from one hundred to one hundred and twenty years, but there are plenty of examples of human beings who have lived to one hundred and twenty-five and thirty years, and not a few in whom the length of life has been prolonged to one hundred and fifty, and even one hundred and seventy-five years. Examples of this sort are not confined to Bible times, but are recorded in the history of the last two or three centuries. Half the human race die before the age of five years, and the average length of life in civilized countries at the present time is barely forty-two years, scarcely more than two fifths the normal length of life. This enormous loss of human life ought to give rise to serious consideration of all the influences which bear upon health and longevity. Unfortunately, however, too large a share of the attention of physicians and scientists is devoted to apologizing for popular practises which human experience, assisted by common-sense principles, easily shows to be in the highest degree injurious to both the individual and the race. Not a

few apologists are to be found for the pernicious habit of tobacco-using, even of cigarette smoking, and there are any number of defenders of moderate drinking as a sanitary practise. Tea and coffee have been lauded to the skies as needed nerve comforters, and there are multitudes of men who are devoting almost their entire time to the search for some new form of nerve tickler.

What the world needs most of all just now is a John the Baptist of health, who will raise his voice like a trumpet in a wilderness of disease and degeneracy, and call the people to repentance from their evil ways. The world is going down physically, mentally, and morally, and deterioration and degeneracy are taking place much more rapidly than can be discovered by a cursory observation. The more this question is studied, the more apparent it will become that the only hope for the world is to be found in the reformation of the habits of individuals, whereby a new and healthy race of human beings may be developed. We hear a great deal nowadays about the new woman. The new man is just as much needed as the new woman. We need general reconstruction all around.

THE TAP-ROOT OF INTEMPERANCE.

NOTWITHSTANDING the earnest efforts which have been made by temperance organizations of all sorts within the last quarter of a century, and especially by that grandest of all reformatory organizations, the Woman's Christian Temperance Union, statistics show that there is no very perceptible diminution in the prevalence of intemperance. With the exception of States in which prohibitory laws are in force, there has, in fact, been an increase in the number of arrests for drunkenness and for other crimes dependent upon intemperance. The use of alcoholic drinks, as well as the use of tobacco, has perceptibly increased within the last quarter of a century. The amount of alcoholic liquor of various sorts used per capita is greater at the present time than at any previous time in the history of this country.

The significance of these facts is not that the Woman's Christian Temperance Union and other similar organizations are not doing splendid work in behalf of temperance. The efforts which have been made, and which are being made, are well directed, and will accomplish much to stay the march of this terrible Juggernaut which for so many centuries has been grinding beneath its slowly moving wheels multitudes of victims who have discovered their danger too late to escape, and who, covered with shame, have gone down by hundreds of thousands into untimely graves. We have no criticism whatever to offer upon the efforts which have been made thus far by associations of men or women who are engaged in contending against this prodigious evil, but it occurs to us that there is a deeply rooted cause of intemperance which has heretofore received comparatively little attention. We refer to the use of alcohol as a medicine. The majority of physicians believe alcohol to be a good stimulant, and hence recommend it in nearly all cases in which it is supposed that the patient needs an increase of strength or vigor, better appetite, better digestion, an increase of nerve energy. After many years of practise, the majority of intelligent physicians discover that the increase of strength which follows the use of alcohol and other stimulants is only apparent in character, and that the use of these drugs inevitably gives rise in the end to a weakening of the very functions it is supposed to rebuild.

Alcohol, although called a stimulant from time almost immemorial, is in no sense a stimulant. It is a narcotic, hence should not be used where an increase of energy is required; if used at all, the indication would be in cases requiring a diminution rather than an increase of energy. Alcohol lessens the vigor of the heart, and hence must be discarded in syncope, fainting, collapse, shock, and other cases supposed to require a

stimulant. Alcohol is, in fact, one of the very worst drugs that can be employed in such cases, as it has a narcotic effect upon the body. This fact is far less generally known than it ought to be. Physicians are using alcohol as a stimulant in cases where its influence as a narcotic is capable of doing the greatest possible harm. These facts ought to be brought before the public, and emphasized in such a way that men and women everywhere may be put upon their guard in relation to the use of alcohol as a medicine.

In the near future we shall publish a series of illustrated articles, treating of the effects of alcohol upon the brain and other nerve tissues, by which its destructive influence will be very well shown by a series of photographs of the brain structure in the healthy state, and in the state to which they have been brought by disease resulting from the use of alcohol.

SMOKING-CARS FOR WOMEN.

Two extraordinary things have happened recently in New York, which illustrate with startling emphasis that the smoking habit is fast gaining ground among American women. One of them was the putting away in a mad house of young Marie Vanderbilt-Allen Wilmerding, a hopeless paretic from excessive cigarette smoking. The other was a petition sent to the president of the Metropolitan Traction Company by a well-known woman asking for exclusive smoking-cars for women on the surface roads of New York. In her letter to President Vreeland the petitioner said: —

"The custom of smoking, so common with women of all classes in the Orient and in the Latin countries of Europe and in America, is becoming fixed also in the United States. The women who work as the men do, with brain and hand, at the same driving pace, feel that the pipe is as necessary for them as for their brothers.

"Our own lovely, distinguished grandmothers used pipes a hundred years ago. We are not, therefore, going astray, but returning to an established custom. We trust, then, that you will have the friendliness to listen to us and the generosity to grant our request."

This letter affords a vivid illustration of the coarsening effect of nicotine upon the sensibilities. The woman who wrote it signed her name and gave her address, but out of consideration for the womanhood of others, we suppress it. The biting sarcasm of President Vreeland's reply is a pointed rebuke to the indelicacy of the action. He said in part: —

"As you speak with the assurance of perfect knowledge, and as I am lamentably ignorant of female habits, it is with hesitancy I suggest that I cannot believe the necessity is pressing enough to justify compliance with your request. Keen as is the general rivalry, the smoking habit is not, I think, quite so general with women as with men, and yet heretofore the Metropolitan Railway Company has never furnished separate smoking-cars for its smoking male patrons. Three seats in each open car have, up to this time, sufficed to accommodate this class and gender of its patrons.

"May I suggest — since at the moment there seems to be no justification for separate women's smoking-cars — that the gallantry of the gentlemen for whose exclusive use three back seats are reserved, can always be relied upon to provide a place, and even a light, for any woman who wishes to smoke."

Discussing the evil effects of cigarette smoking among women, Dr. Egbert Guernsey, one of the most fashionable physicians in New York, says: "The cigarette is injurious to men. It is deadly to women. It is the first easy step to paresis. The fast increasing cigarette habit among women is to be greatly condemned from every standpoint — physical, mental, and moral. The cigarette in the hands of a woman, whether she is a

society belle or the overworked business woman, means imminent danger.

"I believe there is more danger to society from excessive cigarette smoking than from the indiscriminate use of alcohol. The stimulant gained from cigarette smoke is not so violent at the time, but it keeps up a steady action on the brain until by and by the brain becomes exhausted, and dreaded paresis follows. Excessive cigarette smoking changes the character of a woman's thoughts. In time it produces a morbid condition of the brain. The woman addicted to excessive cigarette smoking is apt to bear children whose morals are perverted, or who are imbeciles from birth."

The suggestion of President Vreeland — that women who smoke ought to be willing to associate with men who smoke and to sit in the same car with them, in the same seat with them — is eminently just and proper. Women who smoke are on precisely the same level with men who smoke. As women who do not smoke occupy the same cars with men who do not smoke, at least for the time being, the smoking women and the smoking men ought also to be classed together.

We do not, however, agree with the comparison made by Dr. Guernsey, that while the cigarette is "*injurious*" to men, it is "*deadly*" to women. Tobacco-using is no more deadly to women than to men, — in fact women ought to be able to endure smoking a little better than men, for the reason that women have larger livers than men, and larger and more active kidneys than men, and hence are better able to cope with the poison which taxes the liver to destroy it and the kidneys to eliminate it. Women are naturally stronger vitally than men. More boy babies are born than girl babies, yet at the end of the first year of life the girl babies are in the majority, because of their greater ability to resist the unfavorable conditions to which the young human being is exposed. At five years of age, the disparity is still greater in favor of the girls. The mortality rate among them is smaller than among boys until the age is reached when corset-wearing and tight lacing begins; then the boys get ahead for a time, but the greater vital resistance of the women comes out at last in the fact that the oldest inhabitant in a million persons is always a woman. Women have just as good a right to smoke as men. It is just as right, just as proper, just as nice, just as healthy, and just as comforting, and the writer holds that women are entitled to the same facilities for smoking that men enjoy; he sees no reason why women may not smoke in the cars, upon the street, and elsewhere, with the same freedom that men do. The habit is not objectionable because it is a woman who does this, but because it is a bad, loathsome, and dangerous habit in itself.

If there is a certain class of women who want to smoke, why let them smoke, but let us have a law that women smokers must marry men smokers, and men smokers — if they marry at all — must marry only women smokers. Then we should have presented before the world an object-lesson of the awful consequences of the tobacco habit, which would deter those who have not acquired the vice from cultivating it; and further, no very great length of time would elapse before the smoking aristocracy would run out; they would smoke themselves to death, — "go up (or down) in smoke," so to speak; thus we should see another illustration of that great law of nature which determines "the survival of the fittest," and the extermination of the "unfit."

THE word "malaria" means bad air. "Malaqua" would be a better name for the disease, because malaria is more often produced by bad water than by bad air. Malaria is an infection. Certain mineral parasites get into the blood corpuscles and destroy them, at the same time manufacturing a poison which produces fever. In order to be relieved from malarial fever, it is necessary to get rid of these parasites. They must be destroyed by the blood itself or by some other remedy.

PEDIGREE AND HYGIENE.

Dr. Oliver Wendell Holmes said, "All diseases are curable, if taken in time." But "in time" generally means several generations back. We sometimes have to begin with our great-great-grandfathers, — not because we inherit diseases from our ancestors, but we do inherit from them a predisposition to disease. We inherit weak stomachs from our mothers who have drunk so much tea and coffee and have eaten so much candy,— we inherit our bad stomachs from both sides. Our fathers have spoiled them by tobacco-using, and our mothers have spoiled them by tea-drinking and sedentary habits. We can scarcely find one who does not bear in his body the results of the sins of his ancestors. "The fathers have eaten sour grapes, and the children's teeth are set on edge," is a true principle; we see it illustrated in animals and plants, and we see it abundantly illustrated in human life.

The strangest thing is that we pay not the slightest attention to this principle, although we know its truth. When a young man thinks of marrying a certain young woman, he cares to think that she is attractive, but seldom inquires whether she can cook hygienically; and least of all does he concern himself as to what sort of health her father and mother have; he never thinks of her pedigree.

Did you ever see wedding cards in which the happy couple published their pedigrees? That would be a proper thing to do. The aristocracy of health is the right kind of aristocracy. It was a false aristocracy that an eminent New York professor proposed to create. He says: "We ought to have an aristocracy of learned men." The purpose of the university, according to this distinguished professor, is "to create an aristocracy of learned men," men who know a great deal but do very little. There is a story of a certain preacher who had been talking to the children of his congregation upon the text, "Ye are the salt of the earth." To illustrate this idea, he asked the children what salt was good for. One boy said, "It 's good to eat." "Anything else?" asked the preacher. "Yes," replied a little girl. "Well, what else is salt good for?" "To keep good victuals from spoiling," she answered. This pleased the minister, and he dwelt upon the point that, as "salt keeps good victuals from spoiling," so preachers are to keep the world from spoiling. He went on in this way for some time, magnifying the province and calling of the minister, and finally, in order to see whether the little ones understood him, he asked, "Now, what are preachers good for?" After some hesitation a little fellow shouted out, "To keep good victuals from spoiling." Now, any aristocracy that implies idleness, that makes a man simply an ornament to society, is false. The editor believes in the aristocracy of health, because health of body is the foundation of health of mind. A perfectly healthy body and a perfectly healthy mind are likely to be accompanied by healthy morals. The ancient Greeks were right when they wrote over the doors of their temples, "A Sound Mind in a Sound Body." A man thoroughly sound physically is likely to be sound morally,— and that is the sort of aristocracy we should have. We ought to feel enough pride in this kind of aristocracy to be able to represent it and to keep up the quality of our class. It would do good to organize a caste in society, to influence young men and young women to seek to belong to a class of people in whom there is no taint of insanity, no taint of tuberculosis or consumption, no taint of inebriety or of crime, no taint of epilepsy,— a class of people who have a pedigree of sound ancestors. A young man would then deem it utterly against his character, a thing impossible to consider, to marry a young woman who had not an equally good pedigree with his own. In this sort of aristocracy we might have a first class, a second class, and a third class in society. If we lived in such a society as this, we might be proud of our pedigrees. A certain gentleman once noticed that a friend of his was exceedingly particular about the care of his dogs, superintending the work personally, while he left the supervision of

his boys to a tutor. The gentleman one day said to him, "Why do you give so much of your personal attention to your dogs, and leave your boys in the hands of a tutor?" "Oh," replied his friend, "my dogs have a pedigree!" His boys had no pedigree worth taking care of, and he probably appreciated the fact; but his dogs had a fine pedigree, and he was anxious to keep them up to their proper level.

If people were as much interested in establishing an aristocracy of health as they are in getting a fast breed of horses, or a good breed of oxen, or even of dogs — if people were as much interested in human health as in the pedigree of animals, there would be a wonderful and immediate improvement in the physical status of civilized people.

The fact is, this government, at the present time, is taking more pains and expending more money in looking after the health of its horses, oxen, and pigs — particularly its pigs — than in looking after the health of men and women. This is an extraordinary thing. If a disease breaks out among pigs, the veterinary division of the Agricultural Department sends out a commission to investigate the health of those pigs. But if an epidemic of disease breaks out among human beings, the government does not become excited in the least, and pays almost no attention to it. We have a national department which gives attention to the health of pigs, cows, and other animals, but there is no national department to look after the health of human beings. If a pig is going to Germany, he must be inspected through a microscope, by the authorities of the government, for the German government has discovered that a man should have good food if he is going to fight; the Germans know that they must be a nation of splendid fighters, because they are surrounded by enemies, and they are careful about the food of their soldiers. This is not the case in France, and the result is that the French are deteriorating; their bodies are growing smaller, and the deaths exceed the births. The French government is obliged to import people, in order to keep up its numerical strength. About once in five years it is obliged to lower the standard of height for the army, so that within the last ten years the standard of height has been lowered two centimeters, or nearly an inch.

It is most remarkable that society at large should be so apathetic, so utterly asleep, we might almost say comatose, with reference to a matter of such vital interest and importance,— the health not only of the present generation, but of the generation that may come after them.

Decay of the teeth does not take place until the resistance of the body is diminished to such a degree that one cannot kill the germs that come in contact with them. It is very rare to find a dog with decayed teeth. Wolves, wild horses, and other creatures that live close to nature have good teeth. The same is true of human beings who live near to nature; primitive people do not have bad teeth. It is those who live wrong and artificial lives that have poor teeth. In consequence of their unnatural dietary, their bodies become infected with poisons, and lose their power to resist germs; and these germs take up their habitation in the nose and other parts of the body. They lodge in the nose, and cause nasal catarrh; then they get into the throat, and there is throat catarrh; then they pass into the stomach and produce stomach catarrh, and so on, until the whole body is infected with micro-organisms.

The ability of a man's body to resist disease is not measured by his weight, but by his specific gravity. It is not the weight or the amount of blood or of flesh that determines the health; it is the solidity of the flesh, the amount of power a pound. It was the scrawny and lean-looking men who went into Andersonville prison that came out alive, while the men who were rosy cheeked and apparently healthy, died.

ANSWERS TO CORRESPONDENTS.

Electricity for Stomach Trouble — Stomach-Tube — Antiseptic Charcoal Tablets — Nut Foods — Seng. — S. F. M., Maryland, writes: "1. Is the use of electricity effective in treating dilatation and prolapse of the stomach? If so, is there any method of home treatment available? 2. Is the use of the stomach-tube advisable as a means of cleansing the stomach once a day or so, say before breakfast? 3. Is the frequent use of the enema likely to be harmful in distending the bowels or in any other way? It is used simply to cleanse the bowels. 4. In the use of antiseptic charcoal tablets or other antiseptics and antiferments, is there not danger of interfering with the digestive ferment — the natural process of digestion? 5. Are all the nut foods manufactured by the Sanitas Food Co. equally digestible? 6. Are they all of the same value as foods, being varied to suit the different tastes of those using them? Could all the benefits to be had from their use be derived from bromose and maltol without any of the others? 7. Is 'Seng,' manufactured in St. Louis and advertised in the medical journals, to be commended as a remedy for indigestion? 8. Is there any great value in malt extracts like Trommer's Maltine, etc., either as aids to digestion or as nutriment in themselves; also in the liquid extracts, as Wyeth's, Hoff's, Pabst's, etc.?"

Ans.— 1. Yes; but such cases require the application of this agent in the most exclusive manner. The sinusoidal electrical apparatus is about the only one which gives satisfactory results. But these experiments are rather expensive for home treatment. Much can be done, however, even in these cases, by gymnastics and massage.

2. In cases requiring it, the stomach-tube is almost indispensable. But it should not be used habitually. It is seldom necessary to employ the tube more than two or three times a week in cases which cannot otherwise be treated promptly. Proper dietary will prevent the stomach, when once thoroughly cleansed, from again becoming infected.

3. Yes, if too large a quantity of water is used.

4. There are antiferments which produce such effects, but we have never known any such effect to occur as the result of using the antiseptic tablets.

5. No. Some are not easily digested by persons suffering from apepsia and extreme hypopepsia. This is true of ordinary nut butter and nuttose; when sterilized, they are free from this objection. Ambrosia, malted nuts, maltol, bromose, sterilized nut butter or nuttolene (as it is now termed), nut meals, and almond butter are best adapted to delicate stomachs. Nuttose is easily digested by persons suffering from hyperpepsia and those who have ordinarily good digestion; it is much more easily digestible than meat.

6. Yes.

7. We know nothing about this preparation.

8. Trommer's Extract of Malt and Maltine are good foods, but they are not of much value as digestive agents.

Nervous Dyspepsia. — A young married lady in Mississippi writes anxiously of her case. She gives the following symptoms, and desires advice as to treatment: Severe burning pain in the stomach; acidity; weak spine; extreme nervousness; sometimes all feeling and almost all consciousness are lost. She is using some of the health foods, and greatly desires to make use of all the helps to regain her health.

Ans.— We recommend the use of a dry, aseptic dietary. Granose, bromose, malted nuts, nuttolene, and fruits would be excellent foods in this case.

Constipation. — F. A. W., Washington, D. C., wishes a remedy for habitual constipation with extreme nervousness.

Ans.— We recommend, first of all, a fruit diet: a few apples, three or four oranges, or a half-dozen figs taken before breakfast will be found helpful, adding to this granose eaten freely, with maltol or bromose.

Boils — Osteopathy. — B. F. W. asks, "1. What is the best diet for a person subject to boils or eczema? 2. What do you think of osteopathy?"

Ans.— 1. A diet consisting of fruits, grains, and nuts, which will secure purity of blood. Fruits should be used freely. A pure fruit diet for a week will doubtless prove beneficial. We recommend the plan of using fruit alone for one of the daily meals, preferably for breakfast, if two meals a day are taken. If three meals are taken, fruit may be eaten for both breakfast and supper, and fruits, grains, and nuts for dinner. No butter, fats, animal foods, condiments, or any other unwholesome or injurious food substances should be eaten.

2. It is simply a clumsy application of massage and manual Swedish movements.

Cottolene.— A. W., Utah, asks if cottolene is a good substitute for lard for cooking purposes? Does it contain lard?

Ans.— We recommend no other substitute for lard and other animal fats than nuts and nut products. Cottolene is a combination of cotton-seed and suet. It seems to have no especial advantage over steamed refuse lard, except that it contains somewhat less of animal substance.

Dry Diet — Cider Apple-Butter.— Mrs. R. N., Indiana, asks: "1. Would a dry diet be recommended in case of the following symptoms: Badly prolapsed stomach; very poor absorption; colorless acid fluid in the stomach several hours after eating; too much saliva and rather acid? 2. What diet would be suitable for a person whose food goes to fat instead of muscle? 3. Is cider apple-butter wholesome for a person with a prolapsed stomach?"

Ans.— 1. Yes.

2. Such a condition is not to be remedied by a mere change of diet. The patient requires not only a careful hygienic dietary, but sufficient exercise to use up the fat and develop the muscles.

3. This fruit preparation is rather likely to disagree with persons who suffer from slow digestion, which is a condition nearly always present in cases of prolapsed stomach.

Neurasthenia — Enlarged Liver.— E. E. L., Pennsylvania, thirty-five years old, has had several attacks of la grippe, the last one, two years ago, being followed by nervous prostration. He has lost twenty-three pounds in weight, has pain in the stomach and side, sleeps poorly, and is subject to palpitation of the heart. His trouble has been called neurasthenia by several physicians; by others catarrh of the stomach; others have thought that the liver is the primary cause of the difficulty. He wishes to know: (1) our opinion as to his malady and its treatment; (2) what the symptoms of enlargement of the liver are; (3) whether an enlarged liver can be reduced to normal size; if so, what means should be used?

Ans.— 1. The patient is probably suffering from catarrh of the stomach. This condition is certainly capable of giving rise to the symptoms noted.

2. Enlargement of the liver is a common result of catarrh of the stomach. The only definite symptom of enlargement of the liver is increase in size, as determined by physical examination. In cases of enlarged liver, the lower border of the liver can be felt reaching down below the margin of the ribs on the right side.

3. Yes, by removing the cause, which means the adoption of a right dietary, and the correction of all habits of life which are not in accordance with hygienic requirements. A course of hydrotherapy is extremely valuable in cases of this sort. The hot and cold douche, or so-called Scotch douche, applied over the region of the liver, is highly beneficial.

Alcohol — Tobacco.— J. H. H., Kentucky, inquires: "1. Why do physicians prescribe alcohol to patients who are very low in order to give them more vitality? 2. What are the bad effects of tobacco in any form — chewing, smoking, or snuff-dipping?"

Ans.— 1. Through a mistaken idea of the effects of alcohol, and a lack of knowledge of suitable means for accomplishing the thing desired. Alcohol is a narcotic, and never increases vitality: it always lessens nervous activity. It is one of the very last things which should be administered to a person who is in a state of collapse, shock, or syncope.

2. Tobacco is a poison in every form and under all circumstances. It affects in the

most profound manner all the functions of life. Tobacco cancer is a recognized form of disease. Cancer of the lip and throat occurs more than twenty times as frequently in men as in women, which is without doubt due to the fact that men smokers so largely outnumber women smokers. Chewing introduces a large quantity of nicotine directly into the stomach. The effect is a weakening of the digestive processes, and ultimately failure of the stomach. Snuff-dipping is one of the most pernicious forms of tobacco using, because as the consequence of the peculiar method of taking the weed, a considerable quantity of it is swallowed. The effect of tobacco upon the liver and kidneys, as well as upon the brain and various other organs, is in the highest degree detrimental. An eminent Scotch physician showed a few years ago that albumen in the urine, a leading symptom of Bright's disease, is very common among smokers; and Dr. Lombard, professor of physiology in the University of Michigan, has recently shown that smoking a cigar for ten or fifteen minutes lessens the working ability of the muscles twenty-five per cent., and nearly twice as much if the smoking is continued during the work. In the face of these and a vast number of other facts which might be presented, it is most astonishing that so large a proportion of the civilized human race is addicted to this form of drug vice.

Varicose Veins.—A former Sanitarium patient asks: "1. What are enlarged or varicose veins? 2. If just recently troubled with this affliction in one limb, is a cure possible? 3. What dangers would ensue if the leg were used as usual?"

Ans.— 1. A varicose vein is a vein whose walls have become dilated to such an extent that the valves are no longer operative, and the vessel accordingly stretches under the influence of the blood pressure, especially when the patient spends much of his time upon his feet.

2. A cure is possible in the majority of cases.

3. The disorder often extends rapidly, when no precaution is taken to prevent its further development. The thin-walled veins sometimes rupture, giving rise to serious hemorrhage. Inflammation of the veins is another result which not infrequently occurs. In cases of this sort there is great danger of damage to other organs through extension of the disease.

Enlarged Tonsils.— Mrs. T. J. B., Alabama, asks: "1. What can be done for a girl five years old who has a continual snuffle and breathes heavily? 2. What is the cure for a growth on the third tonsil? It has been scraped off once, and is supposed to have returned. Is there no other cure than to have it scraped?"

Ans.— 1. A competent specialist should be consulted. There are without doubt growths in the nose which should be removed. There is probably partial obstruction of the nasal passages.

2. The growth should be removed, and the diseased part should be treated so that the tonsil will not grow again.

Cold in the Head.—C. M. C. C., Chicago, wishes to know the proper means to break up a cold in the head or in the bronchial tubes.

Ans.— Take a warm foot-bath or full bath as soon as possible after the cold has been contracted, and go to bed. Stay there until recovery is fully established. Live on fruit for several days, and drink plenty of water. Do not take hot baths and then go immediately out of doors. Better take a cold bath than run the risk of thus weakening the resisting powers of the body. When the lungs are affected, a heating compress may be applied constantly for a few days. The cloth should be changed often enough to keep it moist.

Constipation.— W. M. S., Illinois, being troubled with constipation, gave up animal food, excepting eggs, butter, and milk, and has been using granola, but the constipation is not helped. What should be used in connection with granola, or what would be a proper diet to remove this trouble?

Ans.— We recommend to this patient granose instead of granola. Two or three granose cakes each meal, or a liberal supply of granose flakes, taken dry at the beginning

of the meal, will be wonderfully helpful in securing normal activity of the bowels. To this diet an abundance of fruit and nuts or nut products should be added. A deficiency of fat is often a cause of constipation. Milk also has a tendency to produce this condition. Other measures may be tried. It is quite possible that a visit to a sanitarium would be advantageous in this case.

Baking-Powder — Glycozone — Cool Baths.— Mrs. J. J., Kansas, asks: "1. Is the use of baking-powder in the making of biscuits and cakes harmful to the human stomach? 2. How can we make healthful bread without either yeast or baking-powder? 3. Would you recommend the use of glycozone for stomach trouble? 4. Would you recommend cold or cool baths for one with throat, lung, or heart-disease?"

Ans.— 1. Yes; the alkali neutralizes the gastric juice, and produces catarrh of the stomach.

2. Water and air are the only raising ingredients needed by a skilled cook for preparing the most delicious breads. The tortillas of Mexico constitute a very toothsome and wholesome bread, made from corn without condiments. The Arab of the desert prepares his barley cakes in a similar way. Recipes for unfermented breads of various sorts will be found in "Science in the Kitchen," published by the Modern Medicine Pub. Co., Battle Creek.

3. We have had no experience with this remedy. It is highly recommended, and we are inclined to think it may be helpful in some cases, especially in hypopepsia. It would be of no service in cases of hyperpepsia.

4. At the beginning of the treatment, the temperature of the water should be a few degrees below that of the body. The temperature may be lowered gradually, but applications should never be so stimulating as to cause violent coughing.

Stomach-Tube.— P. W. R., of Kentucky, writes: "What form of stomach-tube do you consider preferable for family use, — with or without bulb? When and how often should it be used for the same person?"

Ans.— The form of tube which we find most convenient is a medium-sized soft rubber tube with a flexible bulb. The frequency with which the stomach tube should be used depends upon the individual case. In cases of cancer of the stomach with constriction of the pylorus, its daily use is generally necessary. In ordinary cases of indigestion with infection of the stomach, its use may at first be required daily, but after a week or two, twice or three times a week is sufficient, and later once a week; within a few weeks its use should be discontinued.

Hours for Meals — Hours for Study — Foods. — A student in North Dakota inquires: "1. What are the best hours for meals (two a day)? 2. Which is the better, to study late at night, or to go to bed early and study in the morning? 3. What foods are good to alternate with the wheat preparations?"

Ans.— 1. 8 A. M. and 3 P. M. are very convenient hours. It is better to eat nothing later than four o'clock.

2. Early morning study is much preferable to studying late at night; the brain is fresher and more vigorous, the memory more retentive, and much more can be accomplished in the same time with the same effort.

3. Corn, rye, barley, and oatmeal, are possessed of nutritive properties almost identical with those found in wheat.

Trask's Ointment — Renal Calculi — Osteopathy.— Mrs. H. A. W., Colorado, inquires: "1. Is there any real good to be obtained from such compositions as Trask's Ointment, the basis of which is tobacco? 2. What is the best preventive measure for renal calculi? 3. Are these renal concretions dangerous to life? 4. What is osteopathy, and what are its merits, if any?"

Ans.— 1. No.

2. A fruit dietary, abundant water drinking, and especially an active out-of-door life. Avoid the use of hard water; distilled water is recommended. The juices of fruits are the equivalent of distilled water, and if fruits are taken in sufficient quantity water drinking may not be required.

3. In some cases.

4. A clumsy application of massage and manual Swedish movements mingled with ignorant assumption, presumptuous claims and quackery.

LITERARY NOTICES.

Current History presents every three months a carefully prepared historical review of the world's progress, arranged for permanent preservation as a work of reference. The current number rounds out the record for the last quarter of 1897. Like its predecessors, it is a mine of information, world-wide in its scope, pertinent in its facts, judicious in its treatment, and clear and interesting in its style. It is elegantly printed, and illustrated with 61 portraits, 9 maps, and two full-page views.

IN *Lippincott's Magazine* for April Emily Mayer Higgins quotes from a French journal an amusing story about a Cossack who gave a tiger a sponge bath. The tiger was in a "zoo" in Moscow, and the manager, not being able to understand or be understood by the Cossack, attempted to tell him by gestures that he was to clean the cages of the animals.

The next morning the Tartar began his new duties by entering, with bucket, sponge, and broom, not the cage of a tame beast, but of a splendid untamed tiger, which lay asleep upon the floor. The fierce animal awoke, and fixed his eyes upon the man, who, sponge in hand, approached the animal, and proceeded to rub him down, as if he had been a horse or dog. The tiger, apparently delighted by the application of cold water, rolled over on its back, stretched out its paws, and, purring, offered every part of its body to the Cossack, who washed him as complacently as a mother bathes an infant.

THE reader must be hard to please who does not find in the April *Forum* something to suit his taste. Matters commercial, political, musical, and literary are all duly represented; and the list of writers includes none that is not an expert in his own particular sphere. Music lovers will be much interested in Professor Schrader's article on "The Handel Revival in Germany." Mr. Schrader, who was the last pupil of the Abbé Liszt, is one of the leaders of the Handel Movement in Germany; and he writes *con amore*. The paper on "Central America: Its Resources and Commerce," by Mr. W. E. Curtis, is the second of a series of articles which the *Forum* is publishing on the countries of Central and South America. Mr. Curtis writes of Guatemala and Salvador in the current number. Mr. Clark's essay on "The Kalevala" is a concisely written brief analysis of that Finnish national epic.

THE monthly magazine number of the *Outlook* for April is replete with most excellent and instructive reading. Fifteen pages are devoted to a review of the week's happenings. Then follow special articles, full of information and interest. The delightful series by Edward Everett Hale, on "James Russell Lowell and His Friends," is continued; also the "Life and Letters of Paul," by Rev. Lyman Abbott. Other articles are, "The Naval Defenses of the Nation," "Easters and Easters," "Getting about New York," "The Innuit of Alaska," and "English Child Life," with a corner for the home and the children. We consider the *Outlook* one of the best family papers published.

THE *Atlantic Monthly* for April maintains its usual high standard of excellence. A journal without illustrations is an exceptional thing nowadays, but a not unwelcome exception when the space is occupied by the very highest and best in present-day literature.

PUBLISHERS' DEPARTMENT.

MORE GOOD WORDS FOR GOOD HEALTH.

IT is interesting to catch glimpses of ourselves as others see us. Three months ago we had one mosaic picture; here is another. A lady who teaches in the boys' high school of Lancaster, Pa., writes as follows: —

"I shall be very much obliged for your 'dinner.' I shall enjoy showing my pupils that there are some things that Battle Creek recommends that are good. To-day, when I told them of your offer, one thought it would be a box of air, sterilized, condensed, and purified, that we would be requested to chew for one hour. These big, strong young men have not much sympathy with hygiene, but the points on alcohol make them think. We use Kellogg's Second Book in Physiology. It is the best book on hygiene that I have had the pleasure of handling."

A Michigan lady adds to this testimony: —

"Tell J. H. Kellogg, M. D., what his writings with regard to liquor and tobacco are doing. They have done my boy good. Tell him to go on doing all the good he can."

A gentleman in Indiana says: —

"I should not like to be without GOOD HEALTH. It is like an old friend coming to me each month, and I yet enjoy talking about the 'dear old San.,' as I call it."

Another writes from Texas: —

"Every issue of your journal is worth the price it costs by the year, and I enclose renewal."

A "hygienic physician" in St. Louis sends the following: —

"I have not seen a copy of GOOD HEALTH on our table for some time, so I think our folks must have let the subscription expire. I herewith enclose one dollar with which to renew the subscription, beginning, if you please, with the January number."

A gentleman in Loominster, Mass., says he "can scarcely wait for the next copy to come out."

Other very recent testimonials are as follows: —

"I wish to thank you for this valuable and excellent journal GOOD HEALTH. It is the best journal that I have ever read, and I regard it as a necessity in my home. Accept my many good wishes for the success of GOOD HEALTH."

"Enclosed please find 20 cents for which send me one of your binders to preserve last year's GOOD HEALTHS; for they are worth preserving. I would rather have them than gold, they have done so much for me. I try to get every one I talk with to subscribe for them, but people would rather throw away their money on medicine; I have persuaded several families to use the health foods, and still keep trying to do all I can for the cause."

"Enclosed find $1 for GOOD HEALTH for one year. I am delighted with the sample copy,—so much news in regard to health in such a small space. As soon as I glanced over it, I knew it was just what I was wanting."

"I enclose another dollar for a year's subscription to GOOD HEALTH, which I certainly would not be without. The information which I have gained through reading it, during one year's time, I would not dispense with for any consideration, providing I could not obtain it in any other way. The teachings of GOOD HEALTH have been put into practise by me, and the results are wonderful."

"I enclose $1 postal money-order for subscription to GOOD HEALTH. A doctor to whom I have been writing, says in his letter to me: 'If you want some good, wholesome medical reading send $1 to the Good Health Pub. Co., Battle Creek, Mich., for a copy of GOOD HEALTH for a year, and read it carefully.'"

"The Health Dinner was excellent. Everybody was more than satisfied. The dinner without the magazine is worth $1."

THE saying, "A prophet is not without honor save in his own country," does not apply to the relation between the Battle Creek Sanitarium and local W. C. T. U. unions in Michigan. The following is a copy of a resolution adopted last autumn by the W. C. T. U. of the 8th District: —

"*Resolved*, That the 8th District W. C. T. U. in convention assembled at Ithaca, Mich., extend a hearty invitation to Dr. Kellogg, of Battle Creek, to make the local unions acquainted with his plans for Health Club work: and to feel at liberty to seek their co-operation whenever possible; and that we advise the local unions to open the way for this work in their respective localities."

A SHORT time before Miss Willard's death, a brief correspondence passed between her and the managers of GOOD HEALTH. The following is an extract from a letter received from her secretary, Miss Gordon: "As Miss Willard is a sufferer from the epidemic of influenza here, she asks me to reply, and to tell you how sorry she is that she cannot write a special article for GOOD HEALTH just now. It goes without saying that she is deeply interested in the magazine, and has always been devoted to hygienic reform."

THE subscription edition of "Studies in Home and Child Life," by Mrs. S. M. I. Henry, has just come from the press. This is a handsome illustrated edition, and is certain to meet with popular favor. W. C. T. U. women especially will find in this a practical text-book for mothers' meetings, and a valuable aid in solving many of the questions which they have come to consider as vital to the well-being of the home. The father's office is presented in the light of the new social dispensation. The influence of heredity and environment in the development of child life is vividly portrayed; "the little body," "training the appetite," and "dress" are all considered from the standpoint of the most scientific and rational principles of health. The questions of authority, the rod, truth telling, thieving, leisure, recreation, amusements, are discussed in a practical, sensible manner.

This edition can be had only of the Good Health Publishing Company, and the proceeds are to be devoted entirely to philanthropic work along medical missionary lines. Price $1.50.

A SUMMER SANITARIUM AT STATEN ISLAND.

ARRANGEMENTS have been made with the managers of the Prohibition Park Hotel on Staten Island whereby this fine summer hotel will be conducted during the present season as a summer sanitarium under the auspices of the Battle Creek, Mich., Sanitarium. A corps of physicians, trained nurses, cooks, and other assistants will be sent from Battle Creek, together with such medical and hygienic appliances as are necessary to conduct a sanitarium in a first-class manner. A summer School of Health will be held in connection with the sanitarium.

The hotel is most favorably located, and commands sightly views of New York harbor, has the benefit of a cool sea-breeze night and day during the hottest weather, is lighted by electricity, and is supplied with every other facility for comfort and convenience. Treatment of patients will include everything needed for scientific hydrotherapy. An electric-light bath, massage, manual Swedish movements, a diet kitchen, etc., will offer splendid inducements to those who require an opportunity for rest and recuperation of health under favorable conditions.

The cuisine will be thoroughly hygienic in character, under the management of cooks and caterers trained in the Sanitarium School of Scientific Cookery. The daily menus will include not only all the hygienic good things to be obtained in the unrivaled markets of New York City, but, in addition, the delicious and healthful products of the Battle Creek Sanitarium Health Food Company.

For further particulars, address, until May 1, J. H. Kellogg, Battle Creek, Mich. After May 1, address "Sanitarium," Prohibition Park, S. I.

A PARADISE ON WHEELS.

THE Chicago and North-Western Railway has just issued a folder, "The North-Western Limited," which, though small, announces a mighty achievement in the manner of modern travel. Railroad service seems to have reached the acme of luxury in these wonderful trains that run daily between Chicago and St. Paul, Minneapolis, the Superiors, and Duluth. Lighted by electricity; with vestibules the full width of the cars and enclosed by heavy plate glass; platforms carpeted with heavy rubber tiling that prevents slipping; compartment cars upholstered in silk-plush and velvet, with tapestry hangings, and decorated with the most beautiful woods to be obtained, and all in harmonious colors and designs; all toilet conveniences; buffet drawing room sleepers; electric reading lamps for each berth; dining-cars in oak, with broad plate-glass windows; kitchens under the charge of competent chefs; smoking and library cars,—what more could be desired? And last, but not least, comes this statement, "No extra charge is made for travel in these cars." Trains leave Chicago at 6:30 P. M. every day in the year, and, returning, reach the city at 9:30 A. M. For further information address Chicago & North-Western Railway, Passenger Department, Chicago, Ill.

REDUCED FREIGHT RATES FOR SETTLERS.

IN order to encourage the movement of settlers and land buyers from Illinois, Wisconsin, Iowa, and the Eastern States to Western Minnesota, South Dakota, and North Dakota, the Chicago, Milwaukee & St. Paul Ry. Co. has very materially reduced its carload rates for emigrant movables, so that farmers who have purchased lands in Western Minnesota, South Dakota, and North Dakota can take all their belongings with them to their new homes at small expense. This inducement on the part of the Chicago, Milwaukee & St. Paul Ry. will no doubt be greatly appreciated by those who are thus benefited.

For further information apply to any representative of the Chicago, Milwaukee & St. Paul Ry., or address J. H. Hiland, General Freight Agent, Old Colony Building, Chicago, Ill.

ATTENTION is especially called to the clubbing arrangement mentioned in our advertising columns, whereby GOOD HEALTH and the *Union Signal*, the official organ of the Woman's Christian Temperance Union, are furnished for the small sum of $1.30 per annum. The *Union Signal* is a large-sized weekly, of sixteen pages, aggregating 832 pages yearly. GOOD HEALTH furnishes sixty-four pages of reading-matter monthly, or 768 pages yearly. The two journals aggregate exactly 1,600 pages in their combined annual volumes. **Just think of it! Sixteen hundred pages of the best temperance literature, and the best, most reliable, most interesting health literature, for the small sum of $1.30.** We venture to assert that no such offer was ever made before.

The *Union Signal* is the recognized exponent of the most active, efficient, and successful temperance movement in progress in the world at the present time. The W. C. T. U. is, without doubt, the grandest and most important temperance effort which the world has seen within the last century. In fact, the pages of history give us no account of any other temperance movement so far reaching, so efficient, and so long and well-sustained as the work being carried on by this organization, which has become world-wide in its scope and influence.

GOOD HEALTH, on the other hand, represents the most thoroughgoing and active movement along the line of dietetic and other hygienic and sanitary reforms which has been undertaken in modern times.

While temperance reform in a narrow sense — total abstinence from alcoholic liquors — was the starting-point of the work of the Woman's Christian Temperance Union, and is, perhaps, still its central thought, this noble organization includes in its numerous departments of work every form of human activity which has for its purpose the uplifting of fallen humanity and the restoration of the divine image in man.

On the other hand, GOOD HEALTH, while having for its chief mission the propagation of wholesome ideas respecting habits of life, includes all that belongs to temperance reform, together with whatever goes to make for man's peace or happiness in this world and the next.

It thus appears that these two journals and the two movements which they represent are practically identical in their general aims and purposes, one differing from the other more in the emphasis and stress laid upon certain lines of work and certain classes of ideas than in any other way. This difference, however, is such as to make the two journals and the two movements of which they are the official organs complementary to each other in a way which could scarcely be said of any two other magazines published, or any two movements to be found in the world at the present time.

GOOD HEALTH has been in the field as the champion of hygienic and sanitary reform, including the most radical temperance reform, for thirty-two years. It has lived long enough to see the triumph of many of the reforms of which it was a pioneer champion. Its publishers have gloried, not in these triumphs alone, but as well in the magnificent victories for temperance and sobriety which have been won by the white-ribboned army of which the *Union Signal* is the able mouthpiece. GOOD HEALTH takes particular delight in recognizing and co-operating with so noble and active an ally in the greatest of all good reforms.

The publishers feel that in devoting considerable space in the present number to the work of the Woman's Christian Temperance Union, they have not in any sense departed from their proper province. The Woman's Christian Temperance Union and its work have recently, by the death of their talented leader, everywhere recognized as one of the most remarkable women of modern times, been brought so prominently before the public that it seems only just and proper that the occasion should be improved to present to the GOOD HEALTH public a brief survey of those features of this many-sided movement which are most nearly in accord with the main purposes of this magazine and its work. We trust that even those who, through active participation in the work of the W. C. T. U., are quite familiar with the facts presented, will be pleased to have placed before them this concise summary, which has been prepared by one who was for some time national press superintendent for the Woman's Christian Temperance Union.

The publishers especially desire to express in their own behalf and the behalf of Mrs. Mary Henry Rossiter, their hearty thanks for the kindly co-operation which has been accorded them by Miss Willard's able colleagues and lieutenants in the preparation of this presentation of their work.

The present number of GOOD HEALTH will, the publishers feel very sure, be recognized by all who peruse its pages, as one of the most interesting and valuable numbers which has ever appeared. In its columns will be found the names of more distinguished persons as original contributors than have ever graced its pages in a single number before. We desire to say, however, that the plans we have in mind for the future of the magazine will enable us to add new features, whereby we hope the subject matter will grow in interest from month to month.

THE HEALTH BATH CABINET CO., Toledo, Ohio, want a salesman (lady or gentleman) in every town, to interest the people in their delightful and healthful Turkish and Vapor Bath Cabinet, which sells for only $8.50. Send them stamp for treatise.

EXTRACTS FROM DURHAM DUNLAP, M. R. I. A., ENGLAND'S GREATEST SCHOLAR ON HYGIENE, SHOWING THE POWER OF HOT-AIR BATHS.— Ordinary bathing or washing may keep the surface of the body in what is considered a state of cleanliness; but as compared with the action of the hot-air bath, such cleanliness is only like removing filth from the mouth of a sewer instead of flushing the whole sewer itself.

This is what the hot-air bath does, and hence its immeasurable superiority over all other appliances, as an effectual means by which the whole sewerage system of the human body can be flushed, scoured, and cleansed of impurities, and the skin organism maintained in vigorous vitality.

Surface washing alone will not suffice. To secure health, the blood itself must be purified, its inmost channels flushed and cleansed. This the hot-air bath alone can do, and the truth of this the habitual surface-washer can test for himself. C. M. Robinson, of Toledo, O., has published a free treatise on these baths, which you should read.

W. C. T. U. STATE PAPERS CLUBBING RATE WITH GOOD HEALTH.

Arrangements have been effected with the following W. C. T. U. State papers, which enable us to offer these publications, with one year's subscription to GOOD HEALTH, at the following favorable rates :—

		Price.	With GOOD HEALTH.
Union Signal,	**Ill.,**	**$1.00**	**1.30**
Women's Temperance Work,	**New York,**	**.25**	**1 00**
Vermont Home Guards,	**Vermont,**	**.25**	**1.00**
White Ribbon Banner,	**Conn.,**	**.25**	**1.00**
W. C. T. U. Bulletin,	**Pa.,**	**.25**	**1.00**
The Counselor,	**Mo.,**	**.25**	**1.00**
The Acorn,	**Maine,**	**.25**	**1.00**
Our Sunflower,	**Kan.,**	**.10**	**1.00**
The Templar,	**Ontario,**	**1.00**	**1.00**
The Motor,	**Wis.,**	**.25**	**1.00**
Pacific Ensign,	**Cal.,**	**1.00**	**1.25**
Western Womanhood,	**Dakota,**	**.50**	**1.00**
Granite State Outlook,	**N. H.,**	**.25**	**1.00**
Our Message,	**Mass.,**	**.25**	**1.00**

DIRECTORY OF SANITARIUMS.

THE following institutions are conducted under the same general management as the Sanitarium at Battle Creek, Mich., which has long been known as the most thoroughly equipped sanitary establishment in the United States. The same rational and physiological principles relative to the treatment of disease are recognized at these institutions as at the Battle Creek Sanitarium, and they are conducted on the same general plan. Both medical and surgical cases are received at all of them. Each one possesses special advantages due to locality or other characteristic features.

ST. HELENA SANITARIUM, OR RURAL HEALTH RETREAT,

ST. HELENA, CAL.

A. J. SANDERSON, M. D., Superintendent.

THIS institution is beautifully located at the head of the Napa Valley. It is a fine large building, with excellent appointments, and all facilities required for the treatment of chronic invalids of all classes. It has also a record for a large amount of successful surgical work. There are several able physicians connected with the institution. The scenery is delightful, the climate salubrious; the water supply, which is furnished by mountain springs, is pure and abundant. Hundreds of cases of diseases generally considered incurable, have been successfully treated at this excellent institution during the twenty years of its existence.

CHICAGO SANITARIUM,

28 COLLEGE PLACE, CHICAGO, ILL.

THIS institution is a branch of the Battle Creek (Mich.) Sanitarium. It is favorably located near Lake Michigan, in the southern portion of the city, close to Cottage Grove avenue, and facing the old Baptist University grounds. A few patients are accommodated. Facilities are afforded for hydrotherapy, and the application of massage, electricity, Swedish movements, and other rational measures of treatment.

NEBRASKA SANITARIUM,

COLLEGE VIEW (LINCOLN), NEB.

A. R. HENRY, President.
A. N. LOPER, M. D., Superintendent.

COLLEGE VIEW is a thriving village located in the suburbs of Lincoln, with which it is connected by an electric railway. College View is the seat of Union College, one of the leading educational institutions of the West. The Sanitarium has a beautiful location, facing the spacious college grounds, and gives its guests the advantages of a quiet, homelike place, combined with appropriate and thoroughly rational treatment. It has a full equipment of excellent nurses, and has already won for itself an enviable reputation in the West.

PORTLAND SANITARIUM,

PORTLAND, ORE.

W. F. HUBBARD, M. D., Superintendent.

THIS institution is beautifully located in the center of the city, in a fine building, with spacious grounds; and although it has been in operation scarcely more than a year, it already has a good patronage, and has evidently entered upon a successful career. Facilities are provided for the dietetic and medical treatment of chronic ailments of all kinds. The advantages for treatment include, in addition to various forms of hydrotherapy, electric-light baths, apparatus for the application of electricity in its various useful forms, manual Swedish movements, and massage.

COLORADO SANITARIUM,

BOULDER, COLO.

W. H. RILEY, M. D., Superintendent.

THIS institution is located on a beautiful site of one hundred acres, including a fine mountain peak, and commanding extensive landscape views, which, for variety and beauty, can hardly be equaled. The site adjoins the thriving city of Boulder, and is about one hour's ride by rail from Denver, the streets and principal buildings of which are easily discernible from the peaks around Boulder. The equipment consists of a large building especially erected for the purpose, two fine cottages, and every appliance for the application of hydrotherapy, and for the special treatment of pulmonary ailments, to be found in the best establishments of like character. Particular attention is given to the dietetic treatment of patients, and to systematic exercise, in addition to the special treatment for specific ailments. The altitude is between five and six thousand feet, just that which has been determined to be the best for pulmonary troubles. Though but a few months have elapsed since the work of this institution was fairly begun, a large number of persons suffering from pulmonary tuberculosis have already been cured, and are now rejoicing in sound health. The rational hygienic treatment, with the climatic advantages, has proved effective in the cure of cases which, without the combined advantages of these superior measures, must certainly have succumbed to the disease.

GUADALAJARA SANITARIUM,

STATE OF JALISCO, MEXICO.

D. T. JONES, Superintendent.
J. H. NEALL, M. D., W. S. SWAYZE, M. D., ALICE SWAYZE, M. D., } Physicians.

THIS institution, established in 1894, is the first and still the only one of the kind in Mexico. It affords, in addition to the unsurpassed climatic advantages of the region in which it is located, facilities for the employment of hydrotherapy, electricity, massage, manual Swedish movements, and dietetics, in the treatment of all forms of chronic disease. The altitude is the same as that of Denver,—from five to six thousand feet. Guadalajara has the advantage of a climate more nearly uniform than any other with which we are acquainted. Located in the tropics, it enjoys almost perpetual sunshine, while its altitude is such as to prevent excessive heat. There is probably no better place on earth for a pulmonary invalid. It is only necessary that the advantages of this institution should become known to secure for it extensive patronage.

INSTITUT SANITAIRE,

BASEL, SWITZERLAND.

THIS institution affords the only place in Europe where patients can receive the advantages of a thoroughly hygienic diet, baths, Swedish movements, massage, and various other methods of treatment, applied after the manner and in accordance with the same principles which govern the Battle Creek Sanitarium and its several branches. The physician in charge has received a thorough training in the institution at Battle Creek. Terms are moderate. No better place for sick persons or semi-invalids abroad than the Institut Sanitaire.

Address, 48 Weiherweg.