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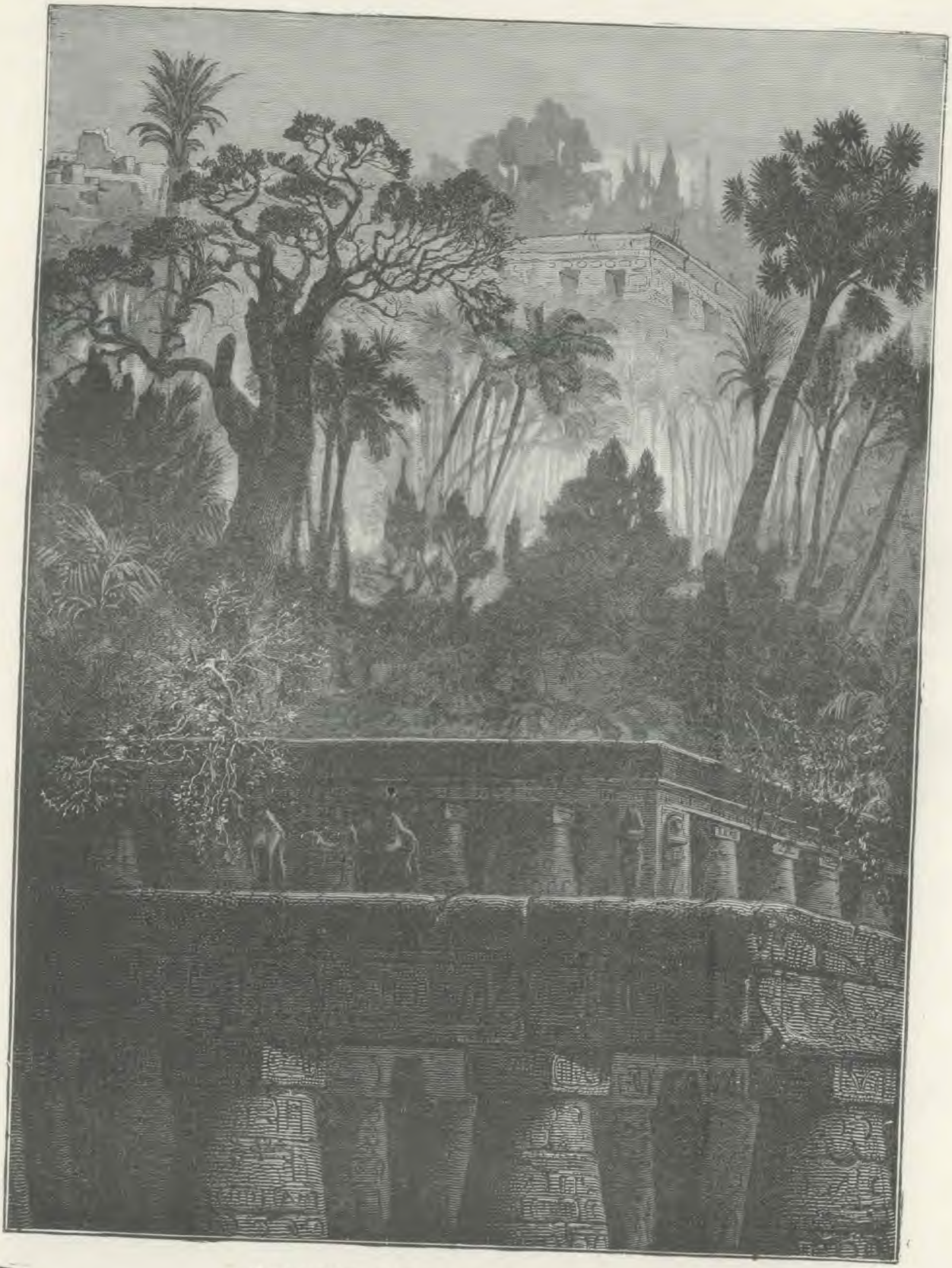

[See Happy Fireside.]

HANGING GARDENS OF BABYLON.

GOOD HEALTH
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INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D.
Author of "Physical Education," "The Bible of Nature," etc.

2.—France.

THE Marquis de Condorcet used to call his countrymen "the Greeks of modern Europe." "The modern Athenians," would perhaps be nearer the truth. With the same impulsive generosity, the same beauty-worship, gayety, and love of fun, the French combine the same fickleness, sensuality, flippant arrogance, restlessness, and waywardness that made the citizens of Athens the most amiable and the most capricious inhabitants of the Mediterranean coast-lands. All those characteristics, however, apply more especially to the Roman-Celtic part of the rather composite population. The natives of Normandy (whom the Southern French are apt to quiz as a sort of modern Bœotians) really seem to have preserved many character-traits of their Scandinavian ancestors; while the highlanders of the French Jura share the easy-going good-nature of the neighboring Swiss.

As a nation, though, the inhabitants of modern France still exhibit all the virtues and all the vices of ancient Gaul, and their best qualities, summed up in a few words, might be defined as a constitutional cheerfulness and a talent for making the best of adversity; their worst, as inability to resist temptation. No nation on earth equals the French in the art of making poverty respectable. The American mental picture of *la belle France* is that of a land of vine-clad hills and fertile fields; but the truth is that the fertility of the central and southwestern departments has been sadly impaired by the havoc of war, and still more by the ravages of the forest-felling ax. Throughout a large area of Picardy, Languedoc, and Poitou, arboreal vegetation is as scarce as on the *despoblados* of Southern Spain, and the lot of the agriculturist too often is a hard struggle for existence—ceaseless toil rewarded only by the bare means of survival. But the vicissitudes of that struggle are betrayed only in the care-worn features of the combatants. The poorest of these poor are always decently dressed, and even in the *cabanes* of starving Ardeche hill-dwellers, the traveler is never shocked by anything like the terrific filth of the Slavonic boor-hovels. The carpetless floor is swept twice a day; the frugal fare is served on clean plates; the scant store of bed-clothing is kept scrupulously neat. In every country town there are pensioned officials who often eke out a living on an almost incredible pittance, and can rent only the cheapest suburban cottages of the little burg; but the visitor of such cottages feels that he has entered the dwelling of a gentleman, the pitiful proofs of penury being always redeemed by evidence of thrift and order, and often of refinement and love of art.

And that love of art is something more than the *penchant* for decoration that impels the Feejee warrior to etch his own hide with dots and dashes, and which, on the walls of our American log-cabins, is apt to associate steel-engravings from Thompson's Upper Rhine with the pictorial trade-mark of Smear & Rubbin's Effulgence Blacking, and the bottle-emblem of Dr. Quack's Miracle Bitters.

The pictorial ornaments of the French pensioner's cottage, if few, are always well selected, and the true worth of art in a Parisian show-window is almost sure to attract the immediate attention even of the slum-alley population. Should that sense of esthetics be a

WINE-MAKING IN BURGUNDY.

race-trait of the Celtic nation? or is it that under the dominion of Rome, France caught the *afflatus* of that beauty-culture which for sixteen centuries made all Southern Europe a temple of the Muses? The existence of that instinct is as undeniable as its practical value, since it implies its natural concomitant — the hatred of ugliness in all its forms, an instinctive aversion to filth, disorder, and foul odors. The poorest French tenement-renters are not apt to store up foul air for the sake of its warmth, and the dismal nakedness of the poor Southern hamlets is compensated by tidy thrift; no muck-heaps in the immediate proximity of a dwelling-house; no ragged linen, flaunting in the breeze; no accumulation of ash-piles and garbage surrounding a settlement like the "kitchen-middings" of the old Danish fisher-camps. Tastefulness, indeed, is displayed in all the products of French industry, as well as of art proper, and has made the *petit maitre* the arbiter of European fashions.

That master of arts could teach us many useful lessons in the science of municipal esthetics (though his consciousness of superiority in that respect was rather too naively expressed in the plan of *fumigating* Paris after the exit of the Prussian troops), but, on the other hand, it must be confessed that his love of nature is only skin-deep. On the railway-lines, skirting the foot-hills of the Western Alps, the traveler is often scandalized by the flippant indifference of his French fellow-tourists, who giggle at his enthusiasm, and in sight of the sublimest scenery seem to have eyes for nothing but the painted coquettes on the platform of a watering-place depot, and would scout the idea of interrupting a game of cards to get a glimpse of the Col d'Argent or the cloud-towers of the Matterhorn. The same lack of nature-worship is expressed in the prevalent indifference to the charms of country life, and even in the artificial style of French landscape-gardening — rectangular ground-plans, straight lines of trees, all clipped on the same pattern, and standing stiffly erect, like grenadiers on a court-parade. Still oftener, however, those vegetable sentinels are missing altogether. A traveler must visit the lowlands of North Holland to get an idea of how completely a wealth of arboreal vegetation can redeem the most prosaic landscape; while, on the contrary, the dreariness of many a French highland town might illustrate the degree in which the absence of such vegetation can mar the otherwise prettiest scenery. I have seen mountain villages in the Puy de Dome range, where all the larger specimens of the vegetable kingdom seemed to have been not only neglected, but carefully exterminated, for miles around, even the quick-set hedges of Saxondom being replaced by naked stone walls, skirting the dusty roads and worn-out fields, far and near. Jean Crapaud, in fact, has no eyes for that sort of beauty; a few villas with a fringe of trees or a game-park (in deference to the predilections of foreign sportsmen) seem to make an exception here and there, but it is an exception that only confirms the rule; and, on the whole, the French ideal of terrestrial happiness is pretty well expressed in Francis Fourier's "Perfectionist Project" (a project which an American nature-worshiper of my acquaintance can never mention without an anathema) — the plan, namely, of stall-feeding half a thousand families in a tenement coliseum, where the loss of domestic privacy and personal independence are to be compensated by free theatricals, compulsory industries, and co-operative variety stores.

Health-giving sports are equally distasteful to the countrymen of that millenium prophet. In emulation of their Prussian rivals, the French army-reformers have made gymnastics a compulsory branch of military education; but those drill-athletics lack the spontaneous zest of a German Turner-hall. The uniformed acrobats undergo the requisite amount of contortions, as the pupils of a young ladies' seminary would go through a prescribed course of "calisthenics," — their heart's in the ball-room, their heart is not

here, — and in the freedom of their native hamlets, furloughed French soldiers would never dream of enacting their gymnastic accomplishments for the sake of health or pastime.

That indifference to the advantages of muscular Christianity is, however, partly compensated by the constitutional cheerfulness of the French nation, their instinct of social amenity, and their passionate love of diversion. For mirth is a remedy. The prospect of an evening devoted to round-dances, music, and sports on the village-green, can sweeten the bitterest toil more effectually than the resignation of the world-renouncing Puritan; and it is a suggestive fact that even during the mediæval millennium of madness, the natives of sunny France did not wholly relinquish their earthly paradise, and, with all their vices, could, in consequence, boast of a larger number of octogenarians than any other nation of latter-day Europe. Witness the following record of longevity: Richelieu, 83 years; Corneille, 80; Polignac, 81; Saint-Pierre, 78; Chateaubriand, 80; Lafayette, 78; Duke of Bassano, 81; Dumouriez, 84; Palinet, 85; Fontenelle, 100; Joinville, 91; L'Enclos, 89; La Maintenon, 84; Rochefoucauld, 80; Villars, 81; Sully, 81; Montfaucon, 86; Soult, 82; Voltaire, 83; Talleyrand, 84.

Notice, moreover, that the above list comprises a considerable percentage of statesmen, soldiers, and men of letters — occupations not specially conducive to length of life. The sight of a nonagenarian dancing with all his might to the sound of a rustic fiddle is nothing unusual in Southern France; and though their genial climate may help a little, there is no doubt that the *fond gaillard*, the misfortune-proof frolic-love of the French nation, is the main secret of their survival under egregious difficulties. While the typical Englishman performs even his pleasure-trip in a business-like sort of way, the typical Frenchman transacts his business as a pleasure, a tendency which can be observed in the halls of the Bourse, among a crowd of quizzing and joke-cracking stock-jobbers, as well as on the wharves of Boulogne, where a group of poor fishermen's wives await the return of the storm-tossed fleet, pale with anxiety, but withal bandying *bonmots*, to shorten the hours of dismal suspense.

Times are hard in France, just now; but even under a crushing weight of taxation, Frenchmen still manage to spare a few francs for social pleasures, and rival the proverbial thrift of the Catalonian highlanders in reducing all other expenses to a miraculous minimum. The apery of fashionable styles of dress, for instance, is far more noticeable in the villages of North and South America than in the rural districts of the home of fashions. Bretagne country-girls still wear the short *jupons* of their mediæval grandmothers, and Havre 'longshoremen still defy wind and weather in a triple blouse, all linen, but the middle one ruffled to keep the outer and inner ones an inch apart, and thus secure the advantage of that cheapest natural calorific — inclosed warm air.

A certain class of German scholars are happy as long as they can read. Frenchmen of all classes are happy as long as they can chatter. Handcuff a French prisoner, take his bed away, and curtail his rations; he may bear it, and grin; but do not doom him to solitary confinement, or he will go mad.

That gregariousness of the French may to some degree explain their love of conviviality in a rather questionable sense of the word. Stimulants are a fearful curse of poor worn-out Gaul, and have multiplied as fast as the brawny vigor of the old Gallic revellers has declined. In addition to wine, cider, and brandy, the home markets of France now consume an appalling quantum of strong beer and *absinthe*, besides coffee, opiates, and medicated "cordials." The physical and financial expensiveness of that stimulant mania are the chief cause of the enormous present increase of a mode of existence which a modern historian calls the "celibacy of vice." Without the

AWAITING THE RETURN OF THE HERRING FISHERS, NORMANDY.

constant influx of foreigners and rustic employment-seekers, the population of several French cities would *decrease* at an average yearly rate of four to eleven per *mil*, — a fact demonstrated by the incontrovertible evidence of systematic statistics, but attributable partly also to the circumstance that taxation has really reached an extreme, reducing the margins of a workingman's savings below the possible minimum required for the support of a family. A Frenchman's type of amativeness inclines him to share his joys, rather than his troubles, and finding starvation inevitable, he will, on the whole, prefer to starve alone.

(To be continued.)

VEGETARIANISM.

It is a fact perhaps not generally understood, that the mode of life known as vegetarianism is steadily gaining ground, year by year attracting fresh adherents, forming new societies, issuing new periodicals, and, in short, employing well-organized means of every kind to promulgate by example and exhortation its peculiar principles and theory. Through its zealous and enthusiastic votaries, it is, therefore, becoming familiar to the world as a distinctive system recognized by principles that certainly appeal most plausibly to what appear to be the plain indications of nature regarding man's physical life. These principles are stated as follows : —

The vegetarian selects the most commodious apartment in the house as a sleeping-room, securing, if possible, exposure to the full morning sun, and sleeps, winter and summer, with open windows, the bed consisting of mattress, cotton or woolen coverings, and a flat horse-hair pillow. A daily bath from head to foot, or a half-bath, with vigorous rubbing, is never omitted. As far as may be, he lives in the open air ; and if this be impossible, owing to the nature of his occupation, he works for the greater part of the year, at least, with open windows. The vegetarian diet consists of grains, fruits, and vegetables, to which some will add milk, butter, and eggs. The daily bread is made from graham flour, a coarse-ground wheat undivested of bran, and baked without salt, yeast, or leaven of any kind. As regards drink, he indulges only in water and the juice of various fruits ; inasmuch, however, as vegetarians eat no salt, no spiced or highly-flavored food, and never smoke, they have but little thirst, and small requirement for liquids. Through the observance of these simple rules, taught, as he believes, alike by nature and common sense, the vegetarian secures at once health, cheerfulness, and strength, and at the same time subsists at less than half the expenditure incurred by the flesh-eater and consumer of spirituous drinks.

But it is especially among the happy children reared under this system, — children whose stomachs are never made the sepulchers of animal matter, — that its advantages are most apparent. Rosy, intelligent, and light-hearted, enjoying full immunity from scrofula and "nerves," these children invariably present a very marked superiority over those raised on different principles. In fact, Prof. Niemeyer, M. D., though no vegetarian himself, goes so far as to assert that "none but vegetarian mothers can produce really sound and healthy children."

Furthermore, it may be safely claimed that a man who from infancy has followed this mode of life, may count with certainty upon old age and a painless death. "Euthanasia" is the name applied to this natural and gradual falling asleep which sometimes accompanies, and was doubtless intended to crown, old age ; and, in truth, all things teach us that gentle nature would have man drop from the great life-tree as peacefully and painlessly as the mature and beautiful leaf flutters from its stem on the late autumnal day.

"The being who lives unnaturally must meet early destruction," says Goethe ; and in his work on longevity, the French philosopher, Flourens, declares that "in the luxurious and perverted mode of life common to this present age, man does not *die*, but kills himself." Alas ! it must be admitted with Schopenhauer, "Man no longer comprehends the language of nature ; it has become too simple for him."

And last, but not least, should vegetarianism strongly commend itself to the race of to-day, in consideration of the claim openly put forth, especially by its votaries of England and America, that it alone offers a key to the problem known as the great social question, and exerts an influence such as no other system can hope to do on social reform.

It is possible that many may ask, Why, then, if really possessed of such palpable advantages, are not these principles of life more generally and promptly adopted by thoughtful, intelligent minds ? The answer has been given by two of our deepest thinkers. Mankind is too weak, too little master of itself, to reject indulgences estimated as pleasures, and therefore is unwilling to abstain from the so-called enjoyment and stimulation of animal food and strong drinks. Logical arguments are sought for assailing the prin-

ciple which denounces this weakness, and, none being found, jests and ridicule are blindly hurled against the supporters of this new life. But no longer is vegetarianism regarded as the whimsical hobby of the modern would-be world reformers; for it can be readily proven the primitive rule of life in all ages and among all people. It is only through the sweeping changes wrought by time and events, the pernicious influence of false ideas of culture, and the fictitious wants growing out of a misdirected civilization, that the voice of nature has slowly been drowned and well-nigh forgotten.

The wisest among the wise of the ancients, lawgivers, creed-founders, and philosophers, not only accepted this as the true system for man, but regarded it as essential to the highest physical, mental, and moral perfection of individuals and nations. From Plutarch to Cuvier, all philosophers have taught that man's physical construction plainly indicates fruits and plants as his proper food; and on the first page of the Bible (Genesis 1 : 29) stands written the command that the fruits of the earth "shall be to him for meat." Gladly would the wise but harrassed Moses have led his people from their perverted ways again to this food of paradise, but they sighed and murmured for the flesh-pots of Egypt; and that whole corrupt generation, after clamoring for meat granted them, met death in the wilderness, and were denied an entrance into the land of promise, flowing with "milk and honey," not flesh and blood.

There are many who accept vegetarianism for different reasons, while attaining the same result. They may be classified as follows: 1. Vegetarians from religious convictions; 2. Vegetarians on scientific principles; 3. Vegetarians on sanitary grounds; 4. Vegetarians from esthetic and humane principles; 5. Vegetarians from economy; 6. Vegetarians necessarily such from their physical condition. It will require but few words to characterize distinctively each of these classes.

Vegetarians from religious convictions have written many volumes proving their principles from the Bible; and in England this class separates itself from other vegetarians, and its members are called "Danielites," from Daniel 1 : 8; and they also call themselves "Brothers," and give aid to each other under all necessities, yielding ready assistance whenever called on, thus at once realizing and solving the "social idea and problem." They carry their convictions and practices beyond all other vegetarians, even clothing themselves on vegetarian principles, using neither silk, wool, nor leather in their apparel, their shoes being made of "vegetable leather."

In her compulsory and frequent fasts, the Catholic Church has at least partially preserved to mankind the blessings of this food of paradise, and unconsciously rears a memorial to its claims as the true and divinely appointed diet for man. The members of her most rigid orders, the Carthúsians, Trappists, and Camaldolites, all abstain habitually from flesh; and it is remarkable that these monks have ever been noted for health, strength, and vigorous old age, and never has a contagious disease been known in their cloisters.

Vegetarians on scientific principles base their convictions on the writings both of antiquity and later ages, and the knowledge of the human body. The salivary glands, the teeth, the articulation of the bone of the lower jaw, the zygomatic arch, the masticatory muscles, and, in fact, man's entire internal construction testifies, in their judgment, that he was created as a consumer of fruits, not flesh. Admitting this, then, as the original design of his existence, the vegetarian logically concludes that man can find his truest welfare only by obedience to this law of his formation. These deductions are fully sustained by vegetarians on sanitary grounds, not only by personal demonstration of their value, but also by the testimony and example of the most noted men of ancient and modern times. Asclepiades, the great physician, whose fame still echoes through the ages, invariably cured his patients by prescribing for them herb and vegetable diet, and he himself wagered never to be sick so long as he abstained from flesh.

In his work on the "Art of Prolonging Human Life," Hufeland says: "The men attaining the greatest age on record have not been flesh-eaters, but, on the contrary, strict vegetarians." Even Liebig asserts that grains, particularly wheat, contain quite as many, perhaps more, nourishing qualities than meat; and of the so-called flesh-diet, he says: "To the really weak, meat broth imparts no vigor."

Perhaps it is not generally known that the trained athlete of old was compelled to abstain from flesh to acquire greater strength; and the porters, or carriers, of Constantinople and Rio Janeiro, who carry on their shoulders for a long distance, weights often reaching five or six hundred pounds, the sturdy Scots, Swiss, and Tyrolese, and the indefatigable field laborers of Italy, all live on fruits, oatmeal, maize, and *polenta*.

In fact, it may be said if a vegetarian has committed no early dietetic sins for which he must atone, or has inherited no physical infirmities from diseased parents, then it is simply a shame for him ever to plead sickness; he will be a living exemplar to himself and others of the truth of the old proverb:

"*Modicus cibi, medicus sibi*" — "He who eats temperately and naturally may be his own physician." It must be admitted by all that the stomach is our most abused, most maltreated organ; and though intended as our good-natured, obedient servant, yet man's impositions and exactions are such that, after long-endured misery, it rebels, and becomes his enemy and his tyrant.

It is also not generally known that the word "vegetarian" is not derived from "vegetable," but from the Latin, *homo vegetus*, meaning, among the Romans, a strong, robust, thoroughly healthy man.

It is further held by the vegetarians that the great misery, the innumerable evils arising from the curse of drunkenness, can only be effectually checked by a universal return to this mild, healthful diet of fruit and vegetables, firmly believing that it is the rich, highly flavored, and unnatural food that creates the craving for stimulating and unnatural drink; and by each in turn aggravating and exciting the demand for the other, the evil is strengthened hopelessly.

The vegetarians on humane and esthetic principles have compiled many books from various authors and poets, all protesting against the cruelty and barbarity of animal slaughter, and man's unwarrantable abuse of power in thus subjecting helpless creatures to his own selfish appetite. From Pythagoras, the great promoter of vegetarian views, from Plato, Virgil, Ovid, down to Goethe, Schiller, Jean Paul, and Schopenhauer are these earnest appeals and sentiments gathered; and it is believed that the most thoughtless epicure would become a convert to their convictions if more familiar with the piteous details inevitable to this wholesale destruction of animal life. A notable thing in connection with this subject is the fact that in England butchers cannot serve as sworn functionaries in cases relating to murder. It may be justly claimed that vegetarians are the only genuine friends and protectors of animals.

On the score of relative cost of living, the subject is a very interesting one. A book entitled, "How One may Live on Sixpence a Day," written by an English vegetarian, has passed through several editions, and been translated into several languages. It may surprise many to learn that there are millionaires among this class of people who never spend more. A wealthy and fortunate vegetarian, firmly impressed with the wisdom and value of this course, freely declares it is his conviction that through a universal adoption of vegetarian principles, nine tenths of the crime and pauperism of the world would be abolished, and that the public debt of England, if desired, could be liquidated in thirty years.

A word now in regard to the sixth-class vegetarians, who may be called such from necessity, or the requirements of a diseased system, — and it must be admitted that of these there is little either of interest or value to say. As a rule, they are men who, having already weakened and ruined the constitution by excessive indulgence contrary to nature, adopt vegetarian principles as a last resort, in the hope of regaining bodily and mental health. These miserable specimens of humanity are often found in vegetarian hospitals, and, as walking shadows and death-marked victims, are pointed out by the opponents of vegetarianism as warning examples of a fallacious system. But the "full-blooded vegetarians" offer a very different aspect; they are erect pictures of perfect health, and have long cheerfully and serenely accepted the epithets of "grass-eaters" and "starvelings," bestowed upon them in ridicule by the dyspeptic, diseased carnivorants, comforting themselves with the full conviction that "he laughs best who laughs last." — *Ueber Land und Meer.*

SHORT TALKS ABOUT THE BODY, AND HOW TO CARE FOR IT.

BY A DOCTOR.

No. 5. — How Food is Digested. — (Continued.)

Action of the Pylorus. — After the food has remained in the stomach from one to three hours, or even longer, when the digestion is slow or indigestible foods are eaten, the muscle at the lower end of the stomach, known as the pylorus, from time to time relaxes and allows a portion of the digested food to escape into the intestine. The pylorus does not exercise any sort of intelligence in the selection of food, as was formerly supposed, but passes out first those portions of the food which are the most fluid. It is probable that the increasing acidity of the contents of the stomach causes such vigorous contractions of its muscular walls that the pylorus is forced to relax sufficiently to allow the more fluid portions of the food to pass, and afterward that which may be less perfectly broken up, but which the stomach has been unable to digest. In some fowls, a special stomach is provided for the purpose of breaking up the food, termed the

gizzard, which has rough sides almost equivalent to teeth, the action of which is aided by numerous small bits of glass, gravel, etc., which the fowl has swallowed.

Intestinal Digestion. — The morsel of digesting food has now reached the small intestines, below the stomach, which is really the most important part of the entire digestive apparatus, and here the most complicated and interesting of all the digestive processes occurs.

As it leaves the stomach, the partially digested mass of food is intensely acid, from the large quantity of gastric juice which it contains. Intestinal digestion cannot begin until the food becomes alkaline. Nature has made a most wonderful provision for meeting this necessity. During the interval since the last meal, the liver has been at work with greater or less activity, making bile, and a considerable portion is stored up in the gall-bladder, and the biliary passages. The acid contents of the stomach, when poured into the intestines, cause the gall-bladder and the liver to contract, and thus to empty their contents into the intestine. The alkaline bile neutralizes the acid food, and makes it slightly alkaline.

The bile also begins to act upon the fatty elements of the food, converting them into an emulsion, partly by its own properties, but chiefly in conjunction with the pancreatic juice, which really performs the greater part of the work of digestion in the intestines. By its alkalinity, it neutralizes the acid gastric juice. It digests starch, converting it into grape sugar, even acting upon raw starch. It digests albumen and similar substances, but particularly the caseine of milk, which it coagulates as does the gastric juice, and the vegetable caseine of peas and beans. It digests fats, by emulsifying them, and converting a small portion into soap.

The pancreatic juice acts not only upon wholly undigested foods, but completes the work begun by the saliva and the gastric juice. The pancreatic fluid also differs from the gastric juice in its action on albuminous elements, in that it shows a preference for the albuminous element of milk, or caseine, and the vegetable caseine found in peas and beans, digesting these with greater facility than does the gastric juice.

The Intestinal Juice continues the work begun by the bile and the pancreatic juice, and digests cane sugar, which has not previously been acted upon by the digestive fluids, converting it into grape sugar.

The food is moved along the alimentary canal from the stomach downward, by contractions of the muscular walls of the intestines, known as the peristaltic movements, which follow one another with considerable regularity during the continuance of digestion, increasing in vigor as the process continues.

As the food passes along, it gradually becomes less fluid, through the absorption of its liquid portion, so that when it reaches the colon, or large intestine, it has become nearly solid in character. In the large intestine it receives a considerable amount of waste matter from the system, and finally the mass is expelled from the body.

Absorption. — The absorption of the food begins as soon as any portion of it has been digested. Even in the mouth and the gullet a small amount is absorbed, notwithstanding the brief time the food usually remains in these parts. The entire mucous membrane lining the digestive canal is furnished with a rich supply of blood-vessels, by which the greater part of the digested food is absorbed.

The Lacteals. — In addition to the blood-vessels, a special set of vessels is provided, which are devoted wholly to the work of absorption. These vessels also exist in other parts of the body, and belong to what is termed the lymphatic system. Here they are known as the lacteals, from the fact that they contain a milk-like fluid, which consists largely of the fatty portion of the food, which, when digested, or emulsified, resembles milk, itself an emulsion.

The Thoracic Duct. — The small lacteal vessels unite to form larger ones, all joining at last into a large one about the size of a crow's quill, called the thoracic duct, which passes upward, emptying finally into the large vein which returns blood from the left arm.

The Villi. — In some parts of the digestive canal, nature has provided special means for aiding the process of absorption. This is particularly true in the small intestines, in which the mucous membrane is arranged in such numerous folds that its surface is greatly increased. This membrane is covered with minute projections, which hang out into the cavity of the intestines, and are known as villi. The number of these villi is estimated to be more than thirty thousand to each square inch, or more than ten million in the whole intestine. Though very small, each being about one one-hundredth of an inch in diameter, and one twenty-fifth of an inch in length, the number is so great that the total surface which they present is about one hundred square feet. Thus, by this wonderful provision of nature, the absorbing surface of the intestines is increased perhaps fifty-fold. Each one of these villi contains a blood-vessel and a lacteal vessel, both of which absorb the digested food.

(To be continued.)

DRESS, IN RELATION TO THE MUSCULAR DEVELOPMENT OF WOMEN.

BY KATE LINDSAY, M. D.

1. — Hygiene of the Muscular System.

WOMEN as a class do not prize their muscles, and many, perhaps, have never considered the extent of the muscular system. They depreciate these important organs, because of their ignorance of the vital part they play in the human economy. They admire muscle in men, as denoting energy and courage, but think that all women should covet is beauty, and even decry strength and perfect development in the female sex as unwomanly and unrefined. But we are glad to find that the women of the greatest intelligence are waking up to the fact that the Creator meant them to be perfect specimens of the human animal, and formed their muscles for some purpose.

But even from the stand-point of beauty, no woman can be beautiful who is not well developed. The perfection of human beauty consists in the regularity of the features, intelligence of expression, symmetry of the figure, and grace of motion. These constitute all the beauty there is in the human form. When one considers that, were the skin removed, nearly all the surface of the body thus exposed is composed of muscles, one can readily realize that much in all these factors of beauty depends on the proper development of the muscles. On the rounded and perfect outline of the muscles of the face depends to a great degree the regularity of the features. On the sort of muscles brought oftenest into action depends the general expression of the countenance, — grave or gay, smiling or frowning, pleasant or morose, — whichever muscle contracts oftenest is the strongest, and gives the index to the face. And lastly, symmetry of form and grace of motion, so dependent upon each other, are wholly dependent upon the development of the muscles of the body and limbs. Then if for no other reason than the desire to be beautiful, women should be informed on the subject of their muscles, how to cultivate and make the most of them.

But there is still a higher motive that should govern them in their pursuit of this knowledge. On the muscles, in a far greater measure than many may imagine, depends their physical well-being — the happiness of health. Muscles are very important in all of life's processes. The surface muscles are the voluntary muscles, the ones through which we accomplish all the voluntary motions of the body ; and so important are they that one half of the nerves which come from the brain and the spinal cord are distributed to them. The integrity of the functions of all the organs of the body are dependent upon healthy muscular activity ; for muscles are our God-given defenders against not only disease, but from external violence of any kind.

When we have learned that every blood-vessel save the smallest capillary, every bronchial tube, the whole alimentary canal, and the respiratory tract are surrounded by encircling muscular bands, and traversed by longitudinal fibers, whose business it is to contract in obedience to the commands of the nervous system, either for functional work or in defense, we can understand in a measure the importance of these organs in their relation to health, in the resistance they offer to disease. For example, in the chilling of the surface of the body, lessening the caliber of the external blood-vessels of the skin, there is congestion of the internal organs ; but in the strong and vigorous, it is only temporary, and does no harm, even does good ; for the firm, wide-awake muscles preceive the necessity for more force to impel along the extra blood supply, and gather strength by the exercise, and the functional vigor of the organs is increased. But when muscles are weak, and respond to the demands made upon them but feebly, or not at all, then stagnation ensues, or permanent congestion results, and functional activity is interfered with, and disease is inevitable.

All the internal organs of the body are fastened to the walls of the cavities which contain them,

by ligaments which are more or less elastic, and possess contractility from the muscular fibers which they contain. The organs are all more or less movable, and will not long retain their healthy functional activity when this mobility is interfered with; yet this healthful activity depends upon muscular integrity. The act of respiration is the result of the combined contractions of the diaphragm, intercostal, and other respiratory muscles. The diaphragm is also the muscle upon which all the abdominal and pelvic viscera depend for physical exercise, so necessary for the maintenance of the health of these organs. The muscles in the ligaments and abdominal walls, when strong and healthy, oppose by vigorous contraction any disposition on the part of an organ to become displaced by violent exertion or strain of any kind, and by this same property tends to restore them to a normal position. Much suffering from displacement of important organs might be avoided by women if they only understood and seconded the instinctive and persistent effort of the muscles to prevent such disasters, instead of increasing muscular demoralization by sedentary habits and bad modes of dressing.

But in our relation to external things our muscular systems hold us greatly in their debt. If we possessed perfect muscular development, we would be clothed, as it were, in a sort of armor, and would receive entire immunity from certain of the external dangers that constantly assail us. The weak spots in our armor are the points undefended by muscles endowed with a healthy contractile energy. In a well-developed person, the surface muscles quickly respond to any word which the nerves may send to it of danger from undue strain threatening the integrity of the ligaments. The well-defended articulation of the athlete or acrobat, secure in its defense of strong, well-trained muscles, can be subjected to any strain, and bent in any direction and at any angle without suffering an injury of the tissues; but a person of a weak and inactive muscular system is liable at any time, and from very trivial causes, to be disabled by strain. In the former, each group of muscles is awake and ready to respond by vigorous contractions to the demand for a restraining force to modify the action of another group, and thus prevent injury to their structure, which might result from violent or unusual exercise; while in the latter case, a crick in the back, a strained ankle from a misstep, a dislocated patella, are all so many illustrations of the weakness of muscles and a break in the defense.

If women were only aware of the fact that in good muscles lay the immunity from the aches and pains that torture the back and the organs situated near it, they would never tie up those most useful members of the body with steel and whalebone, and lace them out of existence with corset strings and skirt-bands, but would strive by systematic and persistent efforts to reinforce their muscular defense by proper training.

(To be continued.)

A FEW nights ago, a young lady in attendance at a ball in a fashionable neighborhood fell while engaged in a dance, and, on being removed to an adjoining room, expired. It was discovered that, being inclined to *embonpoint*, it was her custom to lace to the extent of reducing her waist to a circumference consistent with the recognized standard, and to this custom the death was attributed. — *Health.*

THE CORSET A CAUSE OF CONSUMPTION. — The corset, with its inflexible stays and hour-glass shape, grasps the expanding lungs in their lower part like an iron vise, and prevents their proper filling with air. The lungs are thus crowded up into the upper part of the chest, and pressed against the projecting edges of the first ribs, upon which they move to and fro with the act of breathing. The friction thus produced occasions a constant irritation of the upper portion of the lung, which induces a deposit of tuberculous matter, and the individual becomes a prey to that dread disease, consumption — a sacrifice to a practice as absurd as it is pernicious.

The lower part of the chest being narrowed, thus preventing proper expansion of the lungs, the amount of air inhaled is insufficient to properly purify the blood by removing from it the poisonous carbonic acid which gives to impure blood its dark color, and is so fatal to the life of all animals. In consequence of this defective purification of the blood, the whole body suffers. None of the tissues are properly kept in repair. They are all poisoned. Particles of gross, carbonaceous matter are deposited in the skin, causing it to lose its healthy color and acquire a dead, leathery appearance and a dusky hue. The delicate nerve tissues are poisoned, and the individual is tormented with "nerves," sleeplessness, and fits of melancholy. Continuous pressure upon these parts may cause such a degree of degeneration of the muscles of the chest as to seriously impair the breathing capacity. Unused muscles waste away, and when pressure is applied in addition, the wasting and degeneration become still more marked. This is exactly what happens with those who wear their clothing tight about the waist.

REVELATION WORKS REVOLUTION.

BY FANNIE BOLTON.

"O MRS. ALEXANDER, did you know they are to have a wedding at Dr. Hollister's to-night?" asked Mrs. Shipply of her neighbor.

"No; you don't say?" exclaimed Mrs. Alexander. "Who is going to be married?"

"Why! the girl, — that English servant they have had for the last two years. The one with the rosy cheeks and curly hair."

"Oh, yes! Who is she going to marry?"

"A little Englishman like herself. Just about as short, and broad, and roly-poly."

"Strange that Hollister's should make a wedding for *her*."

"Well, you know, they are English themselves, and English folk have queer notions. Now we wouldn't think of such a thing. The girl would simply be discharged, with some cast-off finery, and sent to the justice of the peace to be married. Well, there is no accounting for customs. But the Hollisters do seem like such superior people. It seems odd, doesn't it?"

"I should think it did. I've always heard that in England servants have to keep their place; but for all that, the English have a knack of binding their servants to them until they really feel themselves a part of the family and the estate, and they will defend the respectability and interests of their masters as if they were personally concerned.

"We used to keep slaves, you know, and we were obliged to mingle more or less familiarly with our colored people. We would sometimes visit their cabins, and wait on the sick. But there was no danger of their feeling on a par with us. But dear me! I wouldn't think of treating a white servant with anything like familiarity. You can't do it, you know. It's out of the question, because they would soon feel themselves your equal, and take no end of impertinent liberties."

"Yes, that is so," responded the other; "but this wedding interests me wonderfully. You know that Mrs. Hollister never has any trouble in keeping girls. She always seems so fortunate. For two years this girl has worked for her faithfully and cheerfully. Now my girls, and I've had a dozen in the same time, have been the most impertinent creatures, and I never felt that I could trust them out of hearing. Well, perhaps if I had a servant like Mrs. Hollister's, I might be inclined to do something for her on her wedding day, but I hardly think I should make a regular wedding for her."

The neighbors separated, unconscious that Mrs. Hollister, who was somewhat of an invalid, and was reclining on her couch at the open window, had heard all their conversation.

Her daughter Eunice came into the room soon after, and found traces of tears on her cheeks. On inquiring the reason, Mrs. Hollister said, "I have just overheard a conversation that has suggested a world of sad thought, and I could not refrain from weeping." She then related what had passed, and added, "Oh, how much my dear neighbors are missing because of their narrow sympathies! I believe that trust will reflect trust. I am sure we have proved to our satisfaction that it pays in every way to treat our help as if they were beings of like passions, affections, and hopes with ourselves. You know, dear, how Jennie came to us, — a boisterous, good-hearted, rough, ignorant girl, much after the usual type of servants. But I felt when she came, Now here is a soul for whom Christ, the King of glory, has died. He has seen in her some divine possibility, and for sake of what she may be, he has given his precious life. Now what can *I* see in her? I knew that she was motherless, friendless, and without attractive traits of mind or heart, and her physical attractions were of an order

that would coarsen and decay with coarse association and thought. She must be refined to be truly beautiful. I contrasted her with you, my darling accomplished daughter, and I asked myself, Would my child have been any better under the circumstances that have molded this girl's life? How would I want my daughter treated if she were a servant in a strange land, without home or friends? Well, dear, my heart began to soften and open, and I prayed that the Lord would give me his love to help me to do by Jennie as I would want some mother to do by you, if you were in a similar situation."

"That's just like you, you dear, blessed mother," exclaimed Eunice, as she stroked her hair.

"Of course, I had my trials with Jennie. You know how she would bang the doors, and laugh and joke in her coarse way, and sometimes she had fits of sullen gloom that fairly made the whole home atmosphere dark to me, and she would say the most cutting things. Many a good cry I've had, and many a long praying season over that child. After a while I began to see glimmerings of better things. I used to go into the kitchen occasionally with a sweet poem I had found, or some pleasant article or story, and read it to her, and explain it if she did not understand. When we've been in the garden, I have called her attention to the flowers, and how gently they budded and blossomed, and poured out their fragrance. I've tried to correct her roughness by showing her the beauty of that spirit of meekness that is of so great value before God. Then, you know, I invited her to come into the parlor or sitting-room occasionally with us, for I knew that example is stronger than precept. How pleased she looked, and how astonished! I noticed how her manners were softened, how her words were more choice, and how a delicate womanliness began to develop, and soften her harsh, unlovely traits. She felt the refinement that breathed from you, and from our associations. She became more careful and tasty in her dress. I was so glad of all these things, and so anxious that my poor, uncultured servant might bloom out into the full flower of womanliness."

"Don't you remember how much she enjoyed that *musicale* that we gave in our parlors? I don't suppose that she appreciated the old masters, but I know that she did appreciate the privilege of sitting as a guest. She was so grateful," remarked Eunice.

"That is just what has given me courage to work," said Mrs. Hollister. "I believe her whole life here has been like a revelation to her. She closes the doors softly now. Her voice is mild, her words are well chosen, and her face itself shows the culture she has received. She acted almost rude when I first invited her to family prayers; but now she comes in with a certain eagerness, and several times I have noticed tears on her cheeks, although she has never mentioned the subject of religion to me. There is nothing that she would not do to please us. You know she postponed her wedding for six months because of my feeble health, and she would still postpone it, if I would give her the least suggestion of a wish in that direction.

"I believe society generally has employed a wrong method with its servants. Hired girls are regarded as a mere necessity, — like a stove or a pair of tongs. They are an article kept wholly apart from the life and interests of the family, and treated too often as machines to cook the meals and do the chamber work. Oh! we are all in one web of humanity, as it is written of the church, 'whether one member suffers, all the members suffer with it.' All through society this cruel and selfish way of dealing with what are called underlings, has been like a two-edged sword, that has cut both ways.

"I hardly know who has suffered most. The treatment given to domestics has driven hundreds of capable girls into unhealthful, untasteful, and even into vicious employments, and it has filled our kitchens with the very scum of society. It will take a long time to skim it off, and get the social caldron cleaned out, and ready for something better. But it is the system that has done it. This self-exaltation, this degradation of others because of their position, is not only a wrong to the poor girls, but it has wrought cruel harm to the family. I have heard children imitate their mothers in speaking of their servants, as if they were something less than dogs. What a wrong to the children to receive so unworthy an impression of the value of human life. I say it lessens respect for God and man, and that it is an evil against society and government."

"That is true, mother," said Eunice. "What a pity it is that you are not well, so you could lecture on this subject. Really, mother, I do think you could do a great deal of good."

"Hush, hush; what an idea!" laughed Mrs. Hollister.

"Yes," said Eunice, "and not only Jennie has been benefited, but her lover as well. You know, we all felt so interested in Jennie's development, that we were somewhat anxious when John began to pay her attention. He was about as boisterous as she used to be, and full of coarse sayings and ways. I felt very much annoyed, but now I see the reason of your interest in him. You thought of me, and tried to be a mother to him too."

"Yes," said Mrs. Hollister. "I saw that Jennie had given him her heart; that he was a fair young man, with no bad habits, industrious, careful, and kind-hearted; so I tried to give them both a view into a higher life, and wake their dormant aspirations. That is why I invited them in so often when we read and sang, and enjoyed our social life together. He has greatly improved too."

"Did you hear father tell about the neat little house he has rented? Everything is fixed up in real miniature of our home," said Eunice.

"Yes, I have been there with Jennie, and helped her plan for its furnishing. I hunted up some carpets and furniture from our store-room, and found a number of fresh things that will give an attractive look to her rooms."

"Mother, the more I think of it, the more I see in the method you have taken. I have heard ladies complain that their servants taught their children not only bad grammar, but the lowest kind of sayings and obscenity; and besides, I have read of children that have been utterly ruined by evil practices learned from servants. I think it is a fearful responsibility to take a girl into one's house without knowing what are her habits of thought and action. I can see that it is to the very highest interests of the employer to cultivate and develop the girl to her very best. I was over to Mrs. Dolly's the other day. She happened to be away, so I stepped into the nursery to see the children. The nurse girl did not notice me, but my cheeks burned to hear her telling those sweet little innocents some horrible story of black men that were coming to take them. The poor little things were so frightened. I tell you, mother, if ever *I* have children, I will never trust them to the care of any girl, unless I know she thinks and is what I would dare to intrust with the delicate folded buds that God gives mothers to develop for heaven."

"O, Eunice! it makes my heart ache to think of the wrong that has been done. You can see, yourself, that if we had simply treated Jennie as most of our neighbors treat their servants, we should always have been annoyed with her coarse, rough ways. I don't say that every girl would show such marked effects of this discipline as Jennie has, but I have seen enough to convince me that there is something in it. If we had not taken this interest in Jennie, no doubt she would have married John long ago, and they both would have found their lowest level in a low society. I hope some seeds of divine truth have found a place in their hearts, that will bear fruit unto eternal life."

"Well, mother, you are a regular missionary, if you don't labor in the wilds of Africa, or pick up city ragmuffins."

"There is a little humble work at home for me to do, and O Eunice, you don't know what a blessing it has been to me. My interest in Jennie's housekeeping arrangements, has called forth the energies of mind and body, and really, my health seems better than it has been before for months. This morning I read a most beautiful set of promises that have come to my soul with peculiar sweetness. Just turn to Isaiah 58, dear, and read them aloud."

Eunice read: "Is not this the fast that I have chosen? to loose the bands of wickedness, to undo the heavy burdens, and to let the oppressed go free, and that ye break every yoke? . . . Then shall thy light break forth as the morning, and thine health shall spring forth speedily; and thy righteousness shall go before thee; the glory of the Lord shall be thy rereward; and thou shall be like a watered garden, and like a spring of water, whose waters fail not."

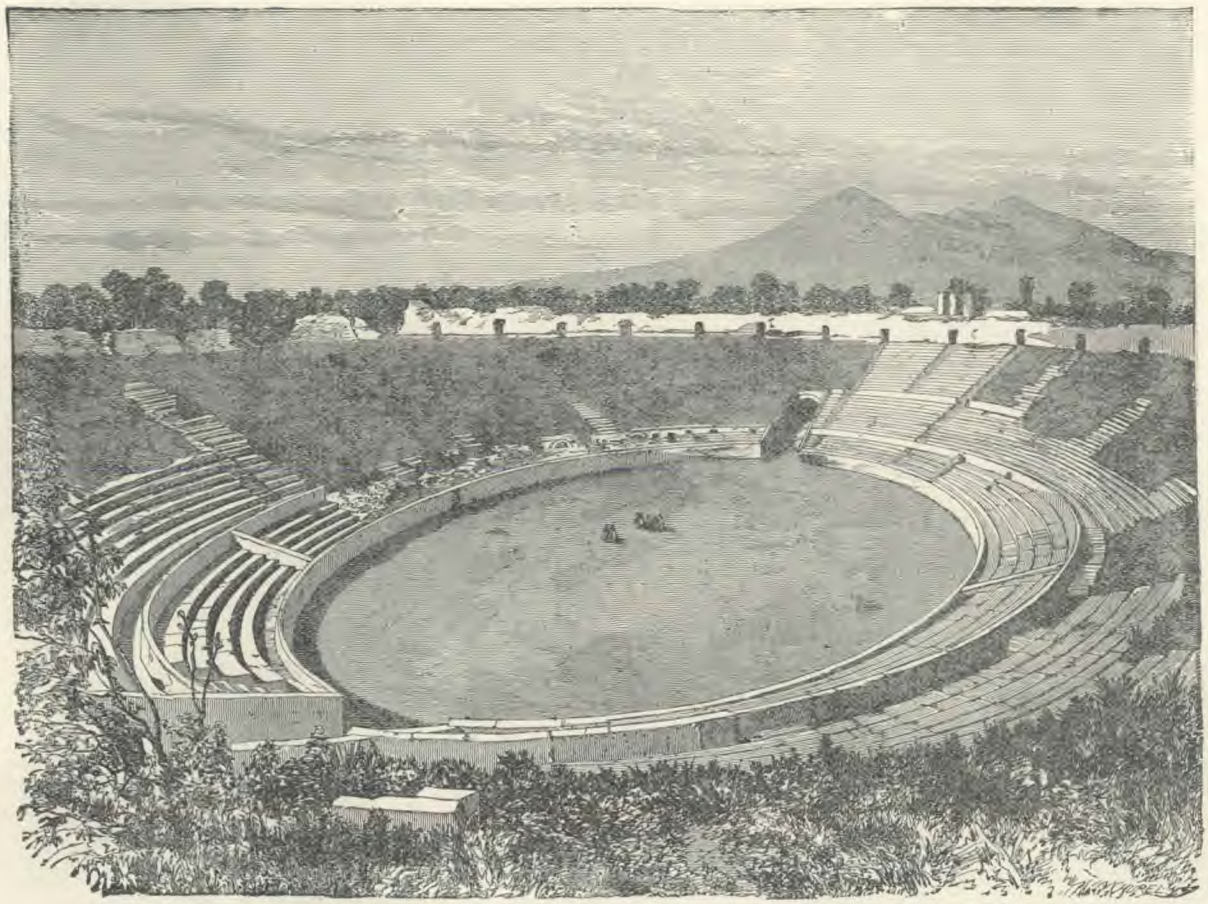
(To be continued.)

FASHIONABLE AMUSEMENTS TWO THOUSAND YEARS AGO.

BY MYRTA B. CASTLE.

"HUMAN nature," it is said, "is the same in all ages," which trite saying is doubtless true, with slight qualification; for in the nineteenth century we witness the same comedies and tragedies of love and despair which have furnished themes for all the poets since Homer wrote of Ulysses and Penelope and the "glorious goddess Calypso," or since the great "tragical triumvirate" wrote for the Greeks of a later day. Yet so utterly changed are our environments, so "dressed-over" this same human nature, that were the wraiths of the ancients to return, they would wonder by what process of incubation the new world had sprung from the egg of the old. But looking back, we find no difficulty in tracing the evolution of ideas, customs, religions, and amusements from those of two thousand years ago. It is only when we try to cross the chasm at a single leap that we realize the immense distance which separates us from the ancient world.

Restricting ourselves to just one nation of antiquity, the Romans, and to just one phase of their daily life, amusements, we find many things somewhat akin to our latter-day amusements, and many things utterly at variance with all our ideas of propriety and humanity.



EXCAVATED AMPHITHEATER AT POMPEII.

The ruins of the great Coliseum at Rome, were there no other ruins, would give us a clew to the principal sport of the Romans in the days when Rome was mistress of the world. But the Coliseum is not the only record of the past. Nearly two millenniums ago, Vesuvius, in an unprecedented ebullition of wrath, buried three Roman cities so completely that for seventeen hundred years their very existence was forgotten. Then some workmen, digging a well, came down to the roof of an ancient dwelling of Herculaneum. After a time, Pompeii was discovered. Owing to its greater distance from the fatal mountain, Pompeii was not so deeply buried, and it was easier to excavate it, and now much of the unfortunate city is open to the public, — its Forum, its baths, its amphitheater.

From the innocent-looking cut of the amphitheater of Pompeii, one can gain but a faint idea of the kind of amusements the esthetic Pompeians indulged in; but history has not left us in ignorance of the purpose for which these great circular buildings were erected.

It was in the immense arenas of the amphitheaters that the gladiators fought to the death; it was there that slaves or criminals fought with each other or with wild beasts. So mad were the Romans for these cruel exhibitions that no expense was spared in securing the most ferocious animals; and hundreds of infuriated elephants, fresh from the jungles, were sometimes turned loose in the arena. It is said that the emperor Probus once ordered a contest between a thousand ostriches, a thousand stags, and a thousand boars. Sometimes the arena, at a nod from the emperor, was turned into a miniature sea, and then fierce naval battles were fought for the delight of the spectators.

For the comfort of the thousands who flocked to these exhibitions, immense awnings were stretched over the amphitheaters, and for their refreshment the numerous sculptured figures were made to sweat, through their marble pores, the favorite perfumes of the day.

If, after winning a desperate battle, the excited Romans thought a prisoner's bravery well-established, they could save his life by a simple uplifting of their thumbs; but it was seldom that even the victor in

their inhuman gladiatorial combats received his life at the hands of the maddened spectators.

The Romans had become so wild for their national sport that not a building of any consequence could be dedicated, or a great man buried, without a fight in the bloody arena; and when the public baths of Pompeii were disinterred, the following inscription was found on the wall: —

"On occasion of the dedication of the baths, at the expense of Cnæus Alleius Nigidius Maius, there will be the chase of wild beasts, athletic contests, sprinkling of perfumes, and an awning. Prosperity to Maius, chief of the colony."

Jugglery, rope-dancing, and music were the more harmless amusements of the people, and these diversions were brought into their homes, as it was a fashion among the wealthy to hire strolling actors and musicians to entertain the guests at the sumptuous suppers.

Gaming with dice, a vice not unknown at the present time, was exceedingly popular among the impoverished young patricians of that day, who depended more upon that source of revenue than upon their paternal inheritance. Running, jumping, leaping, and such athletic sports were among the diversions of the day; and the military drills and the long processions of victorious soldiers, conquered warriors, and war trophies, furnished a vast amount of interest for the women and civilians.

But the great passion of the Romans was for the circus, the theater, and the amphitheater, although it is beyond conception how a people so refined in many respects could have had such a thirst for blood; for that they were refined is shown by their beautiful dwellings, their pictured walls, their wonderful marbles and bronzes. If, as Bulwer Lytton's great romance represents, Pompeii was overthrown when in the excitement of one of her greatest gladiatorial contests, its fate would almost seem but a just recompense for its horrible misdeeds.

THE HANGING GARDENS OF BABYLON.

(See Frontispiece.)

The famous hanging gardens of Babylon rank in history as one of the seven wonders of the world. It is said they were built by Nebuchadnezzar, to gratify his wife, a native of Media, who longed for something in that flat country to remind her of her native mountain home. These hanging gardens consisted of an artificial mountain four hundred feet square at the base, rising by successive terraces, supported on several tiers of open arches, to a hight which overtopped the walls of the city. The terraces themselves were covered by flat stones sixteen feet long and four feet wide. Upon these were spread beds of matting, then a thick layer of bitumen, covered with sheets of lead. Upon this solid pavement earth was heaped, some of the piles being hollow, so as to afford depth for the roots of the largest trees. Flowers, shrubs, and clinging vines grew in profusion, till the gardens presented the appearance of a mountain clothed with verdure.

The gardens were connected with the royal palace, and must have afforded an enchanting pleasure-ground for its ease-loving inhabitants, with tier upon tier of beautiful walks amid groves of luxurious vegetation. There were fountains and a large reservoir on top, supplied with water from the river Euphrates, and the gardens were irrigated by sprays of limpid water that laughed and gurgled in the sun, cooling the tropical air, and lulling to soft slumber the whiler-away of idle hours. No doubt birds of gorgeous plumage nested and sang in this miniature forest; for even animals browsed at its greensward.

LOSS AND GAIN.

I sorrowed that the golden day was dead,
Its light no more the country side adorning;
But whilst I grieved, behold! the East grew red
With morning.

I sighed that merry Spring was forced to go,
And doff the wreaths that did so well become her;
But whilst I murmured at her absence, lo!
'T was Summer.

I mourned because the daffodils were killed
By burning skies that scorched my early posies;
But whilst for these I pined, my hands were filled
With roses.

Half broken-hearted, I bewailed the end
Of friendships than which none had once seemed nearer;
But whilst I wept, I found a newer friend,
And dearer.

And thus I learned old pleasures are estranged
Only that something better may be given;
Until, at last, we find this earth exchanged
For heaven.

— *Ellen Thorneycroft Fowler.*

TEMPERANCE NOTES.

THE Danish Government has absolutely prohibited the liquor traffic in Greenland.

A GENTLEMAN remarked that he had eight arguments in favor of the prohibitory amendment, and when asked what they were, replied: "My eight children."

TEMPERANCE IN RUSSIA. — Mr. Joseph Malins writes: "On learning that Count Leo Tolstoi had formed a temperance society in Russia, I wrote to Mockba for information as to its institution, rules, and membership, and the following is the reply received from the daughter of the Count: —

"'The date of the institution of our temperance society was Dec. 1, 1887. At present, the number of our members is three hundred and fifty, not counting a whole sect of about five hundred people who have sent their desire to become members of our society. As far as I know, nothing has been printed, because temperance societies are forbidden, so that we have to copy every leaf with the conditions of the society, to give to new members.'"

WHAT is the difference between a Prohibitionist and a High Licensist? — High Licensists believe in putting whisky into a boy through a $1,000 funnel, and then putting the boy in the gutter. Prohibitionists believe in putting the whisky into the gutter at first, and saving the boy.

Daughter. — "There is only one thing more astonishing than the readiness with which Ned gave up tobacco when we became engaged."

Mother. — "What is that?"

Daughter. — "The rapidity with which he took it up again as soon as we were married."

MISS FRANCES E. WILLARD says: "When the school-master can shut up his spelling-book and dismiss the class because we are all immaculate in that important branch; when the doctor can put his medicine-chest on the top shelf because the public health is chronic in its perfection; when the preacher can fasten the clasp on the pulpit Bible because we are all so good, — then, and not till then, will the temperance worker find his 'occupation gone.'"

POPULAR SCIENCE.

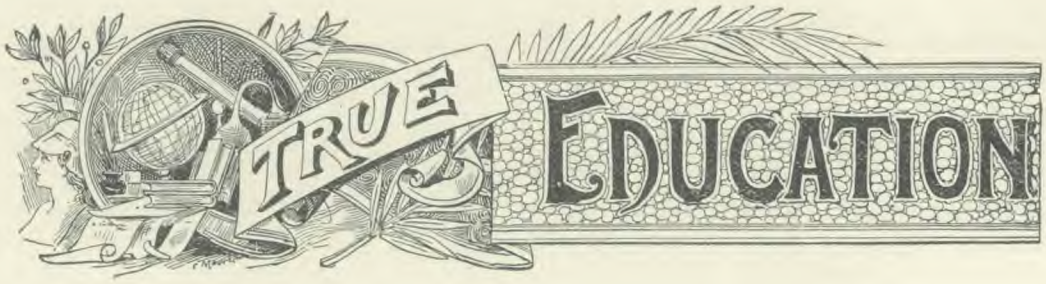
A process of hardening plaster has been discovered, adapting it for flooring in place of wood.

THOUGH few people know it, the base of celluloid is common paper. By action of sulphuric and nitric acids, it is changed to gun cotton, then dried, ground, and mixed with from 20 to 40 per cent of camphor, after which it is ground fine, colored with powder colors, cast in sheets, pressed very hard, and at last baked between sets of super-heated rollers.

HOME-MADE FIRE-EXTINGUISHERS. — The following is the solution commonly used in the hand-grenades and similar appliances sold as ready means for the extinguishment of fires: Take twenty pounds of common salt and ten pounds of sal ammoniac (muriate of ammonia, to be had at any druggist's), and dissolve in seven gallons of water. When dissolved, it can be bottled and kept in each room in the house, to be used in an emergency. In case of a fire occurring, one or two bottles should be immediately thrown with such force into the burning place as to break them, and the fire will certainly be extinguished.

ACCORDING to the careful estimate of scientists, not less than 20,000,000 luminous meteors fall upon our planet daily, each of which in a dark, clear night would present us with the well-known phenomenon of a shooting star. If the number of minute meteorites were included, many of which are entirely invisible to the naked eye, but are often seen in telescopes, the number would be increased at least twenty-fold.

VARNISH FOR ROOFING. — A new substitute for glass has been introduced in England, to take the place of that material when used for roofing purposes. It is composed of varnish the base of which is linseed-oil, coated over a web of fine iron wire. It is pliable, will not break, can be cut with shears, nailed, and drawn over curved surfaces. Besides these superiorities over glass, it can be produced in very large sheets, materially lessening, in this direction, the cost of laying roofing. It has been used in roofing the Westminster Aquarium, and has been found to be a good non-conductor of the heat of the sun. Possibly on this account it will not find favor in conservatories and the like.



THE INDUSTRIAL KITCHEN-GARDEN SYSTEM.

BY E. L. SHAW.

THE kitchen-garden is an outgrowth of the kindergarten, and combined with it affords a delightful system of child-education. The idea is such a purely natural one, in connection with children, that our only wonder is that it was not seized upon long before. Although something akin to it may have been employed in exceptional instances, or rather, we may say, by exceptional mothers, yet it is only within a few years that it has been reduced to a real system of instruction taught in regular schools.

Children are a race of little copyists and make-believes. They ape us in air, and walk, and manner — in a hundred ways; and since it has been wisely decreed thus, why should we not turn the fact to good account? And since they will imitate the bad as well as the good, the imperfect as well as the perfect, why should not we ourselves arrange that they duplicate only the most useful and desirable conditions in life? Surely we outstrip ourselves in sagacity when we elect that they shall play at real life with the implements of our daily toil for their playthings!

But this is precisely what the kitchen-garden really does. It is the plain, practical Yankee idea supplementing the large, benevolent German one, just as the name itself — kitchen-garden — tacks onto the German *kindergarten* (children's garden). The "play at housekeeping" is most amusing to see. The little ones go through the entire routine of household work in the most careful and methodical manner, with set times for each exercise; but none is suffered to grow monotonous, being brightened and varied with song, march, music, or story. There is the drill in table setting. The table ware is composed of "baby" sets, to be sure, but perfect in their way, down to the smallest detail; and the tables when set are marvels of order and care. When all is ready, the little ones march to the table in time to the music, and the funny barmacidal meal is eaten with quaint decorum and attention to conventionalities. Every now and then, as a treat, a "real truly" dinner is given them to dish up and serve, with "real truly" vegetables, fruits, and grains. The advanced classes have cooking lessons at least twice a week.

Next in order comes the clearing of the table and the "doing up" of the dishes. There are "baby" dish-pans too, and the dish-cloths would scarcely make a doll's *fichu*, supposing they were dry enough, and sweet enough, which they are expected to be — almost; for the lesson on dish washing, with the subsequent care of the dish-pan and the dish-towels, is very thorough, indeed.

Washing-day, too, which to the average of us older ones is often at best a day of anxieties, perils, and uncertainties, these children will be fore-armed to meet, by the deftness and method to which they are here trained by the kitchen-garden system. The little things are taught every phase of the work in detail, from the "sorting" of the clothes to the last careful rinsing, and the "hanging-out" in good shape upon the line — that climax so dear to the housewifely heart. The washing of prints and flannels receives due care, as it ought. The bringing in and folding of the clothes follows in natural sequence, for nothing is left out in these exercises which so admirably combine amusement for the moment, with the most beneficial results for the future.

Here, in this tiny Utopian world, even scrubbing lessons are rendered attractive. They "go straight to the spot," in more senses than one, but are mainly short, and spiced with bright question and answer, and are carried on in uniform movement with the piano, or to the time of some "scrubbing song," composed expressly for the lilliputian brigade. The "broom drill" literally "carries everything before it" in effectiveness, and in graceful, spirited, and concerted action is most interesting to witness.

Bed-making is also treated very successfully, two of the younger children being detailed to serve at each

bed. There are also sewing classes, as the system would hardly be complete without; but what is as diverting as anything to the little folks is the nurses' drill, in which the mites are taught the proper care of infants still tinier than themselves. For the benefit of the anxious mother-hearts among our readers, we will state that in this drill the little ones "practice" upon babies that have heads composed of no more sentient material than wood, gypsum, or rubber. Ah, what golden bits of knowledge are stored away in these little busy brains, which will come into play in in handling the "truly" babies of the by and by!

The noble ladies of the W. C. T. U. are greatly interested in this grand, good work. The Battle Creek Sanitarium Kindergarten, now a thriving institution of some years' growth, sometime since added to itself the kitchen-garden department, with excellent results.

For an employment so lightly esteemed, housework is probably the worst "bungled" of any. But what an advance stride in the comfort of the home, when our own daughters shall have learned to "turn off" deftly "whatever their hands find to do;" or when there may be procurable outside help, well-trained, orderly, efficient, who will come to our aid, and so nicely adjust the household machinery that it shall run without jar or friction!

THE schoolmaster has been abroad again, evidently. We often come upon one of his ubiquitous trails, but never one more marked than the following "composition," said to have been read recently by an Indiana schoolboy: "The human body is made up of the head, the thorax, and the abdomen. The head contains the brains, when there is any. The thorax contains the heart, lungs, and diaphragm. The abdomen contains the bowels, of which there are five, A, E, I, O, U, and sometimes W and Y."

THERE are as many kinds of readers as there are people who read, each person comprising a class as distinctively his own as are his peculiarities of intellect, individual tastes, personal aims and objects. But in a general sense we may arrange the average reader into three classes: First, those who read merely to kill time, or for the momentary pleasure. Such persons are usually the best pleased with the lightest kind of fiction, that which requires no effort of the mind to follow. Second, those who read that they may be able to show off their knowledge, to converse well, and to say that they have read certain books. Such persons are usually able to quote brilliant passages, and can tell you a little about a great many books and authors; but they have very little real knowledge or judgment concerning what they have read. Third, those who read that they may gain the highest object of reading, — to strengthen the judgment, to embellish the mind with a store of information, and to improve the taste, — or in other words, who read for *culture*. Such persons enjoy reading more than either of the first two classes. If they read fiction, it is of the highest order, and not read merely for the story, but to enjoy the style of the writer, the descriptions of character, and to be profited by whatever other information the book may contain. And beyond the current literature of the day, they read works of science, history, philosophy, and poetry, and study them, criticise them, and re-read them. A person may belong to whichever of these three classes he will; for taste in reading, like taste in everything else and for everything else, may be cultivated.

A GOOD THING FOR BOYS. — Manual training is one of the few good things that are good for everybody. It is good for the rich boy, to teach him respect for the dignity of beautiful work. It is good for the poor boy, to increase his facility for handling tools, if tools prove to be the things he must handle for a living, afterward. It is good for the bookish boy, to draw him away from his books. But, most of all, it is good for the non-bookish boy; it shows him that there is something he can do well. The boy utterly unable, even if he were studious, to keep up in book knowledge and percentage with the brighter boys, becomes discouraged, dull, and moody. Let him go to the work-room for an hour, and find that he can make a box or plane a rough piece of board as well as the brighter scholar, yes, very likely better than his brighter neighbor, and you have given him an impulse of self-respect that is of untold benefit to him when he goes back to his studies. He will be a brighter and better boy for finding out something that he can do well. Mind you, it is planing the board in the presence of other boys who can no longer look down upon him when they see how well he can plane. He might go home after school, and plane a board in the bosom of his family, or go to an evening school to learn to plane, without a quarter part, nay, without any of the invaluable effects upon his manhood that it will have to let him plane side by side with those who in mental attainments may be his superiors. — *American Magazine.*

SOCIAL PURITY.

A CHIMERICAL HOPE.

BY J. H. KELLOGG, M. D.

MOTHERS of dissipated sons often seek consolation in the thought that "by and by, when they have sown their wild oats, they will settle down and become very steady and exemplary men." So, too, the mothers of girls who are heady and flippant and disrespectful and giddy and frivolous, often say to themselves, "Oh, they will steady down after they are married, and make first-rate wives and mothers; they are only sowing their wild oats."

We want to say to such mothers that they are cherishing a fatal deception. "Wild oats" are a very bad crop to sow; "for whatsoever a man soweth, that shall he also reap." There is not a single good seed in a thousand bushels of "wild oats." The product of wild oats is wild oats as surely as the product of wheat is wheat and of corn is corn. "Do men gather grapes of thorns, or figs of thistles?" — "A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit."

One of the most alarming tendencies in modern society is the growing disposition of decent people to look with allowance, and often even with complacency, upon the waywardness of the young, especially young men, and of young women, too, provided the latter do not go to the extreme lengths of wickedness. A young man who is publicly known to be of fast proclivities may move without the slightest embarrassment in the highest circles of society, provided that he is rich, or accomplished, or possessed of such personal attractions as make him an agreeable or amusing companion. Such persons are indeed not infrequently literally courted in fashionable circles at the same time they are under the care of a physician for the cure of a loathsome disease. The writer has known more than one such case. Indeed, it is not an uncommon thing for these lepers who are sowing wild oats to go about in a condition in which their very touch is contamination. It is horrifying to see mothers allowing their daughters to associate with such men, even encouraging the association, though knowing that they are addicted to the worst vices.

It is high time that a different sentiment was cultivated. If young men or old men who are known to be of impure life are to be received into the best circles with open arms, simply because they have money, or influence, or personal attractions, one of the inducements to a virtuous life on the part of young men is destroyed; and it ought to be well enough apparent to the most casual observer that the young men of the present day are not in need of less, but of more, inducements to lead them in the ways of purity. The work of the White Cross Army, and of other social-purity organizations, ought to do much in this direction, and all Christian people ought to encourage every effort made for the cultivation of a better and more general sentiment in this matter.

The idea that not much harm is done a young man or a young woman by a few years of fast living, or that a young man may even be improved by the knowledge of the world thus gained, is a most dangerously mistaken one. To every such one who truly reforms, those years of sin are always looked back upon as a horrible nightmare, — a span of life blackened and scarred and blistered with sin, revolting to every sense, full of hideous and sickening recollections, — a reeking jungle habited by every sort of unclean bird and beast, alive with writhing and hissing reptiles, filling the air with their venom, haunted by fiends and hobgoblins of frightful mein, and filled with dead men's bones and the putrescent carcasses of human sacrifices to the Moloch of impurity. Many a man who has been led by a genuine conversion to a change of life, has torn his hair and gnashed his teeth in anguish as he has exclaimed when haunted by the horrible recollections of the years spent in dissipation, "Oh, that I had never been!"

To those who have spent the best years of their lives in sin, and have then reformed from motives of worldly policy or from sheer surfeit of sensuality, the past remains as a fetid ulcer corrupting the fountains of moral and spiritual health, spreading the poison of a upas tree throughout the whole life history. The

moral sense is blunted, the conscience is seared, — that indefinable sense which is possessed only by one whose heart is uncontaminated by familiarity with sin, and which recognizes the mere contact with impurity by a throe of pain, — this delicate monitor is dead in the heart of him who has once abandoned himself to the pleasures of sin. Can it ever be resurrected? — Certainly not but by a miracle of grace ; and how few of those who once enter the path ever experience the renovating power of a genuine conversion !

The young woman who sows a few wild oats may not descend to the same depths of grossness as her brother ; but the utter distaste for things solid and substantial, for the real enjoyments and proper duties of life, which fashionable dissipation engenders, totally unfits her for the performance of any useful part in life. The proportion of young women who pass through this sort of an experience, and yet ultimately become model wives and mothers, is exceedingly small. By far the vast majority live wretchedly discontented lives, neglecting the duties for which they have no taste and no aptitude, surrounding themselves with domestic misery and wretchedness of their own creation, or which they might have averted had their characters not been warped and weakened by the deteriorating and dwarfing influence of their youthful follies. Thousands of homes are in a state of domestic anarchy and woe unspeakable, from this cause alone.

There is a ponderous truth in the words of the wise man, " If the tree fall toward the south or toward the north, in the place where the tree falleth there it shall be." The dwarfing, demoralizing, distorting influence of evil and sinful habits is a tyrant from which escape is all but impossible in this world. Even the man who has been thoroughly converted still feels within himself the conflict between the monsters of iniquity which he has allowed so long to occupy and rule his heart, and the better motives and pure impulses which he desires to cultivate. Better far to keep the heart pure than to hope to cleanse it from the turpitude of sin, to wipe out the deep-dyed stain of sensual indulgence.

A STATE home for fallen women has just been secured by legislative enactment at Milford, Neb., with an appropriation of $15,000. It was secured through the efforts of two earnest women, Mrs. Holmes, president of the Nebraska W. C. T. U., and Mrs. Clark, of Omaha.

CONTRIBUTIONS unasked have poured in from all parts of the kingdom for the West End factory girls of London, since the publication of " Only a Factory Girl," in June, 1887. Two ladies, disguised as factory girls, visited the low theaters, music halls, gin palaces, and streets frequented by this class of girls in the West End, in order to become acquainted with their habits and associations, and learn how best to meet their needs. With the contributed funds alluded to above, which amounted to over $10,000, the Shaftesbury Institute for West End factory girls has been established. In connection with it there is a project to start a Country Training-Home.

THE question of dress sustains a very important relation to the work of social purity. Perhaps there is no one thing which so much hinders the social-purity movement as do false ambitions and false standards of dress. Dress is as demoralizing to women, in its way, as drunkenness is to men. The love of fine clothing seems to be woman's ruling passion, — the thing she will have at any price, — and many a poor working-girl has bartered her soul that she may ape in her dress the rich, elegant woman of fashion. Would we stem the tide of social evil that yearly drags down to ruin thousands of young girls, poor but vain, we must first bring them to consider " the body more than raiment." Many of the temptations that now beset the working-girl would then cease to exert an influence.

WE are glad to see that the question of confining young children, either accused or convicted of crime, along with older or more hardened criminals, is being agitated. It is one of the many evils against which all social-purity workers should protest. No one who will think a moment, can doubt that for children to be herded for days and weeks together with vicious adult companions, is to give them an impetus along the path of vice which no State government can afford to do. Whether they be guilty or innocent, we commit a sin whose effects we can never undo, when we, as individuals or corporations, fail to arrange that all children under our care are kept from contaminating influences. The county jail is no place for a youthful offender, while awaiting his trial or the carrying out of his sentence. Let there be, then, a Home of Detention included among our city institutions, presided over by a good woman who will look to the children well. As a plain question of economy it were wiser to try to reform our young law-breakers than to maintain them throughout their lives at the State's expense.

GOOD HEALTH
J. H. KELLOGG, M. D., EDITOR.
BATTLE CREEK, MICHIGAN.

HEALTH OBSERVATIONS IN ENGLAND.

ONE of the first things that impresses an American in England is the scarcity of sunshine. We have not had a fair view of the sun since arriving in this country, three weeks ago. The sun has tried to struggle into view once or twice, but the murky atmosphere gave it quite the appearance of a partial eclipse. A lady said to us one dismal day last week, "O! but isn't this a fine day?" We replied, "Yes, for this country, but not for America;" for it was what we would call a bleak November day, though the fog and the mist were not quite so thick as they had been for a week previous. Days in which the sun does break through, however, everybody is happy, and the people make the most of the sunshine. The streets are fairly thronged, — servant girls trundling carts with three or four babies in each, barrows with one baby in front and another perched on behind somehow, children in half dozens and dozens and scores, and mothers carrying their little ones in their arms.

It is amazing, the swarms of children one sees here; and what is quite as surprising, notwithstanding the uncanny weather, as a Scotchman would call it, they are the most handsome, rosy-cheeked little ones to be seen anywhere in the world. Even the troop of children which the beggar-women carry around with them are so rosy and plump that one's sympathy is all expended in regretting that such pretty little ones should have such good-for-nothing mothers, and a bath seems more appropriate than a dinner.

But returning again to the weather: we may insist that the statement made respecting sunshine is no exaggeration, at least respecting this part of England at this season of the year. A gentleman told us, the other day, that when a friend of his was recently leaving, he asked him to give his regards to his wife, and to pay his respects to the sun if he chanced to see it again! A Scotch physician whom we met in England six years ago, declared that he had been in the country twenty years and had not been warm once during that time. It certainly seems to one accustomed to a dryer climate, like a very cold and uncomfortable country. Nevertheless, English people do not seem to mind the weather as foreigners do. Houses are rarely heated to more than 60° F. Indeed, I have not seen a temperature higher than that in the hospitals. Sleeping-rooms are often not heated at all.

As would be naturally expected in a climate like this, diseases of the throat and nose are exceedingly frequent. Catarrh specialists flourish, and great numbers of people suffer from diseases of the ears due to catarrh. This disease is especially prevalent among children. A sufficient cause for this, aside from the unfavorable climate, is seen in the almost universal custom of so dressing the little ones that there is no protection for the legs between the knees and the ankles; often the arms are also exposed. It seems as though these children must be of hardier constitution than the average American child; otherwise they would all die of croup or diphtheria, or some other acute disease.

But ruddy cheeks are as abundant in England as they are scarce in America. Why is this? The indication is that the average Englishman has a larger quantity of bright red blood than the average American. One reason for this probably is that the Englishman breathes more pure air than the American does. His house is not heated by stoves as are our American houses; for, in fact, we have not seen a stove in England, except one which we brought over for an American gentleman. Houses are universally heated by grates, which insures an excellent supply of air, although at the same time it insures cold floors. Fortunately, however, no such extremely cold weather is experienced in this country as is common in the Northern States during the cold months of the year. Another reason for this healthy color is

doubtless found in the greater attention paid to exercise in this country. Almost all English people are great walkers. Ladies as well as gentlemen are good walkers. It is no uncommon thing to hear a well-to-do lady speak of taking a six-mile walk in the country. Charles Dickens used to take a thirty-mile walk before breakfast, when he was writing some of his famous books. In the city of Birmingham, gymnastics are taught in all the public schools, and in the academies and church schools also. We were told by the director of the leading gymnasium that he personally superintended the exercises of more than fifteen hundred children, young men, and women each week. There is a very large athletic club, and a gymnastic class for ladies, as well.

The annual display of the gymnastic club was held in the town-hall a few evenings since, and the vast building was well filled. The Hon. Herbert Gladstone occupied the chair, and spoke eloquently on the advantages of physical exercise as the means of developing, not only higher physical strength, but also a higher degree of morality. With his remarks we quite agreed; for it is a prominent article in our creed that sound physical health is essential to the highest moral health. Physical exercise is of incalculable advantage to the young. Young women, by the aid of gymnastics, may receive such vigorous development of the muscular system that they may enjoy almost certain immunity from the hundred ailments peculiar to their sex, and which are at the present time a much greater obstacle to their social and intellectual advancement than any legal disability from which they suffer, or any discrimination in favor of the other sex in regard to political and legal rights.

Young men find in gymnastics an antidote of no inconsiderable efficiency in counteracting the evil tendency of the times, and an aid in overcoming the many temptations to dissipation with which they are surrounded. This aid is second to none save that of religion, which is, unhappily, a thing of which the vast majority of the young men of the present age know but little. The young man who sets himself to excel in gymnastics must preserve his physical powers in all possible ways. He cannot drink and carouse and dissipate, and at the same time keep up a high degree of physical vigor. He must practice the most rigid self-denial, and this self-denial and self-control which are essential to success become a kind of moral discipline which is one of the greatest of all the benefits derived from a systematic course of physical training.

Mr. Gladstone, son of the veteran statesman, is the president of the Physical Recreation Society, the purpose of which is not the training of athletes, but the introduction of gymnastics into every school and every hamlet in the country. Classes are formed by volunteer teachers, who give their services gratuitously, so that the society is really a sort of a missionary society, which seeks to make human beings better morally by making them better physically. This, in our opinion, is a very good way to begin. There is great need for such a society in America. How much might be done in a single generation in the direction of race improvement if there could be a general interest aroused in regard to the necessity of work of this kind. Would it not be well if a little of the effort which is now expended in expensive missionary enterprises for the benefit of the heathen, not infrequently with other than the best results; for sometimes the poor heathen begins his painful march toward extinction almost with the day that the missionary lands upon his shores, — would it not be wiser, we say, if a little of this effort were devoted to the improvement of the heathen at home, the improvement of those civilized barbarians who know as little of those laws of God which relate to the healthful care of their bodies, as the most benighted savage in the African jungles knows of the code which relates to his moral nature? Is not much of our evangelical work of a one-sided character? Are not our missionaries still working along much the same lines as the old monks of the Dark Ages, who sought to purify the soul by destroying the body?

The baneful results of this false education is most strikingly apparent in the rapid deterioration almost invariably suffered by the savage tribes which are brought under the influence of our so-called Christian civilization. Accustomed to the most active life, to the most trying hardships and the most exacting privations, the savage, when he is tamed and taught to gain his livelihood by easier and less taxing means, to adopt the clothing and the habits of civilization, at once begins to develop the diseases of civilization, and manifests a marvelous susceptibility to them, and a readiness to succumb which is indeed startling. From a few observations which we have made among primitive people just beginning to adopt the habits of civilized men, we are convinced that this is not due to what is taught the savage, as a rule, at least, but to what is not taught him. He is taught, for example, to build for himself a house, which, like that of the civilized man, must approach as nearly as possible to an air-tight condition. At the same time he is not taught the necessity of providing for a supply of fresh air by ventilation. He is peculiarly susceptible to the fatal influence of foul air, from being accustomed to an unlimited supply of fresh air; and so he quickly falls

a victim to consumption, and to other maladies which thrive in unventilated dwellings. Also, when civilized clothing is put upon him, he is not taught the fact that with the extra outer coverings which civilization demands, there is necessarily involved an unnatural susceptibility, which requires the employment of special precautions against colds, etc. But how can one teach that which he does not know himself? Every missionary, then, ought to be fully equipped with the most accurate information on all subjects pertaining to the hygiene of the home and the individual, and careful instruction in the care of the body ought to be as much a part of the teachings of the missionary as instruction in morals.

But we are digressing at too great length. In our next we hope to be able to tell our readers something of interest about the English peasant and how he lives, what he eats, drinks, etc.

THE MIND-CURE DELUSION.

[Abstract of a Lecture by the Editor.]

A FEW years ago we had what was known as the "blue-glass" mania, and in passing along the street one would often see some poor cripple or dyspeptic sitting behind a pane of blue glass. It was a very good thing, for it brought people into the sunshine who would never have sought it otherwise. The *Popular Science Monthly* styled the blue-glass mania a "sort of foolometer, to test the length, breadth, and thickness of the foolishness of the people of the nineteenth century." The same might be said of this mind cure. It seems incredible that so many good people should have become inoculated with "Christian science," "mind cure," or whatever name we choose to call it. What does this mind-cure philosophy profess to be? — The fundamental principles of it, so far as I am able to learn from its chief apostles, are these: God is good; the word *God* means "good." The good God has created all things, and a good God could have created no evil thing. Therefore disease, being an evil thing, cannot exist. Hence this wart on the end of my nose is not there at all! It is only a figment of the imagination; it is simply a bad thought — a perverted idea. I can cite the works of Dr. Evans and Mrs. Eddy as evidence of what I have told you.

To what practice are mind-cure doctors led in consequence of this theory? — They say disease does not exist, and so they go to work to convince a man that he is not sick. If a man is a hypochondriac, or thinks he is much worse off than he really is, and dwelling upon his disease makes him worse all the while, then the mind-cure doctor comes to him as a saviour. Here is a poor woman worn out with household or other cares. The doctors say she is sick. She goes to bed and gets rested, and by-and-by gets well, but does not know it; no one tells her she is well, and so she lies in bed, waiting to get strong. No one can gain strength lying in bed, so she grows weaker and weaker. If she rises up suddenly, she has palpitation of the heart, and so she thinks she must still keep her bed. Along comes a mind-cure doctor, who tells her it is impossible to be sick; tells her that God never made disease, and that disease does not exist; that she is possessed simply by a morbid idea. The sick woman is told that she can walk. She is inspired with that idea; faith and courage revive; she tries to walk, and finds that she really can take a few steps. She might have found this out twenty years before if she had only tried.

In this way, mind-cure doctors do a great deal of good in a manner similar to the blue-glass rage. They get a lot of chronic invalids out of bed. But take a man who is breaking out with small-pox. The mind-cure doctor tells him that there is no such thing as small-pox; that there is no eruption on his skin; and that if the poor victim brings all his mind to bear upon making himself believe his skin is free from disease, he will find himself cured. Do you think this will prevent contagion? Mind-cure doctors do not hesitate to take hold of any disease — Bright's disease, cancer, consumption, or fever. They cannot except anything, for they say there is no disease. There was once a case of small-pox to which a mind-cure doctor was called, and began his mode of treatment. A health officer marched in and took possession of both doctor and patient, and carried them off to a pest-house. Here the mind-cure doctor had an excellent opportunity to test his skill, yet the man had small-pox just the same.

A similar case is reported by the Illinois State Board of Health. A child was taken with a contagious disease. A mind-cure doctor took charge of the case, and the child died. Other children took the disease, and there was a regular epidemic, which all the mind-cure doctors in the United States could not have controlled.

What is disease? Take diphtheria, for example. It is produced by certain fungi or microbes taking possession of the body. You remember the story of

the mouse-tower on the Rhine, in which the old miser stored up his wheat in time of famine, and how the rats swarmed in, and ate him and his grain all up. Microbes seize upon the body as really and tangibly as the rats are said to have seized this miserable miser. Suppose a mad dog comes rushing along a crowded thoroughfare; do you suppose the mind-cure doctor can prevent the passers-by from being bitten, unless he is armed with a club or a shotgun? According to their theory, there is no such a thing as a mad dog nor a mad-dog bite; then, of course, there are no such creatures as wild, ferocious animals. It is nothing but an hallucination if we see such a one tearing a child to pieces. Evil does not exist except in the mind, according to the mind-cure doctor.

This doctrine is as false and ridiculous as anything can be, and I cannot comprehend how so many intelligent people have been drawn into it. A mind-cure doctor does not hesitate to say he can heal a lung with a hole in it, or perform any like miracle. Why not swallow poison? There is no such thing as poison, according to their theory. Somebody asked Dr. Evans why he might not, then, take a dose of prussic acid. Dr. Evans cited in reply the experiment said to have been made in a hospital, of administering some harmless medicine to the patients, after which a nurse was sent around in great trepidation to say to the patients that by mistake an emetic had been given them. As a consequence, the most of them immediately "unswallowed" themselves. So Dr. Evans infers that since by aid of the imagination a harmless medicine can be converted into a poisonous one, then the same philosophy would convert a poison into a harmless remedy. He says he believes that if he could control his mind sufficiently, he might take a dose of prussic acid without danger. It is only the feebleness of his mind, then, that renders it undesirable for him to try the experiment. I do not know whether it is undesirable or not, because there are many people killed by this mind-cure practice. In the case referred to above, the child with the contagious disease did not need a mind-doctor; it needed a nurse, and the Board of Health should have been notified, that measures might have been taken to prevent an epidemic. Yet the mind-cure doctors now consider themselves martyrs, because the State Board of Health of Illinois is making an effort to debar them from practicing under the laws of that State.

A mind-cure doctor would be very handy in getting ready for a surgical operation. All he would have to do would be to go into the room and "think" it clean, and there would not be any dirt or germs there. Or he would answer well as an *attache* to a manufactory of wooden legs. He might assure the man with only one leg that the other limb was there, only he could not see it; that, since one-leggedness was an evil, it did not exist! Do you think a man's imagination could be made to see a new leg sprouting out?

It is most astonishing what these mind-cure doctors claim, and if it were not down in black and white, you, as sensible people, would not, I fear, believe what I am telling you of their teachings. For instance, a lady came here a while ago who told me she came near going to a mind-cure doctor instead. She said that a neighbor of hers had been sick with acute rheumatism for a long time, had tried various doctors, and received no help. Some of his friends went to Chicago from Evansville, and made arrangements with a mind-cure doctor to give him "absent treatments." Suddenly the sick man was seized with a terrible vomiting, and it was feared he would die. The friends sent over to the mind-cure doctor in haste to inquire what was the cause of this. The mind-cure doctor gravely said that it was because the other doctor had not been discharged, and the two kinds of medicines did not agree! Think of a mental influence which would make a man vomit at a distance of fifteen miles!

In making arrangements for "absent treatments," it is only necessary to send in the name, without any particulars as to disease, and these names are put on file; and at a certain hour the mind-cure doctor is supposed to visit the room, and put in exercise his will-power on the individual's behalf. Some claim that the patient must be passive, and have his mind focused at the same hour; others, that this is not necessary. The cases may be wooden legs or artificial eyes, no matter what; for no symptoms are required to be stated. A friend of mine was traveling in Kansas a while since, and he stopped at the house of a lady who had just learned this new method of cure for all ills of the flesh. The lady remarked that he had a sore eye, and solicited his case, saying she would cure him free of charge. She told him his bad eye was simply a bad thought, and not a bad thing. She gave him a half-hour's treatment in person for three consecutive days, and was so kind as to give him also a number of "absent treatments" while he was about his work. Then she told him that his eye was well. He said it did not feel any different. She insisted on the cure just the same, and for reply he took the eye out and showed it to her, it being a glass eye! But her faith was not a particle shaken; the Christian science philosophy was all right.

I have offered $1,000 for a single example of each of certain kinds of disease which they can bring posi-

tive proof of having cured — cases which have been examined by competent persons both before and after such alleged cures; viz: a cavity in the lungs; a case where a thumb has been grown on (and this would be no more difficult than the curing of cancers or the removal of tumors, which they claim to do); a case of Bright's disease in which the tissues of the kidneys have been broken down, or the case of a broken or dislocated arm cured at once. There was a case published far and wide of a mind-cure doctor's curing a child of a broken arm in three days. The doctor in charge got tired of writing letters of denial, so he published a statement that the child fell down a door-step, and had what is called a "green stick" fracture of the arm (children's bones usually break like a green stick, and hence the name); that the child got well in three weeks, the usual time, and that the mind-cure doctor did not help the case at all.

PRACTICAL MIND-HEALING.

A CHRISTIAN scientist, whose time was fully occupied in thinking about the unreality of disease, at two dollars per think, once treated a highly unappreciative man for a chronic nervous affection of a very painful character. After this man had depleted his purse by spending forty dollars without any improvement, he desired to know when he should begin to get better.

Then the Christian scientist waxed wroth and said: "O you of little faith! Know that you would already have been cured, if you had believed me when I told you that your pain was not real. Pain and suffering do not exist; they are merely phantasms of the brain. There is no such thing as matter," continued he with such emphasis that it rattled some silver dollars in his pocket; "the only real thing is thought. All this is too subtle for your commonplace mind, and hence I can do nothing for you; you had better go and fill your coarse, unappreciative system with drugs."

Then a vision of the forty dollars that had vanished, and of the pain that had vanished not, came before the mind of that long suffering man, and he arose, and he took that Christian scientist, and he mopped the floor with him, smiting him sore upon the head and back, so that when he was through, congestion, abrasions, contusions, incipient echymoses and epistaxis were among the phenomena presented by his Christian countenance.

"There is no real suffering," said the Unappreciative, with withering scorn. "The bruises on your alleged head are entirely hypothetical; the choking I gave you was simply an idea of mine; the pain which you feel is merely an intellectual phantasy; and your nose-bleed is only one of the ideal conceptions of the cerebral mass. Believe these things not to exist, and they vanish. Good-day, sir." And the patient departed. — *The Medical Visitor.*

SLEEP.

THE physiological phenomenon of sleep, is, notwithstanding our familiarity with it, a constant mystery. It is, indeed, one of the most curious of all physiological states. What are the exact conditions which determine sleep or wakefulness? and how can these conditions be controlled? These are questions which the wisest medical *savant* is not at present able to answer satisfactorily. The nervous invalid often lies awake almost a whole night, seeking vainly for the blissful unconsciousness of sleep, and charging his failure upon some trifling cause of sound, as the occasional barking of a dog, the distant rumble of a train of cars, or the rattle of a passing carriage. On the other hand, one may sleep soundly, although in the midst of the greatest confusion. The following remarks by a writer in a medical journal will be interesting in this connection, and the novel suggestion made may prove to be of real practical utility: —

"If sleep, uninterrupted sleep, is a blessing to those in sound health, to the weak and invalided it is an absolute necessity. Yet it is precisely these, the vulnerable weak, they who in fact are most in need of the sleep that 'medicines all pain,' who are oftenest deprived of their night's rest. To them the absolute silence of the hour is but a treacherous calm; for the slightest noise that ruffles the smooth surface of the night with its rippling wave-sounds is enough to break the spell, and hastily summon them from the land of dreams. Now, what is it that disturbs sleep? Noise? Not altogether; for the inhabitants of besieged towns have been known to sleep through the roar of bombardment, and to waken suddenly when the firing ceased. Millers will sometimes start up from sleep, awakened by the mere stopping of the mill-wheel. The rattle of a train in motion will induce sleep, as all travelers know. And last, not least, the sleep of

infants, the sweetest and soundest sleep of all, is promoted by sound.

"The popular view, then, that noise disturbs sleep, like most popular views, only touches the truth, but does not grasp it. The true cause of disturbance is interruption. Any sudden cessation of the continuity of silence or of sound awakens the sleeper; for sound, provided it be monotonous, has precisely the same effect on the brain as silence. That simple piece of mechanism, the alarum-clock, is based on the theory of interruption; it interrupts silence. Now, might not an equally simple contrivance be made on the same mechanical principles, but with the reverse object, viz., that of insuring sleep by sound? Its utility, to delicate persons especially, would be undoubted. Call it the morphiometer, the somniferant, or give it a French title, and christen it the *gardesomne*, or sleep-preserver, — a name, by the way, that would truly designate its object; for its real object would not be so much to promote sleep as to insure the sleeper against disturbance (the vulnerable side of light sleepers), by placing a bulwark of sound between him and the sudden shocks of extraneous noise. Let your sleep-preserver produce the drowsy, monotonous buzz of the humming top, not so loud as to be heard in an adjoining room, but loud enough to drown distant noises when placed close to the bedside, or hung over the pillow."

It has been discovered by a student in the Michigan University, that the loco weed, a plant that grows abundantly in Kansas and Texas, contains a poisonous principle capable of producing intoxication. It is stated that cattle become very fond of the weed, and often become intoxicated by eating it.

Food Phosphates. — This is a question which interests many, for phosphates are used more largely as a medicine than anything else, unless it is whisky, because the idea prevails that they are good to build up nerves. Chemical phosphates can be absorbed only in very small quantities — only one grain in twenty-four hours. Out of a dose of twenty grains, only one grain would be of service. An extra spoonful of grits, or of graham mush, or an additional whole-wheat wafer, will do more good as to supplying needed phosphates than to take them in the form of medicine. There is no such thing as a specifically medicinal food. Food that is nourishing has its due proportion of phosphates. The trouble usually is in their assimilation; they require a specific action of the digestive fluids. If they cannot be absorbed into the system and used, they will be carried off as waste matter. What is wanted, then, is not more phosphates, but more ability to digest phosphates. The stomach may lack physical exercise. The Bible says that he that will not work shall not eat; and nature says the same thing: he that will not work, shall not digest. So the remedy often lies in taking an extra dose of exercise. Yet certain foods contain a larger amount of phosphates than others, such as all the whole grain preparations — wheat, barley, grits, and graham. Peas and beans, and all the legumes, contain more than the grains, because they contain more of the nitrogenous elements. Milk contains phosphates in large quantities.

"Longevity? I should say longevity did run in the family," said Mrs. Spriggins. "Why, John was six foot two, Bill was six foot four, and George, he had more longevity than any man I ever see. He was six foot seven, if he was a foot."

A Strong Diet. — One of the most popular fallacies is the idea that the consumption of a large amount of meat is necessary for health or to maintain strength. It is a fact well known that the strongest animals are vegetarians. No farmer would think of feeding his horses or oxen beefsteak or roast beef in order to add to their strength, even if this kind of food were as cheap as corn or grass. The elephant, the strongest of animals, is a vegetarian. The same is true of the human race. The gatherers of rubber-gum in South America, travel all day among the mountains, penetrating dense forests, climbing among the most precipitous peaks, carrying all the time upon their shoulders, a load increasing in weight until it reaches one hundred and fifty to two hundred pounds; yet they subsist upon a purely vegetable dietary, the chief articles of food being plantains and bananas. The Roman soldiers, who built such wonderful roads, and carried a weight of armor and luggage that would crush the average farm-hand, lived on coarse brown bread. They were temperate in diet, and regular and constant in exercise. The Spanish peasant works every day, and dances half the night, yet eats only his black bread, onions, and water-melon. The Smyrna porter eats only a little fruit, such as olives, yet he walks off with a load of a hundred pounds. The coolie, fed on rice, is more active and can endure more than the negro, fed on fat meat. The heavy work of the world is not done by men who eat the greatest quantity. Moderation in diet seems to be the prerequisite of endurance.

VARICOSE VEINS. — The only safe remedy for varicose veins in the extremities, is the employment of some form of elastic support. In some respects the rubber bandage is superior to the elastic stocking.

WANDERING PAINS. — Wandering pains are often the result of a weak state of the body. When this is the case, relief can be afforded by building up the body. It is often due to tenderness in the spinal cord, and hot applications to the spine will be of much benefit. Hot applications to the parts affected are also of service.

RHEUMATIC GOUT. — Rheumatic gout is an incurable disease. It is a sort of degeneration of the cartilages of the joints. The change is organic, and nothing can be done for it. But when it is due to lowered nerve tone, if the nerve tone can be improved, and the system raised from its low state of vitality by proper nutrition, the disease can be arrested. But patients of this class are never improved by reducing treatment, and it is a mistake to rush such off to various springs for the purpose of taking hot baths and similar treatment.

CONVULSIONS IN CHILDREN. — When a child has a convulsion, or what is commonly called "a fit," attention should be given to the urinary secretion at once. If there is suppression of urine, the child should be put into a warm bath, and made to sweat as speedily as possible. In many cases in which children die from a succession of convulsions, the real cause of death is suppression of urine (a fact which is probably not so generally known as it should be), so that the child really dies of poisoning through the retention of the urinary secretion. When a child is subject to attacks of this character, care should be taken to dress it warmly in flannels, so as to keep up a degree of perspiration most of the time, and hot baths should be administered frequently.

CURE FOR COLIC. — Colic is an accumulation of gas, and the best remedy is hot water outside and in.

DANDRUFF. — Dandruff is frequently a catarrh of the scalp. It is an abnormal exfoliation of the scales from the skin of the head. Dead cells or scales are constantly exfoliated from every portion of the body. The scalp should be thoroughly brushed and rubbed, but it is best not to use a comb that scratches. A good dry brushing of the scalp every day is the best prevention. The only suitable hair-brush is one of bristles, — not wire, — arranged in little tufts, irregular in length.

SMALL-POX. — Here are a few interesting facts about small-pox, which we glean from the *Detroit Lancet:* "The disease goes by threes. The period of incubation is nine days. The primary fever is three days; the period of eruption, six days to the beginning of the pustular stage, which also occupies three days in reaching maturity. Dessication lasts six days. The whole period, from the beginning of the eruption to the falling off of the scabs, is twenty-one days. A Dr. Case was sick with small-pox in the army. He was delirious, and escaping from his watchers went to a spring and drank freely. The water soothed his sufferings to such a degree that he lay down and slept, and made a good recovery. Dr. Wright, of the West Indies, more than a hundred years ago, advocated baths as the best treatment for small-pox. The method was tried in England with good success. An illustration of the good effects of water in this malady is afforded by a circumstance which occurred during the war. Some Confederates, sick with small-pox, were left in fence corners, waiting for an ambulance. During the night a heavy rain came on. That was their bath. The next day more soldiers were left there, and they got their bath in the same way. There were in all forty or fifty so 'treated.' They got along better than those treated in hospitals."

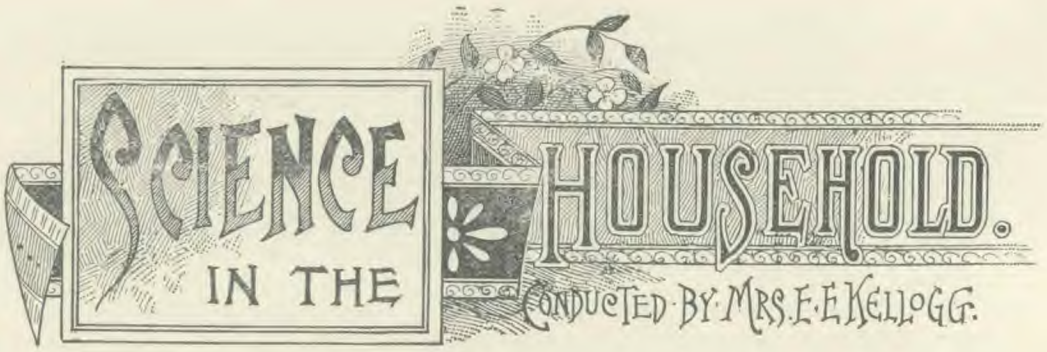
CAUSE AND CURE OF HIVES. — The cause is indigestion, and the proper remedies should be directed to the stomach. For immediate relief, bathe the affected parts in soda water — two teaspoonfuls of soda to a pint of water.

NIGHTMARE. — This is the result of a condition of the nervous system in which the cerebrum is active, but in which there is no control of the lower part of the brain, — that part which controls muscular action. A person can think and feel, but cannot move. It seems to be a sort of temporary paralysis of the muscles of motion. It is sometimes caused by overheating of the spinal cord (feather-beds are not entirely out of fashion yet), and also by pressure of the stomach upon the aorta. Perhaps the stomach is distended by a late supper of various indigestible viands, and lying upon the back this great load impels the circulation of the blood to the lower part of the body. Sometimes nightmare is due to purely nervous causes, and can be cured by curing the nervous disorder which has brought it on.

TYPHOID FEVER IN CHILDREN. — This disease assumes so many features in children different from the symptoms commonly present in adults, that it is more than probable that many cases are never pronounced typhoid in which this disease is really present. In children, the fever is usually much higher than in adults, especially at the commencement of the attack. The prominence of head symptoms often leads to the supposition that the child is suffering from some brain disorder, when the disease is really typhoid. The diet of a child suffering from this disease, as in the case of adults, should be wholly liquid in character. Milk is one of the most suitable of all articles of diet for these cases. It should be boiled half an hour before feeding. The best addition to milk is some farinaceous preparation which has been partially digested by long exposure to heat. Granola is an excellent preparation of this sort. A substitute which is of almost equal value is well browned toast which has been ground in a coffee-mill, and then boiled in milk for half an hour. For lowering the temperature, there is no better means than frequent bathing. When the surface is hot, the baths should be cool, cold, or tepid, as the temperature may indicate. If the surface is cool, while the temperature as indicated by by the thermometer is high, the fever may be best controlled by the employment of warm baths, which lower the temperature by relaxing the capillaries of the skin, and thus bring the blood to the surface to be cooled by evaporation.

TO STRENGTHEN THE BACK. — Walking is the best exercise for strengthening a weak back. When a man says walking makes his back ache, as a remedy, let him walk. If he says it makes him tired, again we say, "Walk." If the simple act of walking gives a backache, it is evident that the back has not been strengthened by walking as it should be; consequently, walking is just what is needed. Certain gymnastic exercises are excellent, and so is deep, abdominal breathing. The majority of people do not use their backs enough. The first exercise of cadets — leaning forward until the finger tips touch the floor, while the knees are kept stiff — is excellent practice. Backs sometimes become muscle-bound, because they are not used enough.

STOMACH "GONENESS." — The faintness or empty feeling of the stomach experienced by some in the evening or during the night, is caused by the two walls of the stomach coming in contact. When that organ is empty, it collapses; but in a state of health we do not feel this contact any more than we do the shutting of the two eyelids together. But when the stomach is diseased, we notice this contact just as we would contact of the eyelids if they were inflamed. The mucous membrane becomes congested and irritated, and causes this "goneness." There are two remedies for this. One is to eat something, and fill the stomach up with some sort of bland substance, when the patient will feel temporarily better. There are some people who always eat something just before going to bed; they think it is dangerous to have the stomach empty. A great deal of harm is done in this way, yet some physicians recommend eating, because it will give this temporary relief. This eating for relief simply increases the cause of irritation. This trouble is due to congestion of the stomach, caused by over-work. The stomach is always temporarily congested during the act of digestion, and if it is kept constantly in use, the congestion will become permanent. The second and best remedy for this condition is rest, and the worst of all remedies is work. Food put into the stomach increases the congestion because it makes the stomach work. You will notice that this trouble occurs in the evening or in the night. Persons make no such complaint in the morning. The stomach has had a chance to rest; yet three hours after breakfast, they may experience the same all-gone feeling. The proper remedy is rest and careful attention to the diet, that the cause may be relieved. For temporary relief, nothing is so good as a drink of cold water, and it will help to allay the congestion also.



VEGETABLE SOUPS.

[Abridged from report of Lecture given before the Sanitarium School of Domestic Economy, by Mrs. E. E. Kellogg, A. M.]

Soup is an easily made and very economical food, and if composed of nutritious material, is a very wholesome article of diet. When soup is served hot at the beginning of a meal, it acts as a sort of stimulus to the flow of the digestive fluids. When such foods as peas, beans, and lentils are made into soups, they are really reduced, from the long cooking required, to the most digestible form in which they can be used. To be of the most value as an article of diet, soup should contain as small an amount of water and as large an amount of nutritious elements as possible. Soup which contains a large amount of water requires a correspondingly long time to be digested, because the water has to be absorbed before the digestive fluids can act upon the food elements contained. The nutritive value of soup depends of course upon the ingredients. If we take as the base for a soup something which contains a large amount of nutritious elements, then we shall have a nutritious soup, if prepared properly. If we prepare a soup of something which is merely palatable without containing much nutrition, then we must take care to select such articles of food to go with the soup as shall make it perfect food.

Some preparation of flesh food is what is generally understood when we speak of soup, and the making of soup from a soup bone is a very lengthy, and to most people a troublesome, process, and so soup is is seldom used. It is not so with vegetable soups, however; they are easily prepared, and much more digestible than meat soups. In the matter of economy, the time required for preparing, and the time required for digesting, a vegetable soup, is much to be preferred. A pound of meat bones would produce but a small amount of nutriment, after all the trouble of boiling and straining and cooling and re-heating, and then it needs to have various substances added to make it acceptable. A quart of meat soup would not contain so much nutriment as a cup full of pea soup.

Milk is an article of no small importance in the making of soups from grains and vegetables, and should be largely used when available in the place of water. Milk is in itself a perfect food, and adds to the nutriment, while at the same time it serves the purpose of a fluid. It is specially important when a soup is made of articles low in nutritive value.

To make soups of vegetables and legumes we must cook them first just as usual. Cook in as small amount of water as is possible without burning. Sometimes it is not possible to determine the amount of water required; so begin with a small amount, and if necessary, add more rather than put on too much in the first place. Having cooked the vegetables or legumes, the next process is to reduce them to a homogeneous mass. This can best be done by means of a colander or a vegetable press. We do this because it makes the soup much more inviting and digestible. There is nothing less inviting than a soup full of broken fragments. Having reduced the solid ingredients to proper form, add the liquids to make of proper consistency. The proper consistency is about like "single cream," that is, twelve-hour cream. About half a cup of cream will be sufficient to season a quart of soup. After adding the milk to the mass of vegetables, mix thoroughly, and again pass through the colander to take out any fragments or skins which may have escaped the first time. It takes but a moment, and adds greatly to the appearance of the soup. Re-heat now, and season with a little salt. Heat your cream in a separate dish, and when both are boiling, turn them together, and serve at once.

The above embodies the general principles of the process of making soups from legumes and vegetables.

The soup itself should be eaten with hard crackers or hard bread toasted and cut into little squares which the French call *crontons*.

If the soup is too thick, you can thin it easily by

adding more milk ; if too thin, thicken it with a little wheat flour. If a person has no cream, and potatoes or parsnips or any vegetable is used which will go well with egg, then an egg can be used in the place of cream — one egg to a quart of soup. The egg should be beaten thoroughly, and one cupful of the hot soup taken out and poured carefully over the egg, stirring all the while so it will not coagulate. After this it can be poured into the dish of soup. Remember, do not put the egg directly into the boiling soup ; for if you do, you will have a poached egg.

Cold beans, left-over peas, etc., which are perfectly sweet and good can be made into soups quite as easily and quite as well as other material. You may find some difficulty in rubbing them through the colander unless you first moisten them with a little of the liquid. Measure your cold food, and then determine how much liquid you will be likely to need, and add a part of this before you attempt to pass it through the colander. It will be impossible to give exact recipes for soups made from left-over foods of this character. If you have some tomatoes and a few potatoes, they can be made into a nice soup ; or potatoes, with beans for flavoring. Parsnips season soups very nicely, also. If you desire to flavor with onion or celery, add a slice of onion or a few sticks of celery just before re-heating the last time. A few minutes will be sufficient to extract the flavor, when these vegetables can be lifted out with a fork. Very few people care for strong flavors in their soups. Be sure you make combinations that will harmonize in your use of left-over food for soups. Do not put two of strong flavor together, like beans and cabbage ; rice or potatoes would go well enough with either.

HOW PASSOVER BREAD IS MADE.

In the preparation of the Jewish passover bread, the kneading is done in the ordinary way. Pure gunpowder-water is the only component added. The time for the dough to be baked is reduced to the minimum. It is broken into flat cakes, and then run between rollers into very thin sheets. Over these a workman rolls a pronged steel to perforate the dough, so that air-holes may be seen in baked cakes. A steel hoop cuts the dough into round, flat sheets, which are then ready for the oven. The baker then stands with a paddle, attached to a very long handle. With the aid of a boy he thrusts the cakes into the brick compartment, and in a half a minute pulls them out ready for use. A matzath cake is round, about four feet in diameter, somewhat browned, and having slight air-hole projections on its surface. They have a rather pleasant taste, not unlike that of crackers, and make a good substitute for bread. In some places there is a demand throughout the entire year for the unleavened cakes by dyspeptics. About eight cakes weigh a pound, which in large quantities sell at eight cents. The cakes are very brittle, and their pieces are ground up into fine meal. This is the substitute for wheat flour in the household during the passover.

— *The Millstone.*

Gems. — Take two cups of whole wheat flour (graham can be used in the place of whole wheat, if preferred), and one and a half cups of cold milk, the colder the milk the better. Take an egg, and beat the yolk and white separately, beating the yolk first, because that will not hold so much air as the white. The reason why we use an egg is that the albumen is capable of holding so much air. These gems can be made just as well without an egg after one is accustomed to the process, but at first it serves to give confidence. First add the beaten yolk of the egg to the milk, and stir vigorously, so as to mix thoroughly. Add flour to the milk and egg, a little at a time, beating all the while, up and down, not stirring the spoon round and round. This is done to incorporate as much air as possible. Add the flour little by little in this way, and the batter will become foamy and light ; but beat no longer than is required to mix in the whole of the flour smoothly. Lastly, add the white of the egg, stirring that round and round and rather lightly, for we want to keep in the air it contains. Put the batter into a hot gem-pan, and bake quickly in a hot oven. Indeed, the entire operation should be performed as quickly as possible. The gem-pans need to be kept thoroughly clean and well scoured, and then they will seldom require oiling.

To prevent flat-irons from rusting, wipe with a cloth dampened with kerosene.

Stone or marble hearths should be treated with pumice-stone and soap, rinsing carefully afterward.

Several tablespoonfuls of ammonia should be added to the water with which blinds and all dark paint are washed. When dry, rub with kerosene oil.

QUESTION BOX.

[All questions must be accompanied by the full name and address of the writer, as it is often necessary to address by letter the person asking the question.]

PRESERVED FRUITS. — L. E. S., Minnesota, asks our opinion of the digestibility of fruits preserved in the old-fashioned way, with sugar pound for pound.

Ans. — Such fruits are very indigestible. The same qualities which preserve it from fermentation, prevent digestion.

CANCER OF THE FACE. — J. F. A. inquires, "Is there any remedy for cancer of the face after it has been cut and burned until scattered through the system?"

Ans. — A cancer of the face is sometimes curable and sometimes not. When the whole system becomes affected, the disease is incurable.

GLYCERINE IN GASTRITIS. — E. H. N., Oregon, asks if glycerine is a good remedy for a person suffering from gastritis.

Ans. — Gastritis is a grave disease not likely to be cured by the use of a remedy. A careful course of diet, regimen, and thorough-going measures of treatment are required. We have sometimes seen some slight benefit result from the use of glycerine in combination with other measures.

COTTON-SEED OIL. — Mrs. M. A. B., Michigan, wishes to know our opinion of cotton-seed oil for cooking purposes.

Ans. — Our personal experience with cotton-seed oil has not been satisfactory. It is, however, unquestionably superior to lard, tallow, or rancid butter. The greatest objection to these fats is the fact that they are "free fats." When mixed with other food elements, they render them hard of digestion. This objection applies to cotton-seed oil as well as to any other form of free fat.

SALICYLIC ACID FOR PRESERVING FOODS — ITCHING IN THE EARS. — T. H. G., Nebraska, inquires: —

"1. What do you think of food preserved by use of sugar and salicylic acid? 2. What is indicated by itching in the ears?"

Ans. — 1. Salicylic acid is a poisonous substance, and should never be used for the purpose of preserving foods. 2. Itching in the ears is an indication of disease. The disease may be confined to the external ear, or may be more deeply seated. The cause should be at once investigated by a competent physician.

A correspondent inquires: —

"1. For bed-room use, which match is best, the parlor or the slow-burning sulphur match? 2. Is bread improved any by browning the slices in an oven before eating, thus drying and toasting? 3. Should grapes be eaten every day with a dinner of simply bread, by those of sedentary habits? I do myself, and consider myself much benefited. Can more good be obtained otherwise by this or other fruits? Which grape is most valuable to health, Concord, Catawba, or White? 4. Is oatmeal boiled in milk more nutritious than when otherwise prepared? Is it well to eat bread with oatmeal thus prepared? 5. Are parsnips, carrots, and onions, well boiled, healthful and nutritious? 6. Is milk fresh from a healthy cow, good to drink warm? Should milk be eaten with strawberries? 7. Is corn-starch boiled in milk easily digested and nutritious? Which cereal is most nutritious? 8. Is maple sugar a proper thing to eat moderately? 9. Is lanoline pomade nourishing for the roots of the hair? 10. What books would you advise a young man to read who is much interested in surgery and medicine, has an idea of becoming a physician, and who has studied physiology quite thoroughly at school, and read a great deal since on those subjects?

Ans. — 1. Swedish matches. Other matches are unsafe, and ought not to be permitted in any house. 2. Yes. The starch is converted into dexterine, so that the bread is partially digested. 3. There are other fruits, such as oranges, prunes, apples, etc., which are as wholesome as grapes. 4. Yes. Some hard form of bread should always be eaten with oatmeal mush, as bread toasted hard, or a cracker. 5. These vegetables contain some nutriment, but are coarse, and not adapted for use by individuals. 6. It is better that the animal heat should be allowed to escape from the milk before it is used. A healthy person need not pay any special attention to food combinations. 7. Yes. The milk supplies the elements which are deficient in the corn-starch. Wheat, barley, and rye, are equally nutritious. 8. The properties of maple sugar are the same as other sugar. It may be eaten in small quantity without harm, but when freely eaten is a source of disease. 9. Lanoline is one of the best unguents for the skin or scalp. 10. The "Home Hand-Book of Domestic Hygiene and Rational Medicine."

LITERARY NOTICES.

"THOSE TENT MEETINGS." 88 pp., paper. Illustrated. Price, 25 cents. Address the author, M. B. Duffie, Review & Herald, Battle Creek, Mich. A rhyming recital of the actual doings at the tent meetings, told in a tender, devotional spirit which removes prejudice, and must be productive of good. Buy, and circulate among unbelieving friends and neighbors.

THE *Home Magazine*, conducted by Mrs. John A. Logan. An illustrated monthly journal filled with bright, fresh matter of interest to each member of the family. We notice among its writers the name of our own valued contributor, Dr. Felix L. Oswald, and wonder how so many good things can be afforded by its managers for so little money, — for the magazine is only fifty cents a year. Brodix Publishing Co., Washington, D. C.

THE *Woman's World* for June is a fine number. The frontispiece is an engraving of Madame de Recamier, from David's celebrated painting in the Versailles gallery; the accompanying paper is an illustrated one by Miss M. E. Hawker. There is also a valuable illustrated article, "Field-Work for Women," by Ouida, and one of considerable research and many embellishments, on "Boots and Shoes," by Mrs. Conyers Morrell.. "Woman's Position in the Australian Colonies," is worthy of especial note. Cassell & Co., New York.

"ELECTRICITY IN FACIAL BLEMISHES," by Plym. S. Hayes, A. M., M. D. 128 pp., cloth. Price, $1.00. W. T. Keener, Publisher, 96 Washington St., Chicago, Ill. The well-known name of the author guarantees the value of this little work, and the manner of its preparation is such as to furnish a complete manual of instruction to all of the profession who would be proficient in the operation.

St. Nicholas for June bubbles over with rare delightful things; the very atmosphere of leafy June is in it, from frontispiece to finis. In its table of contents we notice the name of our own S. Isadore Miner, on the editorial staff of this journal, who contributes a poem quaint and graceful with all the suggestiveness of the dandelion about it, — "The Little Young Man in Gold." A perfect June number. The Century Co., New York.

THE June *Pansy*, bright and gay with pictures, is here. From cover to cover a pure child's magazine. $1.00 per year. D. Lothrop Company, Boston.

THE *Union Signal* is cordially welcomed to our table. Help it, everybody, in its battle with intemperance and social vice. Subscribe, and bring up its circulation to 100,000. $1.50 per year. Woman's Temp. Pub. Ass'n, Chicago, Ill.

Demorest's Monthly for June, in a beautifully illustrated article, tells us how people live in New York, and also gives us "Amusements in Japan," which are amusing to read about, especially as the article is so finely illustrated. "How to Form a Club," by "Jenny June," is necessarily well written, and in a chatty way gives much good advice. There are numerous other interesting articles, and a full-page water-color of "Water-Lilies" is well worth framing. Published by W. Jennings Demorest, New York.

THE *Annals of Surgery* for May, 1889, has as its leading article a report by Dr. Geo. R. Fowler, of Brooklyn, of a unique case of an air tumor of the neck, caused by a hernia of the pleura in a case of pneumothorax. It is well illustrated by a lithographic plate and a photo-engraving. The editorial articles, which are always invaluable, take up the topics of Injuries of the Heart, The Treatment of Cerebral Abscess, Cancer of the Larynx, and the Treatment of Enlarged Prostate by Electrolsis. The *Annals* continues to maintain its position as a publication of the first scientific rank, one indispensable to every progressive practitioner.

THE *Atlantic* for June contains its usual quantity of valuable matter. We notice particularly "The Highest Structure in the World," by William A. Eddy, meaning, of course, the Eiffel tower, and giving us much carefully prepared and authentic information concerning it. "The German Gymnasium in Its Working Order," by George Moritz Wahl, an ever interesting topic; and "The State, Church, and School," by Horace E. Scudder. "One Thousand and One Nights," by C. H. Toy, a chapter of quaint, oriental research, arrests our attention; and there is a good thing in "Brevet Martyrs," by E. T. Johnson. "A City of Refuge," by William Burnet Wright, commends itself to us. Houghton, Mifflin & Co., Boston.

PUBLISHERS' PAGE.

THE transatlantic article of our Editor-in-Chief in this number, the first in a series of editorials on English customs from a health stand-point, written in his own interesting vein, will be found both entertaining and profitable.

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THE numerous friends and admirers of Dr. Oswald will be glad to find, as they open this number of GOOD HEALTH, another installment of his excellent "International Health Studies," which have already afforded them so much pleasure and profit.

* *
*

WE note, with great satisfaction, the action of the State Board of Health of Michigan, in deciding to look into the sanitary condition of the jails and poor-houses, and also to inspect the condition of all school-buildings throughout the State. We trust the investigation will be prompt, systematic, and thorough.

* *
*

WE would call attention to the story in this number by GOOD HEALTH'S old friend, Fannie Bolton. "Revelation Works Revolution" is well worth the reading, and our patrons, as they welcome the writer back to our columns, will, no doubt, greatly admire the many adroit cuffs which she bestows upon society's ears, in the unfoldings of her story.

* *
*

OLD patrons of the Sanitarium, as well as guests prospective, will do well to bear in mind the reduced rates that go into effect June 1, and which it will be greatly to their advantage to avail themselves of. The rates in question are the all-the-year-round tourist rates, which after that date will hold good from any point of size in the United States, and on any road, to Battle Creek, to accomodate the patrons of the Sanitarium.

* *
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A SERIES of "Mind Cure" lectures, the first of which appears as an editorial in the present number, was delivered, one each week, by the editor of this journal, before the patients of the Sanitarium, in the months of January and February. They were stenographically reported, and published in one of the leading newspapers of the State, and have awakened so much interest that their publication in GOOD HEALTH is called for.

* *
*

REV. MR. GILMAN, of Colorado, gave an entertaining stereopticon "Tour through the Holy Land," Monday evening, May 27, in the Sanitarium gymnasium. The "Tour" included two hundred beautiful views of Palestine, that Mecca of Bible students. The week previous, Mr. Gilman exhibited some charming views of the wonderful scenery of his home State, — views all the more interesting from the fact that they were taken under his personal supervision.

* *
*

THE early closing movement this season promises to be almost universal, hardly a store of any standing in the large cities throughout the country remaining open Saturday afternoons, and the great majority of them closing at 5 o'clock on the other week-days. To aid in furthering this movement, the Pope Mfg. Co., of Boston, has issued a handsome lithographic announcement card, which gives the hours of closing, and is convenient to hang in window or door. These cards are sent free upon application.

* *
*

WEDNESDAY evening, May 9, Rev. A. A. Willits, of Louisville, Ky., made "Sunshine" for the Sanitarium family, by favoring them with his inimitable lecture under that title. Mr. Willits is full of sunshine to the brim, and dispenses it in his own generous way. "A merry heart doeth good like medicine," and judging from the happy faces that thronged round the gymnasium platform to win a hearty hand-clasp from the deservedly popular lecturer, each one was thoroughly content with the portion which had fallen to his share.

* *
*

THE work on the new Sanitarium building, at Goguac Lake, is progressing toward completion. A fine pavilion has been erected, of commodious proportions, of which the roof is now finished, the sides inclosed, and a portion of the floors laid. The Sanitarium family look forward to its occupancy very soon, and confidently expect to take "oceans" of comfort in its shelter, gazing on the lovely scenery which lavish Dame Nature has left "lying about loose" in such profusion, thereabouts, and imbibing unlimited quantities of its health-giving air. The picnicing season comes on apace, and the new building will be in ample time for it, and when the heated term arrives, even GOOD HEALTH, we think, and its "followers," limp and weary, will beg to be transported thither, to luxuriate in the cool breezes which blow through this leafy modern "Vale of Cashmere."

A NEW and revised edition of the popular "Home Hand-Book" is just fresh from the press. All its friends, old and new, will be pleased to learn that it has now reached its twentieth thousand. Agents for this fast-selling work wanted in every section of the United States and Canada. Take notice that this is no experimental canvass for a new or unknown book, but it is simply to sell a work which is in the zenith of its popularity. Now is the golden moment. Send, for agent's outfit, to Good Health Publishing Co.

* *
*

"MAN THE MASTERPIECE," another of Dr. J. H. Kellogg's valuable contributions to society, still retains its popularity. This work panders to no depraved taste, but appealing, instead, directly to the truly refined and educated classes, it cannot fail to inspire all boys and young men with a higher regard for those bodies which the Almighty "created in his own image," and to lead them toward love and respect for purity in thought and act, and thus to aid in the development of a higher and nobler type of manhood. All who love the cause of temperance and social purity will labor for the dissemination of the great truths and pure principles which this work contains, and of which it is the great exponent. We count confidently upon the aid of all such in circulating it.

Being so widely and favorably known, this book sells easily wherever offered. Many thousands of copies have been scattered throughout the country, thus preparing the ground, as it were, for a ripe harvest for agents, to whom we will give excellent terms. We mean business. Apply at once, for circulars and outfit, to Good Health Publishing Co.

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THE "Ladies' Guide" has already passed through several large editions, and has now reached its twenty-fifth thousand. Dr. Kellogg, in preparing the book, was led to do so by the belief that there was real and urgent demand for such a work, and the enthusiastic welcome it has received from all classes, as well as its immense sale, has shown that he was not mistaken. Having for years enjoyed exceptionally good advantages for the study of the class of maladies so fully treated in this work, he has endeavored to select from the great number of remedies and methods in use, those which have proved most successful, and to give his readers the benefit of his experience in a style wholly simple and untechnical, and yet thoroughly practical in character. That, in giving the fruits of his own wide professional research and practice, he has presented to the public matter which is eminently worthy and valuable, and that it has also been given in a clear, direct, forcible style, not to be misunderstood or misinterpreted by any, hundreds of both public and private tributes to its worth fully attest; and that it has found its own place in the estimation of the people, and has proved a blessing to the women of many thousands of families throughout the country, as physician, educator, and friend, — all three in one, — we cannot doubt.

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* *
*

DR. KELLOGG'S SCHOOL CHARTS. — The publishers have in press a new edition of Dr. Kellogg's excellent school charts, which have had a large sale, a large edition having been disposed of, although the charts were but recently published. There is practically nothing in the shape of charts, either for schools or for private or public use, which covers the subjects presented in these. They are a complete pictorial encyclopedia of anatomy, physiology and hygiene. The present edition is in many respects improved, several slight errors having been corrected, and additional colors used in the printing, which will add to the beauty of these unrivalled means of illustrating to the eye the facts of physiology and hygiene. Especial attention is given to the subject of temperance, and they present the most complete pictorial representation of the effects of alcohol upon the human body which has ever been attempted.

The following is a partial list of the subjects illustrated by these charts: —

Chart one. — The Skeleton, — The Muscles, — The Tissues. Chart two. — The Digestive System, — The Circulatory System. Chart three. — The Nervous System, — The Special Senses, — The Respiratory System. Chart four. — Diseased Animal and Vegetable Foods. Chart five. — Air and Water Contamination. Chart six. — Heating and Ventilation. Chart seven. — Effects of Improper Dress and Unhealthful Positions, — Imperfect Physical Development. Chart eight. — Effects of Narcotics and Stimulants. Chart nine. — Effects of Alcohol Upon the Human Stomach, — Temperance Statistics. Chart ten. — Nutritive Value of Foods, — Digestibility of Foods.

The charts will be issued simultaneously in this country and in London.

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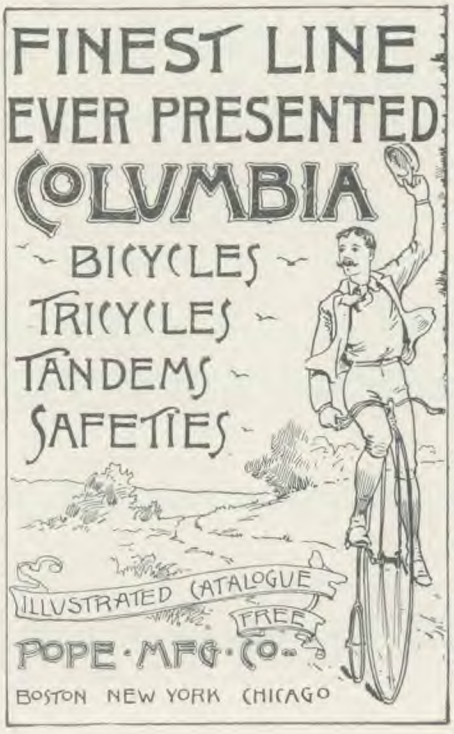

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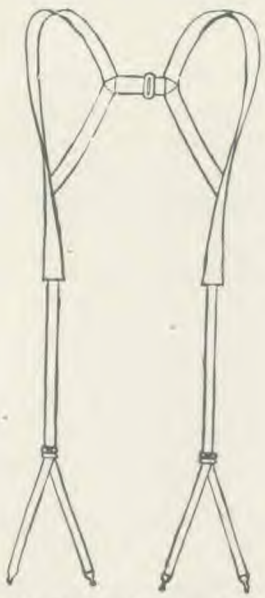

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FIG. 2.

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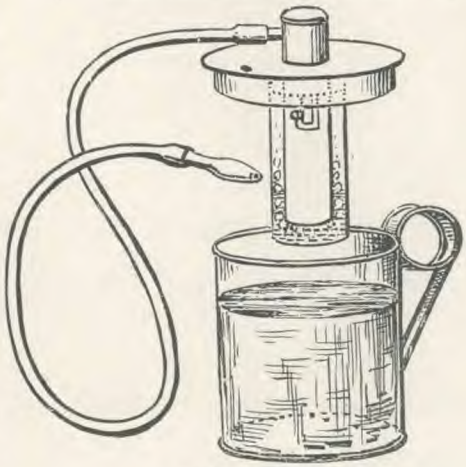
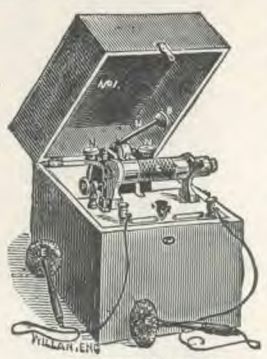


FIG. 1.

The Sanitarium Battery.

THE utility of electricity in the treatment of paralysis, general debility, and a great variety of common chronic ailments has become so well recognized that an electrical battery is considered in many households almost as indispensible as any ordinary article of furniture. One reason for this is probably to be found in the fact that while often effective for great good, the gentle electrical current furnished by an ordinary electrical battery is hardly capable of doing any serious injury.



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The popular faith in electricity as a curative agent is to be seen in the enormous sale of electrical belts, brushes, and so-called magnetic and electrical garments of various descriptions which are being constantly effected through liberal and deceptive newspaper advertising. It is well enough known to scientific physicians that the majority of these appliances supply either no current at all, or a current so feeble as to be absolutely worthless as regards results.

The battery shown in the engraving is manufactured expressly for us, and is one of the most efficient, durable, and easily managed family batteries ever offered for sale. Many hundreds of these batteries have been sold, and the great satisfaction which those who have used them have expressed, warrants the belief that future purchasers will be equally well pleased with this very efficient and convenient electrical apparatus.

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ADVERTISEMENTS.

MICHIGAN CENTRAL

"The Niagara Falls Route."

EAST.	†Mail.	†Day Express.	*N. Y. Express.	*Atl'antic Express.	‡Night Express.	†Kal. Accom'n	†Local Pass'gr.
STATIONS.							
Chicago	am 7.55	am 10.35	pm d3.10	pm d10.10	pm d9.10	pm 4.50	
Michigan City	pm 10.08	12.28	4.54	am 12.23	11.27	6.58	
Niles	11.4	pm 1.30	5.49	1.50	am 12.55	8.17	
Kalamazoo	1.12	2.45	6.58	3.35	2.27	pm 10.00 / am 7.10	pm 5.30
Battle Creek	1.55	3.20	7.33	4.25	3.15	7.55	6.25
Jackson	3.35	4.39	8.49	6.15	4.45	9.35	8.20
Ann Arbor	5.04	5.43	9.41	7.50	6.00	10.43	
Detroit	6.30	6.50	10.45	9.20	7.30	11.50	
Buffalo	3.3	am 4.25	am 7.15	pm 5.55	9.05	pm 8.05	
Rochester		6.50	9.15	8.00		11.45	
Syracuse		9.30	11.35	10.15		am 2.15	
New York		pm 7.00	pm 8.50	am 7.20		11.15	
Boston		10.00	10.50	9.35		pm 2.50	

WEST.	†Mail.	†Day Express.	*Chicago Express	*Pacific Express.	‡Evening Express.	†Kal. Accom'n	†Local Pass'gr.
STATIONS.							
Boston		am 8.30	pm 3 00	pm 9.15			
New York		10.03	6.00	11.30			
Syracuse		pm 7.40	am 2.10	am 9.05			
Rochester		9.55	4.20	11.30			
Buffalo	3.30	am 12.15	6.15	pm 1.30			
Detroit	am 9.00	8.00	pm d1.20	d 10.15	pm d8.00	pm 4.00	
Ann Arbor	10.27	9 02	2.24	11.35	9.15	5.22	
Jackson	pm 12.05	10.03	3.27	am 12.54	10.55	7.10	am 6.25
Battle Creek	1.55	11.36	4.38	2.15	am 12.27	8.52	7.55
Kalamazoo	2.45	pm 12.13	5.15	3.07	1.20	pm 9.45 / am 6.00	8.40
Niles	4.20	1.30	6.27	4.32	3.06	7.37	
Michigan City	5.42	2.35	7.32	5.43	4.32	9.00	
Chicago	7.55	4.35	9.30	7.45	7.00	11.20	

*Daily. †Daily except Sunday. ‡Daily except Saturday.

O. W. RUGGLES, General Pass. & Ticket Agent, Chicago.

O. E. JONES, Ticket Agent, Battle Creek.

CHICAGO & GRAND TRUNK R. R.

Time Table in effect February 17, 1889.

GOING WEST. Mixed Train.	Mail.	Day Exp.	Pacific Exp.	B. Crk Pass.	STATIONS.	GOING EAST. Mail.	Lmtd Exp.	Atlte Exp.	Sun. Pass.	Pitt'n Pass.
.....	am	am	pm	pm	Dep. Arr.	pm	am	am		am
.....	5.55	7.15	8.00	4.10	.....Port Huron.....	10.20	1.15	7.35	.....	10.50
.....	7.28	8.31	9.31	5.40	.....Lapeer.....	8.40	11.58	6.17	.....	9.17
.....	8.03	9.10	10.10	6.20	.....Flint.....	7.55	11.27	5.40	.....	8.38
.....	8.48	9.35	10.58	7.15	..... Durand.....	7.15	10.58	5.03	.....	8.00
.....	10.03	10.30	12.00	8.36	.....Lansing.....	5.20	10.07	4.00	.....	6.35
.....	10.37	11.00	12.30	9.03	..... Charlotte.....	4.42	9.37	3.25	.....	6.02
a m	11.30	11.45	1.15	10.05	A { BATTLE CREEK } D	3.45	8.55	2.35	.....	5.15
6.40	am	12.05	1.20	pm	D { } A	3.40	8.50	2.30	.....	am
7.55	.....	12.50	2.21		.....Vicksburg	2.52	8.11	1.44	.....	
8.12		1.00	†2.32	VAL.	.....Schoolcraft.....	2.40	.....	1.33	.....	VAL.
9.31	SUN.	1.50	3.19	ACC.	.....Cassopolis.....	1.50	7.25	12.45	.....	ACC.
10.50	Pass.	2.30	4.07		..... South Bend.....	1.05	6.50	12.00	.....	
.....	am	3.41	†5.30	am	.... Haskell's.....	11.54	.....	.....	pm	pm
.....	7.20	4.00	5.50	6.55	.... Valparaiso.....	11.40	5.30	10.30	3.40	7.00
.....	10.00	6.25	8.10	9.45	.... .Chicago.....	9.05	3.25	8.15	1.15	4.25
am	am	pm	am	am	Arr Dep.	am	pm	pm	pm	pm

†Stops only on signal. Where no time is given, train does not stop. Trains run by Central Standard Time.
Valparaiso Accommodation, Battle Creek Passenger, Mixed Train, Pt. Huron Passenger, and Mail trains, daily except Sunday.
Pacific, Limited, Day, and Atlantic Expresses, daily.
Sunday Passenger, Sunday only.

GEO. B. REEVE, *Traffic Manager.*

W. J. SPICER, *General Manager.*

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NEW YORK.

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☞ Fine China and Gray Stoneware jars to hold the water.

☞ A NATURAL STONE for a Filtering Medium.

☞ Fitted with separate Patent Ice Chambers, to cool the water.

☞ As easily cleaned as a Water Pitcher.

☞ No objectionable material used in the construction of this Filter.

All water is filled with impurities during the rainy season.

☞ This Filter will ABSOLUTELY CLEANSE IT.

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" " " Abridged	60 — 1 70
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BY J. H. KELLOGG, M. D.,

AFTER a careful study for several years of the Physical Effects of Alcohol and Tobacco upon the human body, with unusually favorable opportunities for observation through post-mortem examinations, chemical analyses, and microscopical investigations, the author has prepared, by the aid of the best artists to be secured, a series of **TEN COLORED PLATES,** which depict in the most graphic manner possible, the ravages of alcohol among the delicate structures of the human body. The following is a list of what is exhibited by the several charts:—

PLATE 1. The Alcohol Family.
PLATE 2. A Healthy Stomach.
PLATE 3. Stomach of a Moderate Drinker.
PLATE 4. Stomach of a Hard Drinker.
PLATE 5. Stomach in Delirium Tremens.
PLATE 6. Cancer of the Stomach.
PLATE 7. *A.*—Healthy Nerve Cells. *B.*—Fatty Degeneration of Nerve Cells. *C.*—Healthy Blood. *D.*—Blood of an Habitual Smoker. *E.*—Blood of a Drunkard. *F.*—Blood Destroyed by Alcohol. *G.*—The Drunkard's Ring. *H.*—Healthy Nerve Fibres. *I.*—Fatty Degeneration of Nerve Fibres. *J.*—Healthy Muscle Fibres. *K.*—Fatty Degeneration of Muscle Fibres
PLATE 8. Smoker's Cancer. A Rum Blossom. A Healthy Brain A Drunkard's Brain. A Healthy Heart. A Drunkard's Heart.
PLATE 9 *A.* A Healthy Lung. *B.*—Drunkard's Consumption *D.*—A Healthy Kidney. *E.*—Enlarged Fatty Kidney of Beer-Drinker. *F.*—Atrophied Kidney of Gin-Drinker. *G.*—Healthy Liver.

H.—Liver of Drunkard, Showing Nutmeg Degeneration. *I.*—Magnified Section of Fatty Liver of Drunkard. *J.*—View of an Eye Diseased from the Use of Tobacco and Whisky. *K.*—View of the Interior of a Healthy Eye.

PLATE 10. Alcoholic Drinks, showing the percentage of Alcohol contained in the common Alcoholic Beverages. Adulterants of Alcoholic Drinks, showing a list of poisons used in adulterating the various liquors. Sphygmographic Tracings of the Pulse, showing the effects of Alcohol and Tobacco upon the pulse. *A.*—Pulse of a Healthy Person. *B.*—Pulse of a Moderate Drinker. *C.*—Pulse of a Drunkard. *D.*—Pulse of an Old Tobacco-User. *E.* Pulse of a Young Smoker.

Statistics of Stimulants and Narcotics. A diagram exhibiting in a graphic way the fact that the annual cost of Alcoholic Drinks, Tobacco, Rum, Tea and Coffee, exceeds the cost of Bread, Meat, Clothing, Education and Missions.

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