

JANUARY 1889

24
GOOD



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FAITH

CONDUCTED
BY

J. H. KELLOGG M.D.

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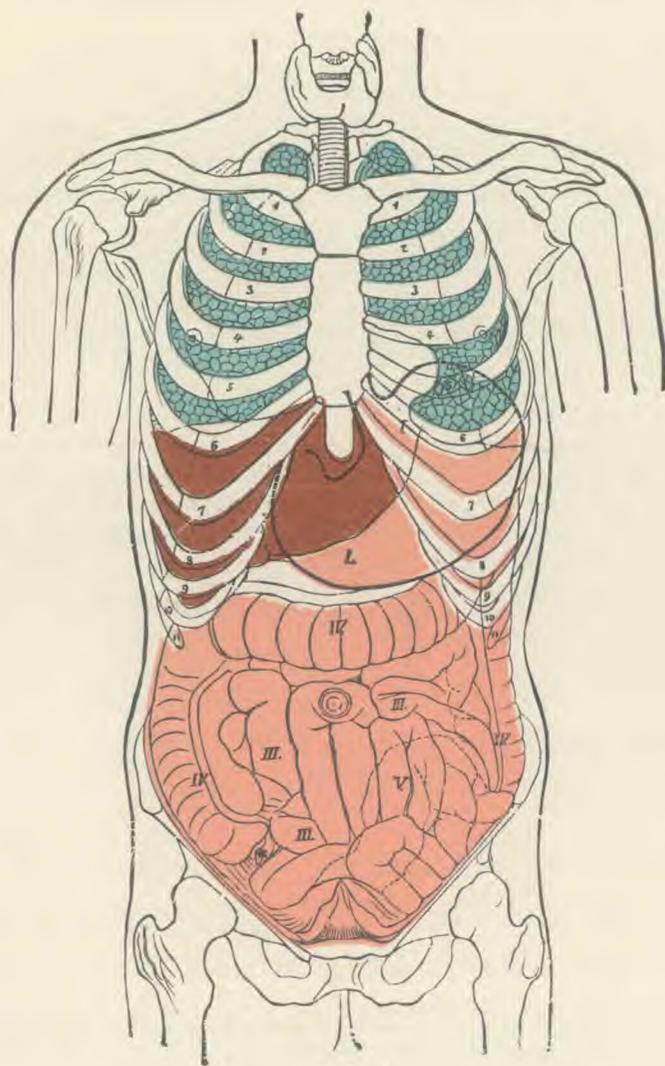


FIG. I.

I. Stomach, partially covered by the liver and lungs; III. Small intestines; IV. Colon; V. Lower or Sigmoid portion of the colon.

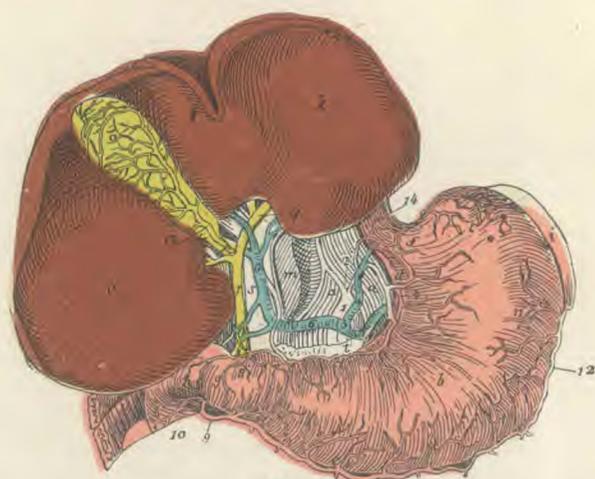


FIG. III.

Shows the Liver, lifted up so as to expose the Stomach. 13, Gall Bladder

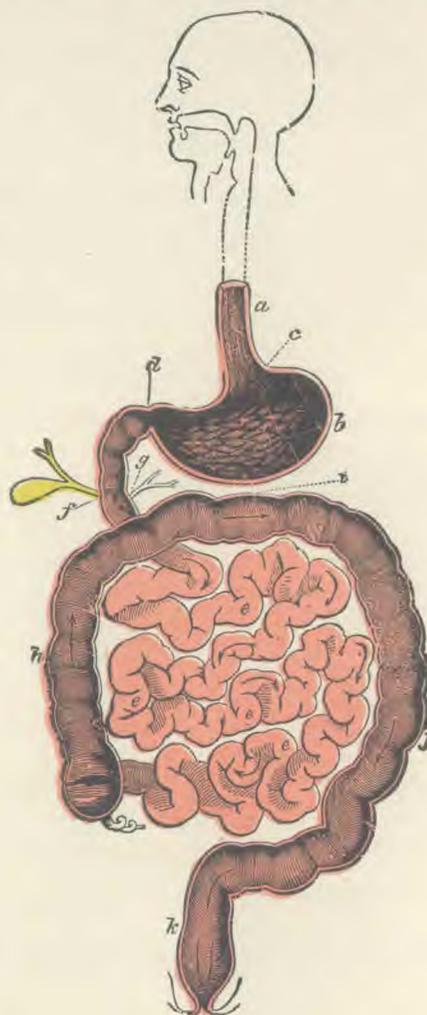


FIG. II.

The Digestive Organ.

a. Esophagus; b. Stomach; c. Cardiac Orifice; d. Pylorus; e. Small Intestine; f. Bile Duct; g. Pancreatic Duct; h. Ascending Colon; i. Transverse Colon; j. Descending Colon; k. Rectum.

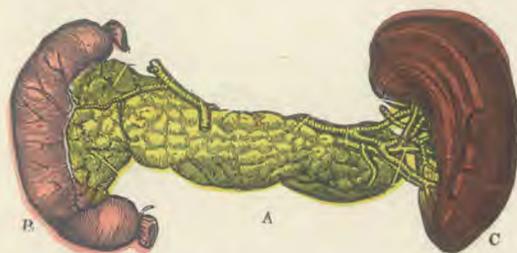


FIG. IV.

A. Pancreas; B. Duodenum; C. Spleen.

ILLUSTRATING "SHORT TALKS ABOUT THE BODY, AND HOW TO USE IT."

PLATE I.



BATTLE CREEK·MICHIGAN· JANUARY, 1889.

THE STIMULANT DELUSION.—FOURTH PAPER.

BY FELIX L. OSWALD, M. D.,
Author of "Physical Education," "Household Remedies," Etc.

The Alcohol Habit.

THE friends and adversaries of Christianity must agree that the mission of Christ and the moral metamorphosis which, for better or worse, culminated in the conversion of the Roman Empire, were the most important events in the history of the human race. Yet no fact in history is more clearly established than the truth of the late Dean Milman's remark, that, without a single exception, the great philosophers and historians of paganism were completely unconscious of the importance of the doctrine destined to transform the destiny of the moral universe for a long series of centuries. Seneca and Apollonius never even mention the name of the great Hebrew reformer. Tacitus, in a single passage, alludes to his dogmas with a contemptuous sneer. For more than two hundred years the followers of the new religion were regarded as a mere sect of the despised Jews. The possibility of their ultimate triumph seems never to have entered the mind of a pagan moralist, even when the energy of their missionaries began to attract the attention of the civil magistrates.

A strangely similar infatuation seems to blind the social philosophers of the present age to the destiny of the temperance movement. The time is past when the appeals of its apostles could be entirely ignored, and statistical records condescend to notice the progress of its propaganda, but the significance of that progress seems to escape the attention even of shrewd observers. Thousands of its active adversaries treat it as a pernicious delusion. A perhaps still larger number of neutral contemporaries consider its

doctrine an amiable but hopeless chimera. They admit the power of moral enthusiasm, but point to the entrenched stronghold of our adversaries: To the unity and thorough organization of the licensed poison-mongers, to their vast material resources, to their unscrupulous use of that advantage, to the fatal strength of the fetters that chain the poison-slave to his deep-rooted habit. They also point to the legal and social persistence of established customs. "Reform," says an able political writer, "is ever unpopular. All wrongs lie in the consent of the wronged, and what with the fierce support of those who thrive on the abuse, and the dull, heavy, ignorant conservatism of the masses, . . . it is a sad delusion to suppose that the cause is won when the argument is made."

An unquestionable preponderance of power, they argue, favors the side of the liquor-venders, and in this world, at least, might always finds a way to assert itself as right.

The last link of that syllogism, however, is a rule with occasional exceptions. No *unqualified* evil has ever succeeded in maintaining its supremacy, and the evils of the alcohol-vice are offset by no benefits. Alcohol has been called a "negative food," because its physiological influence torpifies the functional energy of the digestive organs, and thus, for a time, renders the toper insensible to the cravings of hunger. The same effect, however, can be produced by a stunning blow, and we might as well claim that the interests of political economy could be promoted by a fierce war, because a knock-down stroke with the butt-

end of a musket is apt to lessen the appetite of the afflicted soldier. No real benefit can result from the lethargizing effect of a poison-dose, the retardation of the digestive functions being in every case a morbid and abnormal process, avenging its repetition by the fatty degeneration of the tissues and the impoverished condition of the blood.

The chemist Liebig was misled into the still greater error of claiming for alcohol the essential value of a positive food, because it is derived (by a process of decomposition) from such nutritive substances as grain, sugar, and fruits. So is mildew. Would that circumstance warrant the inference that the fungi derived from the putrid residuum of an apple pie, should be valued as an article of "concentrated nutritiveness"? Besides, alcohol can be derived from a variety of in-nutritive and even noxious substances, and before even ripe wheat or the best grapes can be turned into alcohol, their alimentary value is wholly neutralized by a process of fermentation. "There is no more evidence," says Dr. Parker, "of alcohol being in any way utilized in the body than there is in regard to ether and chloroform. If alcohol is to be still designated as a *food*, we must extend the meaning of that term so as to make it comprehend not only chloroform, but all medicines and poisons,—in fact everything that can be swallowed and absorbed, however foreign it may be to the normal condition of the body, and however injurious to its functions. On the other hand, from no definition of a *poison*,—which should include these more powerful anæsthetic agents whose poisonous character has been, unfortunately, too clearly established in a great number of instances—can alcohol be fairly shut out."

In a former chapter we have explained the physiological cause of the stimulant delusion—the self-deception that mistakes a process of feverish irritation for a process of invigoration. We have also recognized the fallacy of the poison-drug argument, which derives its momentary plausibility from the circumstance that the organism of the human body cannot support two serious simultaneous diseases, and that maladies during the paroxysm of their crises, mutually exclude one another. In yellow-fever seasons, the citizens of a malaria-stricken seaport town might escape the contagion of the epidemic, by inoculating themselves with hydrophobia virus; but with the recovery from the effects of that virus, the risk of the fever infection would be re-established. By keeping a patient under the constant influence of a violent *alcohol fever*, other fevers might be barred out; but the paroxysm of alcoholic stimulation is soon followed by a depressing reaction, and the beginning of that reaction marks

the end of the protective influence of the treacherous drug. International statistics have established the suggestive fact that dram-drinkers are from ten to twelve times *more* liable to the contagion of climatic epidemics than total abstainers, and the belief in the "prophylactic" value of alcohol is therefore an absolute and ruinous delusion.

Equally delusive is the idea that such poisons as alcohol and opium could be utilized as mental stimulants. "Brain workers," says Dr. Bouchardat, "should confine themselves to *metaphysical tonics*. Alcoholic drugs, at any rate, are unavailable for that purpose. Even after a single glass of champagne I have found that the slight mental exaltation is accompanied by a slight obfuscation." The poison-torpor of inveterate toppers extends to the functional activity of the brain, and to the victims of alcoholism the preliminary of a stimulating dram becomes as necessary a condition of mental as of physical exertions; but in the course of time the constant application of that stimulus can excite little more than a feeble flickering of the vital flame, which from an altar fire of nature's highest inspirations has been turned into an organic alcohol lamp. "Wine stirs the brain," says the poet Chamisso, "but not its higher faculties as much as the sediments that muddle it." And in no other respect are the sins of fathers more unmistakably visited upon successive generations of children. "The children of parents whose systems were tainted by alcohol," says Dr. Nathan Allen, "have to start in life under great disadvantages. While they inherit strong animal propensities and morbid appetites, constantly craving for indulgence, they have weak restraining faculties. Their temptations are greater, their power of resistance is less, than those of children of purer stock. They are therefore more liable to fall into the pauper or the criminal class." "We have a far larger experience of the results of habitual alcoholic excesses," says Dr. Carpenter in a contribution to the *Contemporary Review* (January, 1873), "than we have in regard to any other stimulant, and all such experience points decidedly to hereditary transmission of the organic perversion which it has induced. But that this manifests itself sometimes in congenital idiocy, sometimes in a predisposition to insanity which requires but a very slight exciting cause to develop,—is the concurrent testimony of all who have directed their attention to the inquiry."

During the horrible flood which a few months ago devastated the two richest provinces of the Chinese empire, a number of vile marauders eked out an existence by fishing out wreckage and plundering floating corpses. The idea of mentioning the profits of

these wretches as a compensating offset to the horrors of a public calamity, would justly consign its propounder to the custody of a lunatic commission. Yet by an exactly analogous line of argument, many of our political economists continue to defend the legal sanction of the liquor traffic. Nay, it might be seriously questioned if the total loss (by fire or water) of a billion bushels of grain, would not be financially and morally preferable to their conversion into a life-blighting poison. According to the statistics of the Treasury Department, the alcohol-drinkers of the United States (representing hardly one fifth of the alcoholized nations of Christendom) spent during the last ten years a yearly average of \$370,000,000 for whisky, \$58,000,000 for other distilled liquors, \$56,000,000 for wine, and \$140,000,000 for ale and beer; together, \$624,000,000 a year. That enormous sum has been far worse than wasted. It has been invested in the purchase of disease. It has been devoted to the development of idiocy, crime, and pauperism. It has turned blessings into a concentration of curses.

(To be continued.)

The general recognition of these facts will seal the doom of the liquor traffic. It would be blasphemy against the Ruler of the moral universe, to doubt the hopelessness of a struggle against the powers of public opinion aroused to the significance of an enormous and unqualified evil. "The enthusiastic energy," says Goldwin Smith, "which a great moral cause imparts to its defenders, always has prevailed, and always will prevail, over any amount of self-interest or material power arrayed on the other side."

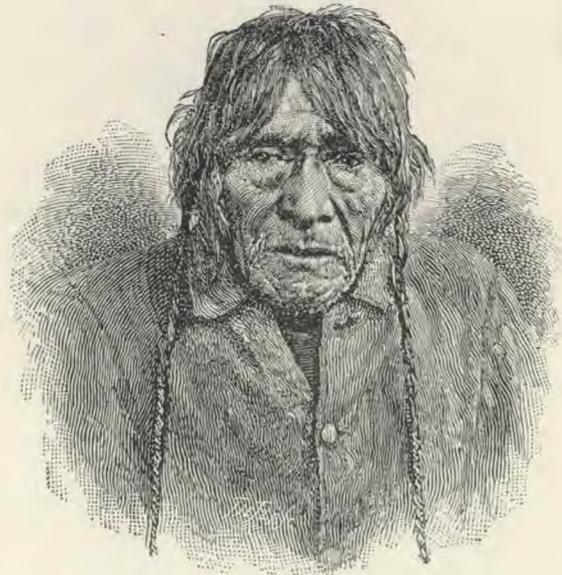
Truth pleads her own cause. But the doctrine of temperance will have the additional advantage of able exponents. In all ages the cause of highest interest to the welfare of mankind has engaged the aid of the ablest champions. In classic antiquity we find the problem of supreme importance was, Security from the inroads of barbarism; in the midnight of the Middle Ages, Salvation from the phantoms of superstition; in the present age of international civilization; Deliverance from the curse of the poison-vice.

HEALTH OBSERVATIONS AMONG AMERICAN ABORIGINES.

BY THE EDITOR.

Yielding to the encroachments of civilization, the primitive North American has gradually retreated from both the East and the West to the seclusion of the Rocky Mountain region, and has acquired sufficient of the manners and the vices of civilization to render him no longer the simple child of nature, but a sort of sophisticated barbarian, to some degree tamed of his savagery, but at the same time despoiled of his primitive simplicity and natural instincts. The last genuine specimen of the primitive aboriginal left in North America, is the Yuma Indian, whose tribe is scattered over a comparatively small portion of the Territories of New Mexico and Arizona. Approaching this region from the west, one traverses for a hundred and fifty miles, or more, the Colorado Desert. One hundred miles of the course lies along the bottom of a remarkable basin, the lowest point of which is three hundred feet below the level of the sea. Great deposits of salt, salt marshes, and marine fossils indicate unmistakably that here was once a great lake connected with the ocean, by some terrestrial upheaval shut in by land, and gradually dried by the winds which blow in this region during a greater portion of the year. Miles of travel through a wilderness of Spanish bayonets and stunted shrubs, brings one at last to the gateway of Arizona, the old Mexican town of Yuma, known in old Mexican days

as Colorado City, from the fact that it is located upon the bank of the Colorado River, which here runs at a level of 3,000 feet above the sea.



CHIEF PASQUAL, OF THE YUMA TRIBE.

Yuma is a town of about 2,000 inhabitants, made up of Americans, Mexicans, Jews, Chinese, and finally to the extent of about one half of its population, dur-

ing the daytime at least, of Yuma Indians. The town is chiefly composed of one-story adobe houses with wide verandas for protection from the light and heat of the summer sun, which frequently drives the thermometer up to 127° in the shade, and 160° in the sun. A feature in connection with these peculiar dwellings which attracts attention, is a sort of wall made of tall poles of unequal length, covered with skins, blankets, and miscellaneous articles, with which the houses are surrounded. This peculiarity is explained when one learns that the inhabitants of this country have a fashion of sleeping upon the roof, the climate allowing them to occupy this well-ventilated



A YUMA BELLE.

portion of the dwelling during at least eight months of the year.

But we cannot spend more time looking about the old town of Yuma. We made the long journey to this quaint old town not for the purpose of studying Mexican mud-houses and manners, but to study the habits and customs of the Yumas with special reference to health. The chief Yuma encampment, or reservation, is just across the river from the town of Yuma. The Indians are all required to be at the reservation by sundown, and are not allowed to leave before sunrise the next morning. Looking out of our window at the Railroad Hotel, while preparing for breakfast, we had our first view of a Yuma Indian. Away down at the far end of the long railroad bridge which spans the Colorado River at this point, were a

couple of huge bundles which had nothing human in their appearance, but looked like a couple of irregular heaps of brown prairie grass, which somehow had acquired the faculty of locomotion. As the objects drew nearer, we discovered that underneath a huge mass of hay, dried brush, and miscellaneous articles, was an Indian woman, bent over and almost covered up by the enormous load she was carrying. Clad only in a short skirt, and a bit of cloth thrown about her shoulders, with long disheveled hair hanging about her face and neck, she was the rudest and most picturesque specimen of human kind we had ever set eyes upon. Half an hour later, when we strolled out upon the street, we saw numerous specimens of the same sort, including a trio of dusky Yuma belles swinging upon a hitching rail, and evidently trying to get up a flirtation with some of the numerous loafers lounging about the street corners. An hour or two later, accompanied by Dr. Cotter, the post physician, we crossed the bridge to old Fort Yuma.

The fort consists of a large square surrounded by one-story adobe buildings. The fort was abandoned by the Government, as a garrison, many years ago, and the buildings are now occupied for the purposes of a school for the Yuma Indians, in charge of Catholic Sisters. The Doctor kindly introduced us to the Mother Superior, to whom I explained the object of my visit. A very intelligent lady, Sister Alphonse, was detailed to explain to us the workings of the school, and to facilitate, as far as possible, our efforts to obtain information concerning the health habits of this peculiar people. Visiting the school-room, we found in one room thirty or forty Yuma boys, ranging in age from seven to sixteen years. The school had been organized only a few months, but a good degree of order prevailed, and the students had made considerable progress in learning to read, count, and add. We were informed, however, by the Sister in charge, that it seemed impossible to convey to them the idea of subtraction. Their memory is truly remarkable, and their musical talents seem to be fully equal to those of the Southern negro. They sang with very melodious voices, keeping good time, and with but very few discordant notes, such songs as "Sweet Bye and Bye," "Shall we Gather at the River?" etc.

There are many things of interest in connection with the school, which we have not the space to mention. One circumstance in particular interested us. About ten o'clock in the forenoon, we observed a large number of Indians collecting in the square inclosure, and on inquiry learned that the purpose of the gathering was to hold a "School Meeting," the

first meeting of the sort ever held by the Yuma Indians. Here were painted savages, some of whom wore no other clothing than a strip of cloth about the loins, who had traveled on foot distances ranging from twenty to seventy miles, for the purpose of attending this meeting in the interests of education, to hear set forth by the Mother Superior, through an interpreter, the advantages of the school, and to discuss the propriety of encouraging their children to attend. It should, perhaps, be stated that the Yuma Indians are wholly independent of the Government. Their lands they have owned and occupied for generations. They are self-sustaining, and live as they have done for ages. They receive no rations, or other means of support, from the Government, as do many other Indian tribes, and hence are wholly independent. The effort these poor savages had made to attend this meeting certainly speaks well for their interest in the school, and their appreciation of the advantages of civilization, of which they, as yet, really know almost nothing.

After a half hour spent in looking about, we fitted up our pneumograph, an instrument for the study of the movements of the chest in respiration, in the Doctor's office, while the good-natured Sister brought in a number of women who were employed about the place, and who were induced to submit to an examination with the instrument. We were fortunate in finding in Sister Alphonse a ready helper in this somewhat delicate work, as the Indian is exceedingly wily and very suspicious of any new or strange-looking instrument. The pneumograph they evidently regarded as some sort of an infernal machine which might go off at any minute. But the following conversation with the good Sister thoroughly enlisted her interest and contributed greatly to our success.

Said Sister Alphonse, "I believe Dr. Cotter introduced you as Dr. Kellogg?"

I replied, "That is my name."

"Possibly you may know," remarked the Sister, "Dr. Kellogg who has written a large book called 'Domestic Hygiene and Rational Medicine'?"

"Oh, yes," said I, "I am well acquainted with him."

"Indeed," said she, "I am delighted to know it, for the book has been of great service to us."

"Then you have a copy of the work?" I asked.

"Oh, yes," said she, "I obtained a copy when on a visit to St. Louis a couple of years ago, and have used it, and loaned it to my friends for their use, until it is nearly worn out."

She was gone instantly, and returned in a moment, bringing the volume with which many of our readers

are acquainted, entitled, "The Home Hand-Book of Domestic Hygiene and Rational Medicine." Opening the volume at the frontispiece, her eye fell upon the picture, and instantly she recognized me, although ten years have passed since the picture from which the engraving is made, was taken.

This unexpected discovery was a genuine surprise to both of us, and Sister Alphonse at once entered heartily into my undertaking, and rendered most invaluable assistance.

One circumstance which she related, I ought, perhaps, to mention. "We had great difficulty," said she, "in getting a foot-hold among this poor people. They regarded us with doubt and suspicion. They thought we were spies sent by the Government to deprive them of their land, or something of that sort. They would not send their children to be taught. By and by an epidemic of black measles broke out in the camp. The disease was very fatal. It prevailed chiefly among the children, and very few recovered under the treatment to which they were subjected by the native 'medicine men.' By and by, in sheer despair, the chief and a number of others, accepted our invitation to bring their sick children to us, and we soon had our houses full of the sick ones. The disease was really terribly severe, but we gave the patients good nursing, and followed the treatment suggested in your book, and as the result, all who were brought to us, with the exception of one child that was just at the point of death when it was brought, made excellent recoveries.

"This circumstance won the hearts of the old chief and large numbers of the people, and since that time we have experienced much less difficulty in securing their confidence, and inducing them to send their children to the school. So, you see, we have reason for being grateful to you for the valuable services we were able to render the Indians through the information obtained from your book. It was really the thing which laid the foundation for the success of our work. I assure you, we have great confidence in the principles you teach, and it is our chief reliance in the management of most of the cases which we have among us."

Of course I was very grateful to learn that a single volume of the "Hand-Book," which had found its way into the most savage corner of aboriginal barbarism in North America, had been the means of accomplishing so much good; and I was doubly rewarded, not only in the satisfaction of the good that had been done, but in the fact that it had secured me a friend ready to assist me in every way possible in my investigations.

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

BY A DOCTOR.

No. 1.—Stomachs.

[The subjects treated in this series of articles will be illustrated by cuts appearing in connection with the text, or by colored frontispieces.]

AN eminent writer of zoology defines an animal as a "stomach, with other organs attached." A human animal certainly ought to be something more than this. Nevertheless, the truth of the old German proverb, "As a man eateth, so is he," is so evident that it is worth while for us to consider carefully the work and the needs of that important portion of the body which is engaged in the business of making human beings—veins, bones, muscles, and nerves, with all their marvelous capabilities and activities, perhaps including even that most wonderful of all human phenomenon, brain activity, or thought—out of the simple, inert material of common food-stuffs.

Nature presents a curious variety in stomachs. A plant performs both the function of digesting and that of breathing with its leaves. Some plants, like the Venus Fly-trap of the Carolinas, makes a veritable stomach out of its leaves—catches flies and other insects, and then digests them. In some lower orders of the animal kingdom, found in Southern seas, one organ performs the duty of stomach, lungs, and heart. Some still more lowly creatures possess no organs which may be called a stomach, and yet are capable of producing a stomach upon the spot, whenever one is needed. Perhaps, instead of saying that this singular creature, the *amœba*, is furnished with no stomach, we should give it credit for being all stomach. Certainly, to eat, digest, and exist, seems to be its sole purpose in life.

The human digestive apparatus, like that of other vertebrate animals, consists of a digestive tube more or less tortuous, and varying in size and form in various parts, called the *alimentary canal*, together with a number of other organs arranged along this canal and connecting with it.

For convenience, the human digestive machine may be divided into five parts, which we will name in the order in which they come into use in the process of digestion, as follows: The *mouth*, the *stomach*, the *liver*, the *pancreas*, and the *intestines*. Let us consider more explicitly these five parts and their functions.

The *mouth* contains the tongue and the teeth. The tongue moves the food about, and, with the aid of the cheeks, keeps it between the teeth, which serve as a mill in grinding it into fine particles. At the sides

of the mouth, and communicating with it by small tubes called *ducts*, are three pairs of salivary glands, which together form saliva. Recent investigators also tell us that the tonsils,—those mysterious organs which are often the cause of so much distress and annoyance to their possessors, and afford so much business for the doctors,—are, after all, really useful, and also help to form the saliva, the first digestive fluid with which the food comes in contact.

From the mouth, the *œsophagus*, or gullet, a narrowed portion of the alimentary canal, leads to the *stomach*, the second division of the digestive apparatus. This is a pear-shaped pouch formed by a dilatation of the alimentary canal. It lies in the body with its longest diameter across the trunk, its center falling just behind the lower end of the breast-bone. In the walls of the stomach are found numerous little microscopic pouches, each somewhat resembling the finger of a glove, running down into the mucous membrane, and gathered in groups, which are thickly scattered over the whole of the inner surface of the stomach. By these little glands, is formed one of the most important digestive fluids, the *gastric juice*.

If one should suppose himself to be upon an exploring tour through the interior of the body, after completing his inspection of the chamber of the stomach, he would squeeze himself through a narrow passage compared with which the "fat man's misery of the Mammoth Cave" is a spacious avenue. This narrow portion of the alimentary canal is called the *pylorus*, the lower orifice of the stomach, located well up under the lower border of the ribs on the right side.

A few inches below the stomach, in the wall of the small intestine, is found a small opening which marks the termination in the alimentary canal, of a duct leading from the *liver*, the largest gland in the body. This organ lies upon the right side, entirely above the lower border of the ribs. Its longest diameter is crosswise of the body. It extends two or three inches to the left of the sternum, and partly overlaps the stomach. The liver forms the *bile*, a fluid generally supposed to be an excrementitious product obnoxious to the interests of the body, and chiefly useful in conveying away waste matters, but which is really a very important digestive fluid, as we shall see later on.

Lying behind the stomach, and running crosswise, is a curious organ shaped somewhat like a clumsily formed hammer, called the *pancreas*, and sometimes called by butchers the "abdominal sweet-bread." By this organ is formed one of the most abundant and useful of all the digestive fluids, the *pancreatic juice*, which is poured into the alimentary canal through a small duct which joins the bile duct just at its point of entrance into the intestine.

Below the stomach the alimentary canal narrows into a small tube which extends, in innumerable loopings and foldings, somewhere about twenty-five feet, finally joining itself at the lower and right side of the abdominal cavity to an expanded portion of the alimentary canal, the *colon* or *large intestine*. The last named portion of the digestive tube extends first upward upon the right side, then across the body at a point on a level with the lower border of the ribs, then downward on the left side, finally terminating

just below the lower end of the spine, extending in all a distance of about five feet. All along the small intestines are found, imbedded in the mucous membrane, numerous glands, some gathered in groups, and some solitary, by means of which are formed a peculiar and very wonderful digestive fluid called the *intestinal juice*, which, we shall at another time discover, possesses properties differing from those of any other fluid in the body.

Recalling the fact that the human digestive apparatus is divided into five parts, the mouth, the stomach, the liver, the pancreas and the intestines, let us also note that there are a corresponding number of digestive fluids, the saliva, the gastric juice, the bile, the pancreatic juice and the intestinal juice; five digestive organs and five digestive fluids.

The matter which now concerns us is the consideration of the uses of these several digestive fluids in the process of converting food into blood.

BAD DIET, NOT OVERWORK.

MRS. MARY BLAKE, in *The Golden Rule*, writes the following sensible words respecting the diet of school-children:—

"It is a very common and mischievous notion that unless an article of food doubles up a child with colic, or throws him into a fever, within twenty-four hours, it does him no harm. We often see whole families of children who are thin, sallow, and nervous. They lose many days of school because they cannot 'keep up,' and the parents complain bitterly of 'our high-pressure system.' They are bilious, or have headache, or 'summer complaint,' or they cannot sleep, or they have no appetite. In short, they are sick half the time, or half sick all the time.

"But suggest to the mother of this family that perhaps their food is not suitable, and she will indignantly answer, 'Oh, no! they never eat anything that hurts them.' The blame is laid on malaria,—that modern scape-goat who bears our sins of eating and drinking,—or on overstudy, or nervousness, or delicate constitution, or anything but the real reason. The trouble actually is that the stomach is doing its hard work on *brain*.

"Brain and body call for strong, rich blood to build up their rapidly growing tissues, and to replace what exercise and study burn up. But what does the stom-

ach get to make it of?—Greasy meats, with all the life-giving qualities cooked out of them; hot bread, and compounds like it; all kinds of fried abominations, whose original excellence is destroyed by being steeped in boiling lard; rich cake and pies, sweets and candy. All these tax digestion to its utmost, and give little nutriment in return.

"Poor Jennie starts off to school after a restless night in a room with every window closed for fear of 'the night air,' with nothing for breakfast but a cup of strong coffee 'to keep up her strength,' and a hot roll. 'She never has any appetite mornings.' She comes home to dinner faint and hungry, to find roast pork and mince-pie, or fried ham and heavy apple-dumplings, which her poor, eager stomach takes and tumbles over and over all the afternoon, while her brain labors heavily with the afternoon lessons. A supper of something which tempts, but does not nourish, the tired stomach, finishes the day. Her lessons are not learned. How could they be, when her brain has had to work against odds all day? So she works drearily and clumsily all the evening, then goes late to bed in her close room, with lessons, lessons in her head all night. No wonder that she cannot eat any breakfast the next morning."

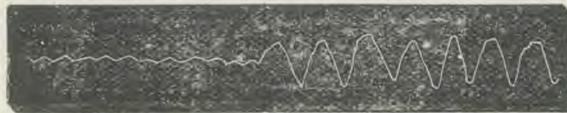
DRESS

DRESS—A LECTURE,

Delivered by Dr. J. H. KELLOGG,

Monday evening, Oct. 13, 1888, in the Gymnasium of the Sanitarium,
Battle Creek, Mich.

It seems eminently absurd that there should be two different types of breathing, one for the male and one for the female. It has been argued in justification of this theory, that a woman should breathe differently from a man because under some circumstances the lower portion of the trunk may be distended and the breathing restricted. We had a man here some months ago, suffering from an enormously large spleen; it would certainly weigh from twenty-



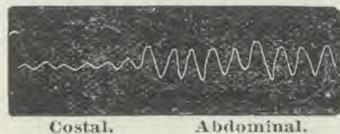
Costal. Abdominal.

Fig. 10.—Man with Enlarged Spleen.

five to thirty pounds. The abdomen was very tense. Under such circumstances it would seem that he should have the female type of breathing; but instead, he was found to breathe just as any other man did (Fig. 10).

Here is the tracing of the breathing of a woman just one week before confinement (Fig. 11). She had thrown away her corset several months before, worn a perfectly hygienic dress, and, as you see, had acquired the natural mode of breathing.

Dr. Hammond comes to the rescue of fashion, and



Costal. Abdominal.

Fig. 11.—Woman, a Week before Confinement.

asserts that it is natural for women to wear corsets, and to breathe with the upper portion of their lungs. By that means, the lungs are protected from consumption and other diseases. He also says a woman

is made with large hips for the purpose of carrying large loads of clothing. When I was traveling in Italy, I saw some very peculiar ways of combining teams. Sometimes an ox and a donkey were harnessed to-

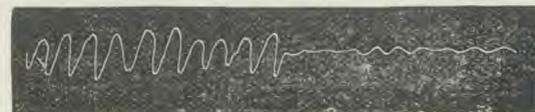


Costal. Abdominal.

Fig. 12.—Man in Corset.

gether. Once I saw a horse, a cow, and a donkey yoked together. Sometimes a farmer will plough or go to market with his cow alone. The cows' yokes were made the same as the yokes for oxen. Now if Dr. Hammond's theory is true, why did they not have the yokes made to fit their hips! His apology for corsets is simply another attempt to apologize for popular errors.

I once induced a man to wear a corset long enough for me to make some observations, and you see from this diagram (Fig. 12) that he breathed precisely like



Costal. Abdominal.

Fig. 13.—Chippeway Girl of 15 Years, in Corset.

a woman. The handles of his breathing-bellows were tied down so he could not use them, and he was compelled to breathe with the upper portion of his lungs.

I made some observations upon a young Indian girl, fifteen years of age, in Denver, Col. She was so anxious to be civilized that she wore a corset. This (Fig. 13) is the tracing obtained, which, you see, is just like that of civilized women.

Here is tracing made by a reformed corset-wearer (Fig. 14). It is noticeable that the abdominal trac-

ing from the same subject as Fig. 14, the patient breathing vigorously instead of in the ordinary manner.

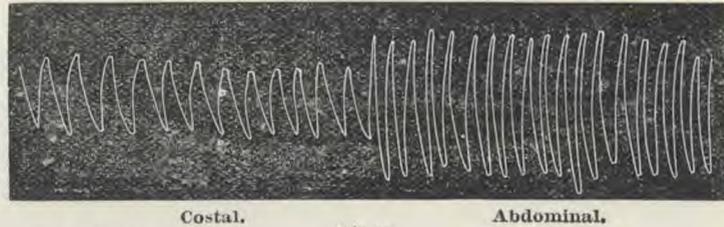
It is much the finest tracing we have ever obtained from any subject, and shows most forcibly the beneficial effects of a healthful dress combined with a high degree of physical culture.



Fig. 14.—Tracing made by Mrs. Annie Jenness Miller.

ing is much more prominent than that of the upper portion of the lungs, though the difference is less than that seen in persons who have always breathed naturally.

Fig. 15 is a copy of a tracing obtained



(To be Continued.)

Fig 15.

CLOTHING FOR THE LITTLE ONES.

MUCH is said in these days concerning the rights of children, but there is certainly no right to which every child is more surely entitled than that of good, sound physical health. It should be one of the first considerations of every mother to secure such conditions for her children as will insure them sound bodies and good health, not only because health will bring them the greatest range of comfort, but because it is the means through which the highest and best possibilities of life are developed and maintained. It is a well-established fact that proper clothing is one of the basic factors in the promotion of health, not only in adult life, but through all the years from childhood up; in fact, at no time in life is there greater need of care respecting the proper clothing of the body, than during its period of growth and development. Childhood is the time to establish the foundation for future health and strength; for in matters pertaining to health, as well as in those of mental growth, the principle holds true that "the farther back we begin, the more momentum we gain." Many mothers are slow to recognize this fact, and while they often dress themselves so as to secure warmth and ease, their little ones are made to suffer from the injurious constraint of such clothing as will make the tiny creatures appear the most charming and dainty, regardless of health and comfort.

One of the first requirements of healthful clothing is that it allow unrestrained action of every organ of the body. This is absolutely essential for perfect development, so long as the body is undergoing the process of growth. We believe that mothers often unwillingly violate this principle in the dressing of their

children, by compelling them to wear clothing which they have partially outgrown, but which is not sufficiently worn to be discarded. Tight sleeves, tight bands, tight waists, etc., which have become such from the child's increased size, are certainly quite as harmful as are those purposely so constructed; and added to this is the fact that the bones and muscles of the tender little ones are far more susceptible to the construction of tight clothing than are those of persons of older growth.

The clothing of children should always be so made that it can readily be enlarged to accommodate the growing form, and should never fit so snugly as not to allow perfect freedom of movement to every organ. Whatever garments are worn about the chest and waist, should always permit of an unrestrained, full inspiration, and it would be an excellent plan if mothers would frequently test the child's breathing capacity, by placing a tape-measure around its waist when in its night-clothing, and allowing it to take a full inspiration, noting the number of inches' expansion, and then adjusting its clothing to correspond with the measure of the full inspiration, allowing one inch or two more for growth.

The foot covering of the little ones should likewise be carefully looked to in this connection. Much suffering is entailed upon children by cramping their little feet into shoes too small or too narrow for them; and cold feet are not infrequently the result of having the shoes buttoned tightly about the ankle, under the mistaken notion that the ankles are really supported by being thus tightly encased in leather. Pedestrians and mountain climbers who endure best, wear low shoes.

(To be Continued.)

THE HAPPY FIRESIDE

DEVOTED TO TEMPERANCE MENTAL AND MORAL CULTURE
HOME CULTURE NATURAL HISTORY AND
— OTHER INTERESTING TOPICS —
CONDUCTED BY MRS. E. E. KELLOGG A. M.

A DEAR EXPERIENCE.

BY S. ISADORE MINER.

"GEORGE, George!" Amy gasped in a strange, choking voice, "Come quick! This is not Dottie! This is not our baby!"

"Not Dottie!" he said, "what do you mean? Surely it is; but no,"—for his eyes for the first time fell full on the child's face,—a face so like yet unlike the face of his own darling.

A shuddering sigh warned him just in time to catch his wife's fainting form, and hastily ringing for help, he placed the child on the floor. The servants were soon aroused, and a physician sent for. It was not until Amy had once more gained consciousness, that George bethought himself of summoning Ellen, who alone could explain the mysterious disappearance of Dottie and the appearance of the little stranger. But Ellen was not to be found. She had learned from the other servants the cause of her mistress's sudden illness, all the result of her hurry and near-sightedness. She remembered then that she had been the first to pick up a child, and with tearful remorse and fear she told her story to the cook, who roundly berated her.

"Well, and now you have killt the misthress shure, for tis n't loikely she 'll iver foind her baby agin," said that consoling creature, determining that Ellen should feel the enormity of her crime, if *she* had anything to do with it. "You 'll be put in prison, of course, and like as not hung for murder. Oh, you may well cry and wring your hands, you good-for-nothing hussy. I would n't be in your shoes for no money. Just get out of the kitchen, now; no one will want to see your face to-night, unless it be the officers that 'll come and take ye."

Poor, ignorant Ellen! Almost deprived of her senses by grief and remorse, fear nearly completed the work. She knew nothing of the laws of this country, was too frantic if not too stupid to reason that the child could not be irrecoverably lost, while

they held as hostage another baby equally as dear to someone's heart. Overwhelmed by this new fear of jails and gallows, she yielded to a mad desire to escape it all by flight. Gathering together her small bundle of clothing that had but just been unpacked, she stole out into the darkness and the storm, and disappeared as completely as if the earth had swallowed her.

Oh, but the storm that raged outside that night was nothing to the storm that raged within! For hours that stricken mother paced the floor, or overcome by grief and weariness lay moaning and shivering on the bed. A score of times was cook called up to repeat the story as told by Ellen,—with her own embellishments, such as, "Ellen said it was an awful hard-looking girl, mum; she said as how she could n't get her to tell her name or where she lived,—but always omitting her part in the disappearance of the now much-wished-for Ellen.

In vain George and the doctor in turn tried to force a few morsels of comfort on the distracted mother. "Why, my good madam," said the doctor, "just reason a moment. That little child sleeping in your nursery is probably some other mother's darling, spending her first night away"—

But at the mention of a "night away," Amy's grief again overpowered her, and it was something terrible to see. Having once more succeeded in calming her into a listening state, George would begin:—

"In some other home right in this very city, my dear, some mother is suffering just what you suffer. Just think of it! And to-morrow, early, early, there will be a great running to police-stations to tell all about the exchanged children; and then by breakfast time they will have been exchanged again, and probably breakfast in their own homes."

As thinking of another's sorrow is the most speedy and effectual cure for our own, so Amy became, little

by little, more calmed by the thought that some one else in that great city was suffering anguish like hers that night. George soon discovered her vulnerable point, and lost no time in enlarging on his argument to the best of his ability.

"Did n't you notice," said he, "with how much taste and care the child was dressed—almost like Dottie?" She is probably the daughter of people of means, who will spare nothing to find her."

Again Amy was interested, and a new thought struck her. Perhaps the strange baby's clothes were marked, though to be sure Dottie's were n't, because she had not yet found time. But as most mothers do mark their children's clothing, she might find some clue that would help restore the lost. Animated by this thought she sought the nursery, where so many happy hours had been spent, but which now looked so desolate.

Had she not been intent upon her investigation, the many little tokens that spoke as plainly to the eye as a voice to the ear, would surely have overwhelmed her with emotion. Dottie's little night-gown lay across a rack where she had thrown it to catch the sunshine. The tiny sleeves hung down, rounded out by the impress of dainty, plump arms, and curved slightly from the bend of dimpled elbows. A pair of ridiculously small boots looked down demurely from the mantel-piece, their toes turned jauntily up like saucy pug noses, showing too well Miss Dottie's propensity for making both ends meet. Several little toys and articles of baby's toilet were scattered about, for Amy's nursery, though always sweet and clean, was never prim.

The little crib Dottie used for her daytime naps stood in the middle of the room, and into this the little stranger had been unceremoniously dumped, clothes all on, by the excited servants, who had since been too engrossed in gossiping over the strange events of the evening to give a second thought to its comfort. It had evidently been sleeping soundly, if uncomfortably. Its face was puckered in a pretty little frown, tiny beads of moisture stood on its fair brow, while a golden halo of hair drooped in damp rings over its forehead. It stirred uneasily, as if conscious of some discomfort, and Amy's heart smote her.

"Poor little thing!" she said, "How selfish I have been! I hope Dottie has fallen into more thoughtful hands, and that some one has cared for her to-night as if their own." Now taken up with a new view of the matter,—an anxious desire to do her duty,—she raised the sleeping baby and deftly began disrobing it. Though every garment was carefully scanned, not a mark of identification could be found. She reached

the small night-gown hanging conveniently near, and soon her little guest's confined limbs were rejoicing in a loose robe.

But all this had thoroughly aroused it, and it began to protest against midnight intrusions on its repose. Its cry seemed partly from fear of the unfamiliar surroundings, but it was pitched in an unmistakably hungry key that touched a responsive chord in the hungry mother-heart. Instantly a white breast was bared for its approval, and though for a minute baby eyed it with a somewhat curious look, a look half recognition, half wonder, it needed no second invitation.

How strange yet how true a thing is mother love! This little child, as sweet and fair as Dottie in her sunniest mood, though she might take her place in every outward form, was as far removed from that inner temple as though neither had existence. Yes, were she twice as fair, the prayer of that aching heart would still have been, "*My* baby."

The swinging motion of the rocker had a soothing effect on more than one in the little nursery. Amy's heavy, tear-swollen eyelids drooped, and nestling in the easy chair she fell asleep, baby's golden head still resting on her shoulder. The doctor had long since taken his departure, and George had thrown himself wearily down on a couch. Thoroughly exhausted he lay quietly watching the swinging rocker, till its motion seemed to be shared by everything else. The room became one vast cradle, and he its luxurious tenant; and whoever hushed him to sleep had not long to wait.

When Amy awoke, the first gray dawn of morning was struggling through the closed blinds. Somebody had relieved her of her burden, and it lay again in the crib. A note on the table stated that George had gone to the police-station, and would be back with Dottie to breakfast. The air was cool, almost with the dewy freshness of early spring, for the storm had been followed by a calm only equalled by the joyful peace that stole into Amy's heart as she threw open the blinds and gazed out. The little English sparrows were already calling to each other, and all the signs of good cheer without seemed glad omens to her rising spirits.

She again examined the little stranger's clothing for some clue to her name, "although," as she thought, "it is of no consequence, as Dottie will be here so soon;" but her search was as vain as before. She satisfied herself, however, from the texture and needlework, that it was no child of common parentage, and this gave her hope of a speedy exchange. As she lifted the embroidered dress, she recalled how, when George had taken the child from the carriage the

night before, she had noticed it particularly because she was quite sure she had put a lace-trimmed one on Dottie. The night before — only the night before ; why, it seemed a year at the very least !

The baby was now awake, and was trying to catch a sunbeam that fell athwart the crib. Amy caught its little dimpled hand in her own, and kissed it, once for itself and many more times for some one else. It was an unusually bright child, and seemed to have been endowed with a happy, contented disposition. It cooed and jumped and threw out its plump arms in a manner quite irresistible to Amy, who indulged in a hearty frolic with it almost before she knew it. The little French clock chiming seven, recalled her to the fact that time was flying by, and the breakfast

hour nearing ; so she hastened to attend to baby's toilet, which was made as scrupulously as ever was Dottie's.

"There," she said, "my little visitor, you are as sweet as a peach ; but I won't eat you, for I expect I shall be called to account for you soon," and she laid its jaunty bonnet on a chair, to be ready at the shortest notice — a notice which she was now momentarily expecting.

Breakfast hour came, but no George, and no breakfast, at least for Amy. Baby had hers. Nine o'clock, — Amy began to be anxious. Ten o'clock, — she was frantic ; and then George came. She met him at the door, but one look at his face showed how unsuccessful had been his search.

(To be continued.)

EVERY-DAY LIFE AMONG THE WOMEN OF BURMA.

BY EMMA O. AMBROSE.

At this season of festivity and joy, my thoughts turn with pity to the mothers and babes in one of earth's darkest corners.

numbers. There we find his untutored subjects bowing down to his images of wood, stone, and metal. The idols vary in size ; they are all the way from two

or three inches to ten or fifteen feet in height. But all bear the same ugly features, with long ears resting on either shoulder, and with fingers and toes of equal length. These idols are manufactured by the hundreds, and placed in the numerous temples erected at the base of every pagoda. The pagodas with their gilded tops and softly tinkling bells swayed by each gentle breeze, dot the landscape of the entire country, and would add much to the beauty of the natural scenery, could we forget their use. To some of the most noted



BUDDHIST TEMPLE, INDIA.

Go with me to Burma, where Gandama Buddha has held for ages past, his fascinating sway over untold

pagodas, such as Shway-da-gon in Rangoon, and Shway-zan-daw in Youngoo, pilgrims travel some-

times a hundred miles or more on foot, to prostrate themselves before Gaudama's images, and offer their gifts of gold, fruits, and flowers. Hardships are endured and much money expended, that their sins, as they imagine, may be pardoned.

Because of this idolatry, because the light of our Saviour's love has as yet found an entrance to but few of their darkened hearts, we find misery and suffering abounding. Especially is this the case, as in every heathen land, among the female portion of Burma's children. The wife and mother, not lawfully united to him whom she calls husband, but subject to his caprices, not knowing what hour she may be turned away for one who suits his fancy better, else compelled to make room for her within the bamboo walls and beneath the thatched roof of her staying-place (we cannot call it home), there to live in constant wrangling and unhappiness, is little better than a beast of burden or the most abject slave. She is expected to carry the heavy burdens of rice, bananas, oranges etc., to the bazaar, and there make sale for them, while her "liege lord," who has come with her, but *always* a few steps in advance, empty-handed, smoking his cigar, is close by to pocket the cash. The burdens are borne in baskets or sacks upon the head, and weigh from sixty pounds upwards.

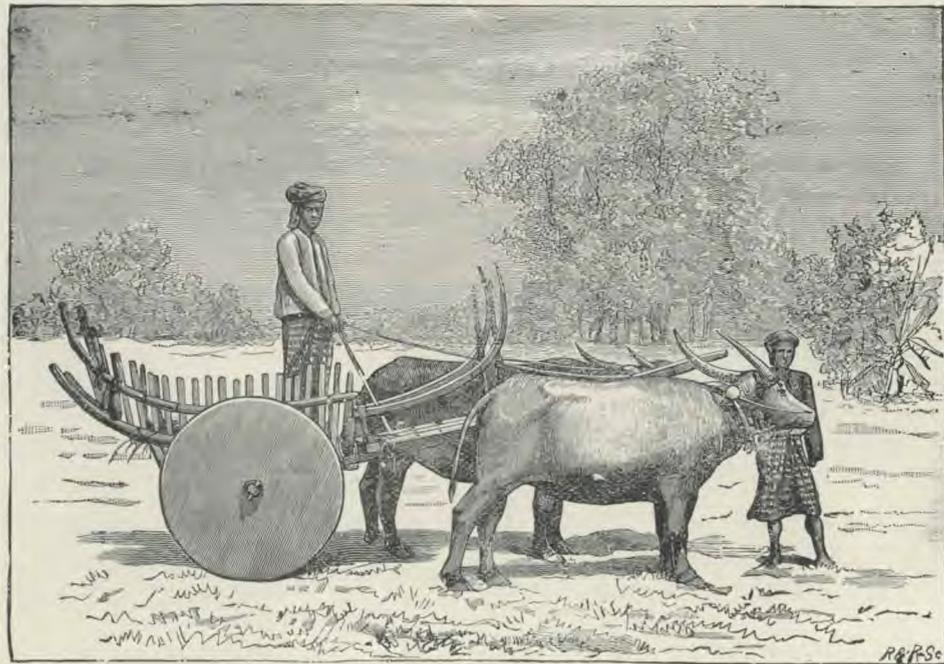
The wife and daughters aid in tilling the ground. They chop the wood, they pound the chaff from the rice in large wooden mortars, then prepare and cook it, as also the curry, in earthen pots, over an open fire. Water is brought by them from the river or public wells in large jars, nicely poised upon the head, with hands swinging carelessly by the side.

None of the neat and tasteful articles which go so far to make our homes bright and cheerful, are found within their dark and dingy houses. A box three or four feet square, and about a foot high, filled with earth, is their fire-place. On this will be found usually two sets of cobble stones, three each, to support

the earthen pots while cooking their food. This fire-place is put in the center of their one room, which serves for parlor, dining-room, bed-room, and kitchen. A bamboo mat, a coarse cotton blanket, and a small cotton pillow, is their bed. A few earthen pots for holding water, and some gourd-shells for drinking-cups, most commonly complete the household goods.

These heathen women, when about their work, wear simply an open skirt. On festal occasions, a white cotton jacket is added. The children commonly go unclad until eight or ten years of age.

Some of the more favored ones, whose husbands may chance to own a yoke of bullocks or buffaloes,



A BURMESE CART.

are now and then treated to a ride in the rude Burmese cart, a two-wheeled vehicle, without springs, and having a crate-like box, in which may be seated the whole family. It is not uncommon to have strings of bells, similar to our sleigh-bells, around the necks of the bullocks.

The fathers seem exceedingly fond of their children, especially of the boys; and should white blood chance to flow in their veins, it is an additional cause of pride. Perhaps you already know that with the English army, hosts of unprincipled men come into the country, and, far from home and kindred, without God's strong arm to lean upon, unrestrained by law or custom, but rather incited to evil by pernicious influences and the laxity of the people, they do whatever they please.

How great the need that the light of God's word should be sent among these unfortunate ones; for it is only this light that can liberate them from their

thralldom, and raise these women to the place they should occupy in the home, and in the hearts of their husbands and children.

Horace Greeley once said that a parent who raises a good apple-tree does better for the community than the one who raises a bad child.

M. MARABET in a recent communication to the Paris Academy of Medicine states that after examining 3,000 convicted criminals he found that of the vagabonds and mendicants 70 per cent were drunkards; of the assassins and incendiaries, 50 and 57; of robbers, 71; of those convicted of crimes against the person, 88 per cent; and of those guilty of attacks on property, 77 per cent were alcoholics. Of 100 criminal youths under 20, 64 are already drunkards.

"Unselfish mothers make selfish children." This may seem startling; but the truth is, that the mother who is constantly giving up her own time, money, strength, and pleasure for the gratification of her children teaches them to expect it always. They learn to be importunate in their demands, and to expect more and more. If the mother wears an old dress that her daughter may have a new one, if she works that her daughter may play, she is helping to make her vain, selfish, and ignorant, and very likely she will be ungrateful and disrespectful.

A RELIGIOUS HUMBUG.—One of the professors in Harvard University was a great bugologist. He had all sorts of bugs the world ever saw, in frames, and he studied bugology until he knew all about it, and had thousands of specimens of different sorts of bugs. And the mischievous students took the legs of one bug and the body of another, and the wings of another, and put them all together, just like nature puts them together, and carried the bug in to the old professor, with his thick glasses on, and laid it on the table, and said:—

"Professor, what sort of bug is that?"

The old professor looked at it, and turned it around, and looked at it, and looked at it, and looked at it again, and said he, "Gentlemen, this is a humbug." And this is just what we mean by a religious humbug. He has got the head of a Christian, and the feet of a dancer, and the tongue of a tattler, and the appetite of a drunkard, and the laziness of a shirk, and you just put him all together, and he is the finest specimen of humbug you ever saw.—*Talmadge*.

PATIENT: "At times when I eat too much, I suffer terribly. What would you recommend, doctor?"

Doctor: "A stomach pump."

TEMPERANCE NOTES.

IT is said that drunkenness in India has increased sixty per cent. within the last four years.

MAJOR HOUSTON is authority for the statement that one-fifth of all the boys examined for the U. S. Navy are rejected on account of heart disease brought on by the use of tobacco.

SAN DIEGO COUNTY, Cal., has a Temperance temple, built at an expense of \$6,000. Saloons within three miles of the building have been prohibited by the municipal authorities.

THE United States Circuit Court in Arkansas has decided that cider cannot lawfully be sold in a State having laws which prohibit the sale of alcohol or any spiritous, ardent, vinous, malt or fermented liquors.

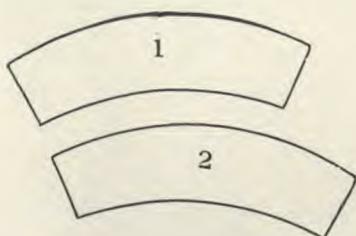
The National Temperance Advocate mentions the case of a young man of great promise who has recently been sent to the Lexington, Ky., Insane Asy-

lum, having lost his reason through inveterate cigarette smoking. Many another young man not actually rendered insane is seriously injuring body and mind by this baneful practice.

TO THE claim of the tobacco lover, that the weed is food and drink to him, he might, (according to the following British parliamentary report on adulteration) without exaggeration add that it is house and lands, paint shop and literature, with medicines, condiments and chemicals thrown in. This is their enumeration of the ingredients besides a proportion of real tobacco: sugar, alum, lime, flour or meat, rhubarb leaves, saltpetre, fuller's earth, starch, malt, cummin, chromate of lead, peat, moss, molasses, burdock leaves, lamp-black, gum, red dye, a black dye composed of vegetables, red licorice, scraps of newspapers, cinnamon stick, cabbage leaves, and straw-brown paper. Isn't this rich? But who would not prefer to make his own selections and combinations?

POPULAR SCIENCE.

OPTICAL ILLUSIONS.—Figs. 1 and 2 represent two figures with curved sides. One would say at the first glance that Fig. 2 is much the longest, but actual measurement will show that they are of exactly the



same size. The illusion is due to the fact that Fig. 1 is really pushed considerably to the left, although, as the left-hand ends of both are nearly in the same line, the displacement is not apparent.

Fig. 3 is another similar illusion. The fine dots on the lower line are exactly the same distance apart;

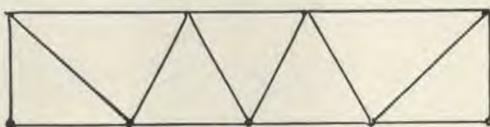


FIG. 3.

but the differently shaped triangles placed above them so confuse the eye, that the distance between the dots at the ends and the adjoining ones appears greater than between those in the middle of the line. The

old proverb is not quite true; for "seeing" is not always "believing," as the above diagrams show.—*Popular Science News.*

THE NEGRO'S BLACKNESS.—Mr. Mattien Williams, in the *Gentleman's Magazine*, says:—

"The question of the negro's blackness has puzzled all the physiologists who have given it any amount of thought. Not only are human beings black or dark in hot climates, but other resembling animals vary in like manner. Pigs are usually (as far as I have seen, invariably) black in hot climates. The carbon layer in the skin of the negro, being opaque, like other forms of carbon, must form an effectual veil, and thus protect that most important organ below, the true skin, a bodily envelope or bodily tissue, presenting a vast surface of circulating blood, which is certainly subject to brilliant illumination when only protected from sunlight by the thin translucent cuticle.

We know that sunlight has considerable chemical energy, and also that sunstroke, to which light-complexioned people are especially liable, is more dependent on light than on mere temperature; and, such being the case, the value of an effective veil or screen extending over the whole of the body may be very great, even though accompanied with considerable absorption of heat and roasting of the cuticle, which is itself insensible. The shading effect of the blackness is, in fact, due to the conversion of light into heat.

EASY CHEMICAL EXPERIMENTS.

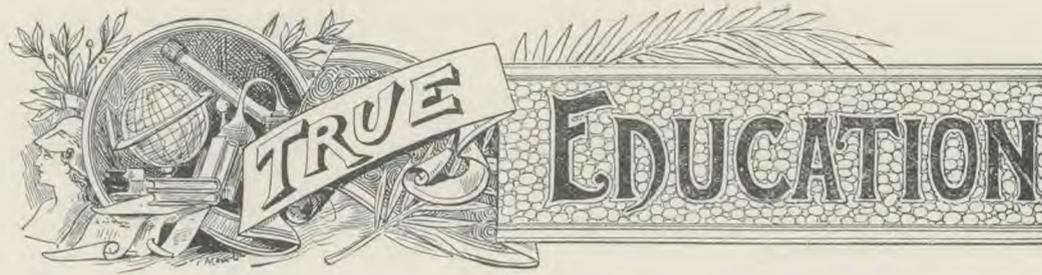
THE HUMOROUS EGG.—In a quill, place a small quantity of quicksilver, and, having fastened it well in, insert the quill through the end of a newly boiled egg, which egg, being placed on the table, will dance about till cold.

MAGIC INK.—Any writing or picture made with a solution of cobalt chloride is invisible until heated strongly for a few seconds, when the written characters or picture appear of a blue color. By simply breathing upon the paper, they again disappear from view, to reappear if again heated.

VANISHING SPOONS are a source of amusement, and are made from this alloy: bismuth, eight ounces; lead, five ounces; tin, three ounces. As soon as boiling tea is poured into the cup in which they are placed,

the spoons disappear from view. The drawback about this experiment is, that the spoons *do not reappear.*

VORTEX SMOKE-RINGS.—All the apparatus required to produce this effect is an empty cigar-box, one of the ends of which being removed, is replaced by canvas tightly nailed round it. A circular hole about one inch in diameter is bored in the opposite end. Inside the box place a saucer half filled with carbonate of ammonia, upon which pour hydrochloric acid until a dense vapor of ammonia chloride fills the box, which, upon slight, rapid pressure upon the canvas end of the box, will be ejected from the hole, and assume beautiful circles of white smoke, which ascend, and retain their shape till dissipated.—*Chemist and Druggist.*



TRUE EDUCATION.

AN encouraging feature of the times is the fact that leading educators, and intelligent men and women in all walks of life, are coming to recognize the importance of such an educational training as will make useful, noble men and women, not simply scholars. It is the purpose of this department, so far as the influence of this journal extends, to encourage this promising tendency in the direction of progress.

By education we mean, not simply "schooling," or a course at a university, but that sort of training and culture which will fit one for usefulness in life. Education, if properly begun, will commence with the first dawn of intelligence. The human infant, at birth, knows less than the young of most lower animals at the same period of life, and some weeks elapse before any marked intelligence makes its appearance; but when the child first begins to reason, even in the most primitive and simple manner, its education really begins, and from this time forward its mental as well as its bodily activities should be directed in such a manner as to secure to it a symmetrical development of the entire individual, physically, mentally, and morally.

The so-called system of education and the influence to which most children are subjected for a longer or shorter period while in school, seem to the writer to be exceedingly faulty. The aim appears to be to give the student facts and knowledge, rather than the

ability to discover new facts and apply old ones. It usually neglects the body almost wholly, and frequently produces a most one-sided development, which, while it at first enables a person to appear to great advantage, ultimately results in failure, both mental and physical.

The aim of education should be to prepare the individual to make the most of himself in life. It should be a process which will make the most practical men and women, the most effective workers for the advancement of all human institutions. Any system which neglects any one of the three departments of human nature, mental, moral, or physical, must be necessarily a failure. Simply educating a child in the arts and sciences, without developing a love for truth, purity, goodness, justice, and other moral qualities, only prepares him to become the most expert of criminals, and fits him the most successfully to elude discovery and defeat justice. So, also, mental and moral discipline, without proper physical culture, may in many respects qualify men for great usefulness in some departments of human life; but will very likely leave them so lacking in the physical force and stamina required for an active and useful life as to render them dead weights upon society, rather than effective agents for the advancement of its interests.

J. H. K.

PURPOSE AND MANNER OF STUDY.

THE object of study is not merely to occupy the time in poring over books. The chief purpose is to develop intellectual strength. The athlete does not increase his muscle by playing with light weights; he must apply himself with persistent effort to a laborious course of training. By intense activity and exertion at intervals, he will develop greater muscular power than by feeble and aimless motion, no matter how long continued.

If we wish to strengthen the mind, and secure mental growth, we must tax the intellectual powers. To

achieve anything, the attention of the mental faculties must be concentrated on the object to be accomplished. In hydraulic mining, the flow of water used would be ineffectual, if spread out in fine spray over the face of the hill to be washed down; but concentrated in a small stream its power is irresistible, tearing away earth and rock. So with the mind; the student must gain control of his whole mental force, and concentrate it upon the task before him. If the gunner desires to make an accurate and effective shot at long range, he does not pour a heap of powder

upon the open hillside, place a cannon-ball in the center of it, and apply a spark to the explosive. Such gunnery as that would win no battles.

In like manner the forces of the mind, when exercised in a desultory and diffuse manner, are ineffective; but, controlled and applied in a given channel, may reach a marvellous efficacy.

When studying, no mental pictures should be allowed to be consciously present in the mind except those which figure the subject under attention. If the student permits picture after picture of every-

thing which takes place within the range of his eyes and ears to be impressed upon his consciousness, he will not only fail of receiving anything into his mind as a result of such study, but, as in pouring water on a slate even that was there before will be erased.

Control of the mind may be gained by the use of the will. Then, when the student studies, let there be no dilly-dallying, but application, always remembering, moreover, that the mind acts best in a healthy body.—*Abstract of morning talk to students of Battle Creek College, by President W. W. Prescott, A. M.*

READING FOR CHILDREN.

A WRITER in the *American Agriculturist* offers the following thoughts on this important subject:—

"In the education of children, nothing is of more importance than a wise supervision of their reading. Better might a child take into its stomach food which will certainly derange it, than to absorb at this critical period into its developing mind the worse than useless, positively pernicious 'literature,' so-called, with which the world is flooded, and to which, unfortunately, there is such easy access. Many mothers, careful to the last extent of their children's physical development, will, with a carelessness perfectly astounding, leave the providing of mental food to their own unaided judgment. A book-loving child of any age will read,

and it is the sacred duty of every mother to see to it that good, wholesome reading is provided. Avoid the 'story-papers' of questionable character which are frequently thrust upon you. Cultivate in children who have it not, the love of reading. This can be done, to a great extent, by providing literature in a line with their peculiar tastes, using your knowledge of their fondness for a certain occupation or pastime as your guide. Reading is too great a privilege, too delightful a pleasure, too powerful an assistant to the formation of character to be lightly neglected or misused. If all parents looked more carefully to their children's reading, there would be a development of character otherwise impossible."

SCHOOL PHYSIOLOGY.—The teaching of physiology in the public schools is, in the majority of cases at any rate, so superficial that it is difficult to determine whether the good accomplished outweighs the evil, or *vice versa*. A magazine writer has taken pains to compile from the note-books of pupils in a high-school the following remarkable replies to questions asked in an examination:—

"Anatomy is dissecting of bodies generally lifeless."

"Anatomy is study of parts of the body; physiology study of action of parts; hygiene is *application* of these parts." (Italics are ours.)

"Kinds of bathing, adapted to the age, quantity, quality, and health of the person."

"Supernator are the muscles about the back."

"The hygiene of a muscle should have proper rest and exercise."

"Hygiene is the study of the time and manner of

the action of the muscles and large blood-vessels."

"The mouth is the commencement of the alimentary canal, and it extends through the throat, œsophagus, into the stomach."

"Nervous system a decided part of the body."

"A young person who goes to parties and has great excitement has generally some brain trouble, such as St. Vitus's dance."

"It is far more reliable to drive out the fire of a room and put on extra clothing than it is to put on no clothing and sit in front of a burning fire."

"Soap is important in carrying off the fat of the body."

"What is eaten by the body has sometimes been taken as food."

"The third cavity is the pelvis, which contains the venereal organs."

"In a diet of twenty-four hours a man should eat some of all the nutritious articles,"

SOCIAL PURITY.

PLAIN TALK ABOUT THE THEATER.

THE REV. HERRICK JOHNSON, D. D., of Chicago, a few years ago created quite a disturbance in that city among theater-goers, by the vigorous denunciation, in his Sunday sermons, of the theater and its influences. The following is a brief extract from one of Dr. Johnson's sermons:—

"The ideal stage is simply an impossibility! I say it again, fearless of sustainable contradiction, and supported by the record of the past and the present, by the very nature of theatrical representations, and by the necessities of the case, that the stage, as an institution, *'has within itself the seeds of corruption; and it exists only under a law of degeneracy.'*

"How can it be otherwise? Take the actors themselves. How can they mingle together, as they do, men and women, and make public exhibition of themselves as they do, in such circumstances, with such surroundings, with such speech as must often be on their lips to play the plays that are written, in such positions as they must sometimes take, affecting such sentiments and passions—how can they do this without moral contamination? That it is done, as an exception, does not disprove the law of degeneracy. A Garrick and a Mrs. Siddons, and some others of equal or approximate fame, and some others of far less reputation, may sustain on the stage a moral character above reproach; but who can deny that the tendency of all theatrical engagements is strongly and sadly, and, alas! generally successfully, the other way. Now, if the theater be a school of morals, how does it happen that these teachers so seldom learn their own lessons? How does it happen that these teachers so seldom take part in any moral enterprises when their stage dresses are off? How many young men of clean, pure homes would care to have their sisters tread the boards? The point I make, is, that if to the actors themselves theatrical representation is injurious, tending strongly and almost inevitably to immorality and corruption, placing them where we would be ashamed to have a brother or sister, son or daughter, placed, and giving them social ostracism, which only transcendent genius, like Booth's, or Kem-

ble's, or Irving's, can overcome, then the institution demanding that state of things, and making necessary that moral exposure and social banishment, is inherently and essentially bad, and neither you nor I have a right, nor has any one else a right, to support it or countenance it.

"But the evil does not stop with the actors. It extends to the audience. What cannot be done without a tendency to moral harm, cannot be seen without a tendency to moral harm. Corrupt tastes are formed at the theater—false views of life are inculcated, false standards of honor. The plain and sober and ordinary duties of life are not brought out at the playhouse. Love is commonly represented as a romantic passion. Religion in its purity is too tame for the demanded excitements of the stage. What better can I say on this point than what Mrs. Moore has said:—

"'It is generally the leading object of the poet to erect a standard of honor in direct opposition to the standard of Christianity; and this is not done subordinately, incidentally, occasionally, but worldly honor is the very soul and spirit and life-giving principle of the drama. Honor is the religion of tragedy. It is her moral and political law. Her dictates form its institutes. Fear and shame are the capital crimes in her code. Against these all the eloquence of her most powerful pleaders, against these her penal statutes—pistol, sword, and poison—are in full force. Injured honor can only be vindicated at the point of the sword; the stains of injured reputation can only be washed out in blood. Love, jealousy, ambition, pride, revenge, are too often elevated into the rank of splendid virtues, and form a dazzling system of worldly morality in direct contradiction to the spirit of that religion whose characteristics are charity, meekness, peaceableness, long-suffering, gentleness, and forgiveness.'

"There is no quashing that indictment. And hence it is, that even loose and abandoned men, who abhor the religion and morality of the church, take delight in, and applaud to the echo, the morality on the boards of the theater."

A DANGEROUS MISSION.

THE young lady who marries a man for the sake of reforming him, or with the expectation of reclaiming him from such dangerous habits as drinking, or other forms of dissipation, incurs a risk of personal danger, the wreck of happiness, and the almost inevitable failure of her efforts, no matter how self-sacrificing and persevering they may be, to which the majority of young women seem to be totally blind. Warnings against so dangerous a course cannot be uttered too frequently.

"If now," says Dr. Talmage, very wisely, "under the restraint of your present acquaintance he will not give up his bad habits, after he has won the prize you cannot expect him to do so. You might as well plant a violet in the face of a northeast storm with the idea of appeasing it. You might as well run a schooner along-side of a burning ship with the idea of saving the ship. The consequence will be, schooner and ship will be destroyed together. If by twenty-five years of age a man has been grappled by intoxicants, he is under such headway that your attempt to stop him would be very much like running up the track with a wheelbarrow to stop a Hudson River express-train. It is amazing to see how some women will marry men, knowing nothing about them. No merchant would sell a hundred dollars' worth of goods on credit, without knowing whether the customer was worthy of being trusted. No man or woman would buy a house with encumbrances of mortgages and liens and judgments against it uncanceled, and yet there is not an hour of the day or night for the last ten years that there have not been women, by hasty marriages, intrusting their earthly happiness to men about whose honesty they know nothing, or who are encumbered with liens and judgments and first mortgages and second mortgages and third mortgages of evil habits."

A writer who seems to be at least partly awake to the danger above referred to, says to young women, "It is a terribly dangerous experiment that you are engaged in when you marry a rake for the sake of re-

forming him. But I will tell you of a plan that is perfectly safe and wise. Reform him before you marry him. There is a chance to display all your powers and charms as a philanthropist and a reformer."

We quite agree with the last writer in his recommendation that if a young woman is going to undertake a reformatory mission for the benefit of a dissipated young man, a rake, she should by all means make sure of reforming him before she marries him. But we would like to give a little further advice upon this point, namely, "reform him if you can, but don't marry him." Nothing could be more pernicious, nor more truly fallacious, than the opinion, which somehow has acquired credence among women, that a "reformed rake makes the best of husbands." A man who has led a vicious life, who has gone down into the slums of iniquity, who has delighted himself in unrighteousness and reveled in immoralities,—such a man is spoiled; his character is smirched and stained with moral corruption. The canker of vice has polluted his heart, a moral putrescence has invaded the citadel of his mind, the taint of which cannot be removed by any ordinary disinfectant. Such a man has forfeited his right to the confidence of a pure woman. If he will marry, let him marry such an one as himself, and let him not thrust into the sanctity and purity of home, as the high priest of the domestic altar, a soul polluted with moral rotteness, a body scarred with fleshly lusts.

We have no sympathy with that sort of missionary enterprise which leads inexperienced young women to undertake the reformation of those calloused libertines whose vice-hardened hearts are as insensitive to pure sentiments as a piece of gristle, and their consciences as impenetrable to refining influences as the skin of a rhinoceros. Beware, young women; counsel well with your mother, or an experienced friend, before you undertake so dangerous a mission. Such enterprises too often end in giving another victim to the destroyer.

J. H. K.

THE Devil's agents are not all dead yet. Notwithstanding Mr. Comstock's vigilance, every now and then some human fiend embarks in the business of ruining his fellow-men. Recently, a young man by the name of Smith was arrested in Maine for advertising vile articles for sale. We are glad to record that he was sentenced to six years' imprisonment and hard labor.

WE note that a home for outcast women has recently been organized at Omaha, Neb. Such places of refuge ought to be found in every large city. Thousands of women and girls who have been led astray might be reclaimed, but for the almost utter impossibility of finding shelter elsewhere than in their usual resorts.

GOOD HEALTH

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

BATTLE CREEK, MICHIGAN.

FRAUDULENT MEDICINES.

It would seem that matters pertaining to the life and health of human beings should, above all others, command the highest degree of sincerity and honesty on the part of those dealing with these important interests. It is, however, a lamentable fact that the weakness and feebleness of disease, the distress and suffering occasioned by illness, are made the occasion for the perpetration of the grossest frauds and the practice of the basest deceptions. Human vultures, preying upon the credulity of the sick, and taking advantage of that blind groping for relief so characteristic of the chronic invalid, have amassed stupendous fortunes by the manufacture and sale of the most worthless, nauseous, and in some instances, pernicious compounds. Illuminated by some taking title, these wretched nostrums are displayed in every newspaper in the land, painted on every conspicuous rock along the leading lines of railway travel, and thrust upon the attention of passers-by, on fences, stumps, and trees along every common highway.

Among the most deceptive and the most generally used of these various nostrums are those commonly known as "bitters." Under a variety of alluring titles, bad whisky flavored with numerous nauseating drugs, is presented as a panacea for all the ills supposed to be alleviated by bitter tonics.

An eminent Eastern chemist has taken the trouble to investigate many of the most common of these "bitters," and with the result of showing that they all contain alcohol in quantities varying from the amount found in lager beer and hard cider to the percentage of alcohol usually present in rum, gin, and whisky. For example, there are "Drake's Plantation Bitters," "Boker's Stomach Bitters," "Russian Bitters," "Warner's Safe Tonic Bitters," and "Job Sweet's Strengthening Bitters," all of which contain alcohol in quantities varying from that of ordinary gin to the amount found in West India rum and Kentucky whisky.

Again, there is "Hostetter's Stomach Bitters," the chief ingredient of which is alcohol, which is present in the proportion of 44.3-10 per cent, while "Dr. Richardson's Concentrated Cherry Wine Bitters," recommended to be taken in doses of a half wine-glassful, *or more*, three times a day, "or whenever there is a sensation of weakness or uneasiness at the stomach," contains nearly as much alcohol as proof-spirit, or 47.5-10 per cent.

The reader can readily see that the manufacturers of these nostrums are deliberately engaged in the business of "drunkard making," the medicine being prescribed in intoxicating doses, and the patient urged in addition to take a dram "whenever there is a sensation of weakness or uneasiness at the stomach."

Then there are the "Temperance Bitters," such as "Cobb's White Mountain Bitters," advertised as "not an alcoholic beverage," which contains as much alcohol as hard cider, or 6 per cent; and "Hop Bitters," containing 12 per cent of alcohol. "Kaufmann's Sulphur Bitters," the manufacturers of which claim that "it contains no alcohol," by analysis shows that it contains no sulphur, but does contain 20 per cent of alcohol, or as much as the strongest wine. And lastly, as a fair specimen of this wretched class of mixtures of "bad whisky" and "bad medicines," we may cite "Walker's California Vegetable Vinegar Bitters," which is manufactured by Dr. McDonald, the temperance champion of California. This nasty mixture is thus described by Dr. Gibson in an address given before the annual meeting of the California State Medical Society, and in the Third Annual Report of Health of the City of Boston:—

"This 'bitters' is one of the nastiest nostrums, introduced and largely sold by the most extensive and brazen advertising under the false pretense of being free from alcohol. It originated with the cook of a party which traveled overland as a mining company

to California in 1849. He settled in Calveras county, and having no success as a miner, he turned his attention to the bitter qualities of the herbs growing about him, and came to San Francisco with the idea of making and vending a nostrum to be called 'Indian Vegetable Bitters.' He fell in with an enterprising druggist, who saw money in the project, and joined him. At the suggestion of the latter, the 'Indian' was struck out, and as the concoction got sour by fermentation, it was concluded to call it 'Vinegar

Bitters,' and to identify it with the temperance movement. The native herbs, which became rather troublesome to collect, were discarded, and aloes, being a cheap bitter, was substituted. 'Nine sick people out of ten,' said the druggist, 'will be cured by purging.' Wherefore the aloes and Glauber's-salt. So the cook turned doctor, the decoction became sour, and of Californian instead of Indian paternity, and 'Doctor Walker's Vinegar Bitters' began their career in the newspapers and on the shelves of the drug-stores."

DODGING COLD WEATHER.

IN northern latitudes thousands of persons, at this season of the year, hive themselves up in air-tight houses, in which they spend the winter like hibernating animals, exposed to the injurious influences of winter diet, foul air, summer heat, and sedentary habits,—than which a worse combination of unhygienic conditions could not be made. If, occasionally, one of these hibernating animals of the *genus homo* ventures out from the seclusion of his prison house, dire punishment for his violation of nature's laws, is visited upon him in the shape of a bad cold, pneumonia, or an attack of rheumatism or neuralgia. Then comes denunciations of the weather, or the weather clerk, if the predictions for the day proved a little different than was expected.

Another class of dwellers in Northern climes seek to avoid the difficulties and dangers of hibernation by annual migration to warmer latitudes, and by this means quite a proportion of the wealth of Northern climes is deposited each winter in Florida and the Gulf States, or in Southern California.

In our estimation, both classes referred to are laboring under a mistaken notion. Except to the consumptive in the second or third stage of the disease, the asthmatic sufferer from bronchial catarrh, the extreme aged, and very feeble invalids, cold weather comes as a friend and not as an enemy. The natives of tropical and sub-tropical regions cannot compare with the inhabitants of temperate climes in robustness of body or vigor of intellect. The changes of season and weather are nature's means of preventing stagnation of the vital functions. The alterative effects of these vicissitudes of temperature and weather is, when we consider the vast number of people affected, and the extent of their influence upon the vital economy, beyond estimate. The eliminative influences of the warm summer months which occasion vigorous disintegration of the tissues, and the obtunding of the taste for flesh meats and greasy fats, is of inestimable

advantage to the system, while the cold weather toning-up, which immediately follows, is nature's application of the very principle employed by the wise physician, who first treats his plethoric patient to a course of Turkish baths, and then subjects him to a series of sea-bathing or cold morning sponges.

The man who hives himself up like the bees, or goes into a state of hibernation for the winter like the bears, and the man who flees the country on the first approach of Jack Frost, unless compelled to these sacrifices by the stern mandate of some intractable disease, is not a gainer but a loser for his pains, and robs himself of one of the greatest of nature's benefactions—cold weather.

What more powerful tonic does the whole range of nature's agents supply than the dry, crisp, cold, purely hypo-oxygenated, exhilarating air of mid-winter? Such air has no germs in it. Breathed with proper precautions, it has life, vigor, and vital renovation in it. How it makes the heart beat under the stimulus of its life-giving oxygen. How the pulses bound! How the blood presses into finger tips and toe tips! How the thoughts fly! How the imagination runs! How the busy workers in liver, stomach, lungs, brain, muscles, nerves, in every fibre, every gland, every nook and corner of the vital domain, spring to their tasks. Not a sluggard among them all. How bright the eye! How clear the skin! How clean the blood! How sweet the breath! Life has twice the efficiency under the healthfully stimulating influences of the pure cold atmosphere of the Northern winter, than is seen in the damp, heavy air of a malarious Southern clime, where the odors which salute the nose invite myriads of buzzards to a grimy feast, and countless microbes, active though invisible, hold themselves in readiness to attack indiscriminately the living and the dead. Where lazy alligators bask in slimy pools,—the outgrowth and embodiment of the lethargic influence of a clime which knows no frost,

which sees no ice, no snow; which stamps upon its every inhabitant the character of moderation in the superlative degree. Such is the sunny south. The picture may be strong, but is not overdrawn. Do not be afraid of cold weather. If you are not a hopeless consumptive, a chronic asthmatic, or some other sort of cripple, or a generally used up invalid, we say, By all means stick to your native land, with its snow, its ice, its blusters, and its blizzards. Better

freeze to death than die from inanition. Better yet, make a friend of the cold. Get on good terms with Jack Frost. Fortify yourself against the harmful influences of cold air by taking daily doses of it, and be assured you will unfailingly discover that the ice-storms, piercing winds, and zero temperature of the winter season, are really blessings which we cannot afford to miss.

WILLIAM CULLEN BRYANT'S MODE OF LIFE.

IN 1871, while still in his prime, this eminent scholar and poet, who preserved his vigor and activity to a very advanced age, — finally dying, not from old age, but from the results of exposure, — thus described his habits of life, as regards diet, exercise, etc., in a letter to a friend. We are sure our readers will be interested in observing that this eminent man of genius avoided the use of all stimulants, even tea and coffee, and condiments, and adhered closely to the requirements of health, concerning the necessity for daily exercise: —

“I rise early, at this time of the year about 5:30; in summer, half an hour or even an hour earlier. Immediately, with little encumbrance of clothing, I begin a series of exercises, for the most part designed to expand the chest, and at the same time call into action all the muscles and articulations of the body. These are performed with dumb-bells, the very lightest, covered with flannel, with a pole, a horizontal bar, and a light chair swung around my head. After a full hour, and sometimes more, passed in this manner, I bathe from head to foot. When at my place in the country, I sometimes shorten my exercise in the chamber, and, going out, occupy myself for half an hour or more in some work which requires brisk exercise. After my bath, if breakfast is not ready, I sit down to my studies till I am called. My breakfast is a simple one, hominy and milk, or in place of hominy, brown bread, or oatmeal, or wheaten grits, and in the season baked sweet apples. Animal food I never take at breakfast. Tea and coffee I never touch at any time. Sometimes I take a cup of chocolate, which has no narcotic effect, and agrees with me very well. At breakfast, I often take fruit, either in its natural state, or freshly stewed. After breakfast, I occupy myself for a while with my studies, and then, when in town, I walk down to the office of the *Evening Post*, nearly three miles distant, and after about three hours, return, always walking, whatever be the weather or the state of the streets. In the

country, I am engaged in my literary tasks till a feeling of weariness drives me out into the open air, and I go upon my farm or into the garden, and prune the fruit-trees or perform such other work about them which they need, and then go back to my books. I do not often drive out, preferring to walk.

“In the country I dine early, and it is only at that meal that I take either meat or fish, and of these but a moderate quantity, making my dinner mostly of vegetables. At the meal which is called tea, I take only a little bread and butter, with fruit, if it be on the table. In town, where I dine later, I make but two meals a day. Fruit makes a considerable part of my diet, and I eat it almost any hour of the day without inconvenience. My drink is water, yet I sometimes, though rarely, take a glass of wine. I am a natural temperance man, finding myself rather confused than exhilarated by wine. I never meddle with tobacco, except to quarrel with its use. That I may rise early, I of course go to bed early; in town, as early as ten; in the country, somewhat earlier. For many years I have avoided, in the evening, every kind of literary occupation which tasks the faculties, such as composition, even to the writing of letters, for the reason that it excites the nervous system and prevents sound sleep.

“My brother told me not long since that he had seen in a Chicago newspaper, and several other Western journals, a paragraph in which it was said that I am in the habit of taking quinine as a stimulant, that I have depended on the excitement it produces in writing my verses, and that in consequence of using it in that way I had become as deaf as a post. As to my deafness, you know that to be false, and the rest of the story is equally so. I abominate all drugs and narcotics, and have always carefully avoided everything which spurs nature to exertions which it would not otherwise make. Even with my food I do not take the usual condiments, such as pepper and the like.”

CULTIVATING DISEASE.

It has often occurred to us that even doctors, as well as patients, not infrequently unconsciously engage in cultivating disease. On this point we take the liberty to quote a few paragraphs from a recent address by the writer before a medical society, on "The Medical Men of the Twentieth Century."

The physician of the present day, embarrassed by the limitations of his means of getting direct knowledge concerning his patient, often becomes the means of darkening counsel, and, unless fortified by long experience in the same sort of mental acumen which qualifies a member of the legal profession for the cross-examination of an expert witness, is almost certain to be led by his patient into pathological labyrinths, from which the father of medicine himself, aided by the accumulated knowledge of more than two thousand years, would scarcely be able to find his way out.

The present mode of examination no doubt misleads the patient as well as the physician, and evidently, in many cases, by his investigation and daily questioning, does his patient incalculable injury in the very attempt to benefit him; as, for example, when the doctor feels his patient's pulse, looks grave and watches his watch, and silently notes its regular pulsation, the patient waits with almost breathless attention, and watches every changing expression of the doctor's face. Then, when the ceremony is finished, says anxiously, "Does my heart beat, Doctor?"

"O yes; a little weak, but it will soon be better."

"But is it all right, Doctor," nervously exclaims the timid and apprehensive patient?

"Certainly, certainly; have no concern about it. Your pulse is all right."

The patient is silent, but not comfortable. He feels sure the doctor is keeping something back, and, as the doctor asks him questions,—has he ever had pal-

itation of the heart; has he ever noticed swelling of the feet; has he ever observed shortness of breath; has he been troubled with vertigo; has he had pain in the region of the heart,—with an excited imagination the poor invalid ransacks his memory and can easily remember that he has had all of these symptoms more or less, and, in spite of the assurances to the contrary, he becomes confirmed in the belief that the doctor is afraid to tell him the whole truth for fear immediate fatal results would follow, and that if he should happen to lie down on his right side, or rise from his chair too suddenly, or sit down too quickly, or should fail to step with necessary deliberation, or should be startled by a sudden noise, his poor heart might on the moment cease to beat. So, as the doctor goes on in his examination, and talks about pains in the back, soreness in the stomach, specks before the eyes, bad taste in the mouth, ringing in the ears, numbness in the arms, peculiar sensations in the legs, etc., *ad infinitum*, the patient's imagination finds new material to feed upon. Each question opens up a new area to be explored by the sick man's morbid curiosity, and, as the doctor makes his daily visits, and takes an inventory of the symptoms, the patient gathers them all up with scrupulous care, cautious that no one shall escape, and, if possible, serves up each day for his physician's delectation some brand-new flavor in the mouth, some fantastic, strangely-colored *muca volitantes* recently discovered, a newly located crick in the back, or some strangely new sensations in the head.

It has often occurred to me that our present mode of investigating diseases is in the highest degree calculated to cultivate and stimulate the patient's morbid imagination, and furnish material out of which his depraved fancy can easily conjure new sufferings, new symptoms, and new maladies.

CANNING MILK. — Probably but few of our readers have ever thought of canning milk. Nevertheless, this important food-article can be preserved by canning as well as fruit or any other perishable food-substance. It is only necessary to cleanse the can or bottle thoroughly with boiling water or steam, then fill with milk which has been obtained from the cow in such a manner as to keep it free from germs; or bring the milk to a boil, put it in a tin can, and put the cover on quickly the same as in canning fruit. Milk prepared in this way will keep perfectly sweet for several weeks.

SUPERSTITIONS ABOUT DISEASE. — Prof. Maudsley thus remarks concerning the change in views respecting the nature of disease, which has been brought about by modern scientific investigations:—

"Instead, therefore, of the demons which were once thought to be the cause of disease, and to require to be exorcised, and instead of the almost equally imaginary vital spirits and humors which succeeded to the demons when they were discredited, the patient microscopist traces and makes known the life-histories of the minute organisms which he demonstrates to be the causes of many diseases.

MR. EDISON'S remedy for Colorado beetles and yellow-fever germs is gasoline.

DR. FORDYCE BARKER, of New York, asserts, as the result of constant research on the subject, that cancer is not a hereditary disease.

FLORENCE NIGHTINGALE, the famous nurse, now nearly seventy years of age, has for a number of years been an inmate of the St. Thomas Hospital, London, England, suffering from a disease of the spine.

AN Albany doctor asserts that he has never seen a case of cancer among the Hebrews, which circumstance he attributes to the fact that these people abstain from the use of pork.

THE mania for hair dye has reached its climax in Paris. A barber sign advertises "Callileucocapillaire water, which colors the hair white. For the use of young physicians and magistrates."

A CASE is reported in which three hostlers have died from glanders contracted from a horse suffering with the disease, although the nature of the malady in the horse was not discovered until after its death.

A RECENT analysis of tea made in Moscow, Russia, shows that it is very largely adulterated in that country. The only apology for the adulterants of this drug is the fact that the substances used are generally less harmful than the thing itself.

PULLMAN, ILL., a town with a population of about 12,000, has a death rate of only eight per thousand, against twenty-six per thousand in New York City. The healthfulness of this model town is due to its very complete sanitary arrangements.

ACCORDING to the *Boston Medical and Surgical Journal*, a patient in that city, suffering from a cancer of the lip, was killed, some time since, by a cancer doctor, who practically tortured him to death by the horrible pain caused by his caustic applications.

RECENT examination of the drinking-water of New York City, shows that it contains more than 25,000 microbes per cubic inch. Croton Lake, from which the city receives its water supply, receives the sewerage of a population of more than 25,000, besides a large amount of refuse from large factories.

SACCHARINE.—This is a new substance made from coal tar, and is possessed of 280 times the sweetening power of cane sugar. Experiments with it seem to show that it is non-poisonous in its nature and has no injurious effects upon the system when used in small quantities, as for sweetening lemonade and for similar purposes.

LEAD POISONING.—It has lately been discovered by Dr. Herold, of the Board of Health of Newark, N. J., that many cases of lead poisoning result from the use of bottled soda-water, the stoppers of which usually contain lead, which is dissolved by the soda-water. One physician had fifty cases of poisoning from this cause on his hands at one time.

MICROBES.—Prof. Buckner, of Germany, has been studying the rate at which germs multiply, and has shown that the time usually required for one microbe, or germ, to become two, by the process of division, is fifteen minutes. At this rate a single microbe would produce in twenty-four hours a million million million times the present population of the globe.

CHEESE POISONING.—The State Board of Health of Ohio reports two hundred and fourteen cases of cheese poisoning which have occurred in different localities in that State within a few months. The cases were attended with great prostration and distress. It would seem to be about time that this very questionable article of diet was dispensed with for something more wholesome.

YELLOW FEVER VS. DRUNKARDS.—Yellow fever seems to be not altogether an unmitigated evil. According to Mr. Archibald, Mayor of Jacksonville, Florida, yellow fever preached an excellent temperance lecture to that city. According to his estimate, two-thirds of the fatal cases were persons addicted to drink, while persons of temperate habits, with rare exceptions, escaped the disease.

A DEAD HEN.—The eminent Prof. Wilder was reared a vegetarian, having passed his earlier years without even knowing that flesh food was ever eaten by human beings. When six years old, he saw on the table, for the first time, a roasted chicken, at which he gazed for some moments with great bewilderment, when he seemed to make a discovery, and in his astonishment burst out with the remark, "I bet that's a dead hen!"

A NEW PLEA FOR TOBACCO.—An English biologist has been experimenting with tobacco smoke, and finds it kills germs, from which he concludes that it is not only a harmless drug for use of human beings, but exceedingly beneficial as a disinfectant and germicide.

It seems never to have occurred to the learned man that whatever experiments have been made up to the present time has shown that whatever is unhealthful for germs is unhealthful for human beings. As a rule, germs are much harder to kill than men and other beings. Many germs die only at the boiling-point, and may exist in a degree of cold far below zero. A certain class of scientists are bound to find some suitable apology for every vice to which human beings are addicted.

CONTAMINATED MILK.—Doubtless a vast deal of mischief is occasioned by the use of milk contaminated with disease. Typhoid fever has many times been traced to this source. It is entirely possible that typhoid fever is often produced in some other way than by the use of drinking-water contaminated with the germs of this disease. The infection may be received directly from cows. While it may not be probable that the germs of the disease escape from the body of an infected animal through the milk, the milk may nevertheless become infected through the medium of small particles of excreta, portions of the discharges of the animal, which fall into the milk from the udder during the process of milking. The remedies for this danger are obvious. Observe the same care in relation to the drinking-water of cows as that used by human beings, and see that the udder and adjacent parts are washed clean before milking.

CIGARETTE-SMOKING.—A journal misnamed *Health*, advocates the principle of cigarette-smoking, when the smoke is not exhaled through the nose.

We would like to inquire of our learned contemporary, what the nose is made for if not to exhale through. If a man elects to use his mouth as a receptacle for tobacco and a place in which to burn the filthy weed, why may he not with equal propriety use his nose as a chimney to carry off the smoke. It is an absurdity to claim that tobacco is good for the mouth and bad for the nose. The nose has better means for defending itself against noxious substances than has the mouth.

We venture the assertion that this defender of tobacco is himself a cigarette-smoker, and is seeking to bolster himself up in the practice of the habit, which is universally condemned as filthy and injurious by unbiased and intelligent persons.

POISONOUS COSMETICS.—Persons ought to know that a large share of the cosmetics used in beautifying the complexion contains rank poisons. The assertions made by the manufacturers, as well as the testimonials which they usually publish, are absolutely worthless. The most popular of the various nostrums of this class now in the market contain large quantities of corrosive sublimate; and if the laws enacted by many States were complied with, the bottle would bear a label representing a skull and crossbones. We shall speak more fully about these articles in some future number.

THE PROPENSITY TO KILL.—Dr. Hammond contends that murder is a natural instinct. "The propensity to kill exists to a greater or less extent in the mind of every human being without exception. In some it consists in the desire to take the life of fish; in others, of birds; in others of deer and buffalo; and in still others, of larger and more dangerous animals, such as tigers, elephants, and lions. In some, but few as compared with the number of those who delight in taking the lives of the lower animals, the impulse is shown toward other men or women. It is, however, very much a matter of education, the condition of life, or the attendant circumstances. The Prince of Wales kills a hundred pheasants before luncheon; the King of Dahomey kills a half a dozen of his wives before breakfast. It is to be supposed that each is actuated by the love of pleasure. If the acts in question of either of these potentates caused him pain, it is quite certain that neither the pheasants nor the wives would be immolated. This desire to destroy life is often exhibited during the very earliest stages of infancy. In fact, it is inborn, instinctive, and no amount of civilization or refinement is sufficient to abolish it altogether. Some individuals may succeed in keeping it down, but even the mildest-mannered man that ever lived possesses it ready to dominate him when a sufficiently exciting cause arises."

Dr. Hammond pictures a state of society in which human beings are in a depraved and degenerated state. This killing propensity is certainly not a normal trait in human character. It is the outgrowth of generations of education of depravity by the slaughtering of animals, the execution of criminals, and the wholesale butchery of human beings in warfare. The disposition to kill, if so universally present as Dr. Hammond thinks, must be the result of heredity, and is as much a species of mental deformity and disease as is insanity, or any other mental defect. Moral agencies alone will fail to eradicate this homicidal taint. Here is a work for sanitary reform.

DOMESTIC MEDICINE



CONSUMPTIVE HENS.—A French physician recently reported a case in which consumption was contracted by a large number of hens, by picking up the discharges of a young man living on the premises, who was suffering from this disease.

A NEW DRESSING FOR WOUNDS.—The fluid extract quebracho is an excellent remedy for slight skin wounds. When painted over a wound, it forms a water-proof covering which takes the place of the skin, and allows healthy healing to take place underneath.

TO PREVENT BEE STINGS.—W. L. Wilder asserts that, if one will hold his breath, wasps, bees, and even hornets may be handled without danger. It is claimed that by holding the breath the skin is made sting proof. If any of our readers try the experiment, we should be glad to hear from them.

VITALITY OF SCARLET FEVER CONTAGION.—A medical journal records a case in which a family of children contracted scarlet fever from the clothing of a servant who had cared for a case of scarlet fever more than a year previous, the clothing in the meantime having been kept in a trunk.

SKIN-GRAFTING, which is now becoming to be so frequently practiced, is made to succeed in a variety of ways. It has recently been found that the white of an egg answers as well as skin. Still more recently, greater success has been obtained by grafting with portions of skin taken from the gills of a fowl.

DISINFECTING CUSPADORES.—The Board of Health of Paris has commanded the disinfection of cuspadores used by consumptive patients. This practice ought to be universally followed. Complete disinfection may be effected by simply pouring into the cuspadore four or five times the volume of its contents of boiling water.

DRY AIR FOR CONSUMPTION.—Two German physicians, Drs. Weigert and Holter, recommend the inhalation of dry superheated air as a remedy for consumption. This agrees with the theory of Prof. Koch, whose experiments show that the germs upon which the disease is supposed to depend are destroyed at a temperature of 104°. The remedy is worth a trial.

AN AGREEABLE DISINFECTANT.—A sanitary journal offers the following recipe for an agreeable disinfectant, which doubtless is of some value, although we would hesitate to depend upon it as an agent for the thorough destruction of germs: To four parts essence of rosemary, add one part each of essence of lavender and thyme, add eight parts nitric acid. Shake the bottle containing the mixture, and pour a portion of it upon a sponge and allow it to evaporate. The vapor given off is agreeable, and is doubtless, to some degree, disinfecting.

FOR NOSE BLEEDING.—A slight bleeding from the nose may almost invariably be checked by holding the hand of the affected side above the head. If both hands are held above the head, a greater effect may be obtained. Placing the hands and feet in hot water is another way of checking nose-bleed. The most violent nose-bleed may be controlled by plugging the nostrils before and behind. Plugging the nostrils is not so difficult an operation as might be imagined. It is only necessary to pass through the nose a stiff, waxed thread, or a piece of shoemaker's "waxed end," catch the end in the throat, and draw it out through the mouth, and attach a piece of cotton, rolled firmly, about the size of a walnut, and draw it tightly into position. Sometimes both sides must be plugged. It is important to leave an end hanging down from the mass of cotton in the throat, which may be seized by a pair of forceps, and used to withdraw the cotton after the bleeding is stopped. The cotton should be left in place for twenty-four hours.

ERYSIPELAS.—A local attack of erysipelas may often be cut short by painting the parts with collodion. The application of wet compresses, with occasional fomentations to relieve pain, is also advantageous in these cases.

STYES.—This annoying affection of the lids is the usual result of some defect in the eye which may be remedied by glasses. This fact is not generally known, but ought to be. Instead of pulling out all the wickers, and existing a constant sufferer of these annoying blemishes, consult a good oculist, and have the defective eye corrected.

SAND-BAGS.—Hot-water bottles and rubber bags are excellent to relieve pain; but a good substitute, and one which may always be ready for use, is a sand-bag. It may be made by putting a few pounds of clean sand into a flannel bag, and then slipping over it another bag made of close cotton cloth. It may be quickly heated in an oven.

FOUL AND PROFUSE PERSPIRATION.—Just before retiring at night, take a hot and cold foot-bath, dipping the feet first in cold water then in hot, allowing them to remain in each for about one-half minute, and repeating the operation fifteen or twenty times. Then wipe with a soft towel, and when nearly dry, rub with subnitrate of bismuth, using a large teaspoonful for each foot.

BURNING FEET.—Bathe the feet night and morning with tepid water, to which a little soap has been added. When nearly dry, dust freely over them a powder composed of one part of salicylic acid and sixteen parts of powdered alum. If the burning is especially troublesome at night, dip in hot water for fifteen minutes before applying the powder. A jug filled with cold water is a good palliative.

FOR ERYSIPELAS.—The latest remedy for that mild form of erysipelas which is attended by a slight fever, with swelling and redness of skin, is the sticking-plaster. Strips of isinglass-plaster, half an inch in width, are laid across the affected surface in such a manner as to press it firmly, covering the entire surface. We have not tried this new remedy, but from the good results we have seen in the use of collodium for the same purpose, we judge that it may prove a valuable one.

ACUTE SORE THROAT.—Among the best remedies for this common affection is hot water. It should be

applied outside and inside; outside by means of flannels wrung out of water as hot as can be borne, applied to the throat and well covered, twice a day, for fifteen minutes or half an hour. Gargle hot water, as hot as can be borne, every fifteen minutes or half hour until relieved. Drink plenty of hot water, so as to get into a profuse perspiration. A few hours of this treatment will effect a cure in simple cases.

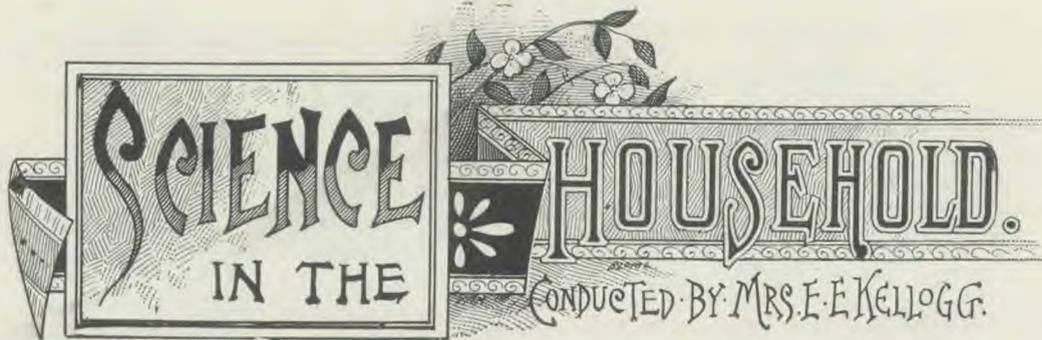
CHILBLAINS.—A gentleman called at our office the other day, suffering with what his physicians had termed eczema of the feet. The heels and sides of the feet were red and slightly swollen, and exceedingly painful. The trouble began with freezing the feet several years ago, as we found by inquiry. The case was evidently one of chronic erythema, an inflammation or congestion of the skin, or what might not improperly be termed, chronic chilblains. The following treatment cured him: 1. Bathe the feet with very hot water for fifteen or twenty minutes every night. 2. After bathing the feet with hot water, rub them well with *benzoated zinc ointment*.

DESTROYING TYPHOID GERMS.—Typhoid fever is usually communicated through the discharges of typhoid-fever patients. The germs of the disease find their way to wells, water courses, and other sources of water supply, and thus other persons become infected. This means of spreading the disease would be wholly checked if the discharges of every typhoid-fever patient were properly and thoroughly disinfected. A saturated solution of copperas, or sulphate of zinc, will probably destroy the germs of typhoid, but there are other more positive means of disinfection. We will mention two, as among the most valuable:—

A solution of two drams of corrosive sublimate to the gallon of water, will destroy all known germs. The objection to this disinfectant is that it is so poisonous that children, or others, are likely to be killed, by accidentally swallowing even a very small portion of the solution.

Another and perfectly safe method, which, by recent experiments, has been shown to be thoroughly effective, is the application of boiling water to the infectious discharges. Careful experiments show that the addition to the infectious material of four times its volume of boiling water, will effectually destroy the typhoid germs.

This fact is well worth knowing, as boiling water can always be procured, while other disinfectants are not in every case immediately accessible.



SEASONABLE BILLS OF FARE.

DINNER NO. 1.

Mixed Potato Soup.		
Baked Potato,	Stewed Parsnips with Celery,	
Escalloped Tomatoes,	Rolled Wheat with Cream,	
Corn Bread,	Granola,	Whole Wheat Bread,
Prune Tarts,	Apples,	Grapes.

DINNER NO. 2.

Baked Sweet Potato,	Parsnip Soup,	Mashed Irish Potato,
Baked Cabbage,	Stewed Corn,	
Graham Grits with Cream,		
Oatmeal Bread,	Whole Wheat Puffs,	
Graham Wafers,		Baked Sour Apple,
Cocoanut Pie,	Nuts.	

Recipes for articles named, not given in this issue, will be found in previous numbers of the journal.

BAKED SOUR APPLES.—Take a six-quart pan of apples, after they are pared, quartered; and cored, put them in a pot, and add two cups of molasses, one cup of sugar, one cup of water; cover them, and bake slowly for several hours.

BAKED CABBAGE.—Prepare and chop a firm head of young, white cabbage, boil until tender, drain and set aside until nearly cold. Add, then, a cup of rich milk and two well-beaten eggs, and salt, if desired. Bake in a pudding-dish until lightly browned.

STEWED PARSNIPS WITH CELERY.—Prepare and steam, until nearly tender, some nice young parsnips; then add a tablespoonful of minced celery, salt, if desired, and turn over the whole sufficient rich milk, boiling hot, and stew fifteen or twenty minutes, or until both celery and parsnips are perfectly tender. Season with a little cream, and serve.

MIXED POTATO SOUP.—Cook together one pint of sliced sweet potato and one quart of sliced Irish potato until tender. When done, mash through a colander, add salt, if desired,—celery salt may be used if preferred,—a cup of sweet cream, and milk to make the soup of proper consistency. Turn a second time through a colander. Re-heat and serve.

PARSNIP SOUP.—Wash, pare, and slice equal quantities of parsnips and potatoes; cook, closely covered, in as small a quantity of water as will suffice without burning, until tender. If the parsnips are not young and tender, they must be cooked alone for a time, and the potatoes added after they are partially done. Rub through a colander; add milk and cream to make the soup of the proper consistency, and salt, if desired. Re-heat and serve.

PASTE FOR TART SHELLS.—Take one half cup of rather thin sweet cream, which has been placed on ice until very cold; add to it the stiffly beaten whites of two eggs, and whip all together briskly for ten minutes; add sufficient flour to roll, cut into the required shape, bake quickly, but do not brown. Fill after baking with sweet prunes, prepared by cooking in a small quantity of water, and afterwards rubbed through a colander to remove skins and stones.

SIMPLE COCOANUT PIE.—Put two tablespoonfuls of dessicated cocoanut into a pint of milk, and place it on the back of the range, where it will just scald and steep, but not boil, for half an hour. Strain the milk, to remove the particles of cocoanut, and as some of the milk will have evaporated, add enough fresh milk to make a pint in all. Add to this three tablespoonfuls of sugar, and heat to boiling; then stir into it a tablespoonful of corn-starch, rubbed smooth in a little cold milk. Boil until the mixture thickens, then

remove from the stove and cool. When cold add one well-beaten egg, turn into a plain crust and bake. If a meringue is desired, take a tablespoonful of the desiccated cocoanut and pound in a mortar, or in a

clean cloth, until as fine as flour; add this, with a teaspoonful of sugar, to the well-beaten white of an egg; cover the pie with this, and brown very slightly in the oven.

HOW TO CLEAN WOOLEN FABRICS.

At this season of the year when flannels are, or should be, worn by everyone, the housewife often experiences much difficulty in securing their proper washing, without shrinkage. Opinions on the best methods of cleansing woolen fabrics are so various, and often contradictory, that the following conclusions given by an English authority, and based upon a careful trial of many different methods, will constitute information likely to be found of service in many households. The writer says:—

“I tried the various degrees of heat, from the hottest to the coolest temperature, and I employed all the favorite cleansing materials, one after the other—soap, borax, ammonia, benzine, and mixtures of these articles. The results were so decided, and so plainly marked, that the following conclusions must be regarded as definitely established:—

“1. The liquid used for washing should be hot.

“2. For the removal of greasy dirt, sweat, etc., borax is of so little value that its application would be mere waste. Soap-lye alone is better, but the preference must be given to soap-lye along with ammonia. This mixture works wonders, by quickly dissolving dirt from particular parts of underclothing which are hard to cleanse. It raises and revives even bright colors, and is altogether excellent.

“3. On the other hand, for cleaning white woolen goods, there is nothing which even approaches borax. Soap-lye and borax, applied boiling hot, gives white woolens a looseness and a dazzling whiteness which they often do not possess when new.

“4. If shrinking is to be entirely avoided, the drying must be accelerated by repeatedly pressing the

woolens between soft cloths. In no case should woolens be let dry in the sun, as in this case they become dry and hard. They are best dried in a moderate current of air, and in cold weather, in a warm place, not too near the stove.

“For colored goods there should be prepared a lye of seven quarts of soft water and two ounces of the best soft soap, the quantities being, of course, modified according to judgment and the dirtiness of the articles. The soap is dissolved over the fire, and the lye, properly stirred up, is divided into two vessels, to one of which is added a teaspoonful of ammonia for each quart of lye. The woolens must be immersed at a heat which the hand cannot bear, and the fabric must consequently be turned and pressed with smooth, wooden stirrers. They are then pressed out as far as possible and transferred to the second lye, containing no ammonia, and which by this time has become so cool that the articles can be pressed by hand, but no twisting, rubbing, or wringing must take place. They are then pressed between three or four soft, dry towels, till the latter no longer become wet.

“For white woolens there is added, instead of ammonia, a teaspoonful of powdered borax to each quart of soap-lye, and the operation is otherwise conducted exactly as above described. If the second lye is too soapy, it may be diluted with a little hot water.

“After two or three lots of woolens have thus been washed, the lye must be heated again,—the first lot being put aside to settle, and the second being used for the first operation, with the addition of ammonia or borax, as the case may be, while fresh lye is made for the second operation.”

THE best way in which to clean hair-brushes, says the *Popular Science News*, is with spirit of ammonia, as its effect is immediate. No rubbing is required, and cold water can be used as successfully as warm. Take a teaspoonful of ammonia to a quart of water, dip the hair part of the brush without wetting the ivory, and in a moment the grease is removed; then rinse in cold water, shake well, and dry in the air but not in the sun. Soda and soap soften the bristles, and invariably turn ivory yellow.

A WRITER on household topics offers the following as the quickest method of cleaning a lamp chimney: “Dampen a clean cloth in alcohol or alcohol and water; rub the chimney, then the lamp, and wash out your cloth for next time. If you don't get your cloth too wet you can wipe off the smoke and grease almost instantly, and leave the chimney clear and bright. If you don't want to use clear alcohol, dilute it with water and keep a bottle of it handy. Any good spirituous liquor would do the same.”

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.]

RHEUMATISM OF THE HEART. — M. C., Brooklyn, wishes a remedy for rheumatism of the heart.

Ans.—A disease of this sort is so serious that a skilled physician should be consulted. It would not be proper for us to take the responsibility of prescribing for a case of such gravity without a personal knowledge of the existing conditions.

TEA, COFFEE, AND CORSETS. — J. C. K., Minnesota, wishes us to state to our readers our opinion of tea, coffee, and corsets.

Ans. In our opinion, these three enemies of the human race destroy, annually, more lives than war, pestilence, and famine. We shall take occasion, in various numbers of the journal during 1889, to express more explicitly our opinion of these mischief-working agents.

STRENGTHENING FOOD. — Mrs. E. S., Illinois, wishes to know what articles of food will be most strengthening for a lady sixty years of age.

Ans.—The most strengthening food is that which is most easily and thoroughly digested. A very prevalent error respecting the food of elderly people, is that they require a stimulating diet. Stimulants decrease strength, on the whole, although they may produce a temporary appearance of increased vigor. Elderly people should especially avoid the free use of meat. A diet consisting of roots, grains, milk and cream, in abundance, and prepared in a palatable manner, would be, in our opinion, the best dietary, not only for old persons, but for persons of all ages.

BROWN SPOTS ON THE SKIN. — A correspondent wishes a remedy for the removal of brown spots from the skin, some of which have been present from birth.

Ans.—Such spots can seldom be removed. Lotions are of but little or no value. These discolorations are generally as indelible as the dark color of the negro's skin, and the application of remedies for their removal are about as likely to be successful as if used for the purpose of converting a negro into a white man. This is not very comforting to those personally interested, but, nevertheless, is the truth. "Can a leopard change his spots, or an Ethiopian his skin?" is a question which has never yet been satisfactorily answered otherwise than in the negative.

INCUBATION PERIOD OF HYDROPHOBIA. — C. B. C. inquires as to the maximum period of incubation in hydrophobia; in other words, the length of time which may elapse after the bite of a rabid animal before the disease makes its appearance.

Ans.—The incubation period of hydrophobia is probably more variable than that of any other disease. Really, but little accurate information existed respecting this malady, until the researches of Pasteur within the last few years. This investigator collected over five hundred cases of the disease, which had occurred in France, and found the average period of incubation to be a little less than three months. In some instances, the period was three or four weeks. It may be said that the period varies from one month to three or four months. The popular opinion that a person may die from the bite of a mad dog years after the wound is healed, is erroneous. Quite a number of diseases, such as tetanus and acute softening of the brain, are very similar to the disease commonly called hydrophobia, and are doubtless often mistaken for it.

BLACK-HEADS AND FRECKLES. — M. A. L., Cleveland, wishes a remedy for "those ugly black-heads" affecting the skin of the face and nose; also, a lotion for removing freckles.

Ans.—The black-heads referred to are the orifices of obstructed glands in the skin. The following is the proper treatment: Upon going to bed at night, rub some fine oil upon the affected part, applying the oil very freely and thoroughly. In the morning, sponge the parts with a soft sponge saturated with a mixture of one part of ether to two of alcohol. The purpose of this is to dissolve and wash away the fat which has been softened by the oil. The skin should be gently squeezed so as to press out the contents of the distended glands.

Freckles that are produced by exposure to sun and wind may be easily removed by the application of such remedies as grated horse-radish, lemon-juice and borax, — one dram borax to one ounce lemon-juice — or lemon-juice alone. Freckles which are present at all times, whether there has been exposure or not, cannot be removed by this means, or by any other with which we are acquainted. They are a part of the skin, and are so deep that lotions applied to the surface will not affect them.

LITERARY NOTICES.

Scribner's Magazine, completes its second year and fourth volume with the December issue. The number is rich in beautiful decorations and pictures. The literature deals with unusually attractive phases of life and art. Among the articles deserving special mention are: "Old Glass in New Windows;" "Winter in the Adirondacks;" "Memories of the Last Fifty Years," by Lester Wallack; and "Sandro Botticelli." Subscription price, \$3.00 per year. Chas. Scribner's Sons, N. Y., Pubs.

THE VEST-POCKET ANATOMIST. (Founded upon "Gray.") By C. Henri Leonard, A. M., M. D., Professor of the Medical and Surgical Diseases of Women and Clinical Gynæcology in the Detroit College of Medicine. Fourteenth revised edition, containing 193 illustrations, "Dissection Hints," and Visceral Anatomy. Cloth, 12mo., 304 pages; price, \$1.00. Illustrated Medical Journal Co., Publishers, Detroit, Mich.

The new fourteenth edition of this work has been increased in size by the addition of over one hundred pages of text and one hundred engravings; the page of the book has also been somewhat enlarged to accommodate better the engravings. Besides being a very popular dissecting-room companion, it has become also a very popular surgical-case companion for the practitioner, since the illustrations show at a glance (being photo-engraved from the English cuts of Gray) the positions of all the important blood-vessels, nerves, muscles, and viscera.

MR. George Kennan's description of life in Western Siberia continues to be a leading feature in *The Century*. The current installment, which is finely illustrated, is entitled "Life on the Great Siberian Road." Other interesting features of the December issue are papers on "London," by Henry James; on "The Reorganization of the British Empire," by George R. Parkin; "From Sinai to Shechem," by Edward L. Wilson; "A White Umbrella in Mexico," by F. Hopkinson Smith; besides the usual amount of stories, poetry, and topics of the times. *The Century* Co., 33 E. 17th St., N. Y. Subscription price, \$4.00 per annum.

THE January number of *The Chautauquan* is replete with valuable and interesting matter. The following is a partial list of the table of contents: "Gossip about Greece," by J. P. Mahaffy, M. A., of Dublin

University; "Greek Mythology," by James Baldwin, Ph. D.; "Music among Animals," by the Rev. J. G. Wood; "Hospitals," by Susan Hayes Ward; "The Indians of the United States," by J. B. Harrison; "Educate the Hand," by Dr. T. L. Flood; "The Chinese in the United States," by Wong Chin Foo; "Finland and the Finns," by Bishop W. F. Mallalieu; "Temperance Laws in the States and Territories," by the Hon. H. W. Blair; "Working Girl's Societies," by Grace H. Dodge; besides the usual editorial and C. L. S. C. departments. The poetry of the number is by Ada Iddings Gale and Hjalmar Hjorth Boyesen.

A NEW WORK ON GYMNASTICS:—Just as we are going to press there has been laid upon our table a handsome quarto volume, about the size of "Sunbeams of Health and Temperance," devoted to practical gymnastics. The author, Dr. O. G. Place, has devoted several years to the study of gymnastics and the preparation of this volume. Dr. Place was for some time director of the large gymnasium connected with the Sanitarium at Battle Creek, one of the finest in the country, and the present volume is intended to be a graphic illustration and demonstration of the various systems of exercise employed, including light calisthenics, Indian clubs, iron dumb-bells, chest weights, etc. All the different movements are illustrated by engravings made expressly for this work, at a large expense. In addition, the work contains thirty pages of excellent music, written expressly for this work by an experienced composer, Prof. Kinkle, of Louisville, Ky. The music has been made to fit the exercises in time, accent and expression, and nothing equal is to be found in any other work of this sort. The work is a desideratum for any person who wishes to learn gymnastics without a teacher, as explicit directions are given for the execution of each set of exercises. Directions are also given for the arrangement of classes in gymnastics, and hence is especially designed to meet the wants of teachers and others interested in gymnastic work. It will, undoubtedly, meet with a warm reception by all who become acquainted with it.

This work is altogether the most exhaustive and expensive of any work of the sort which has ever appeared. The author has prepared it at a large outlay of time and money, but wishing to place it in the hands of the largest number of persons possible, he has fixed the price at the low sum of \$2.25, postpaid. Orders may be sent direct to the author, Dr. O. G. Place, Battle Creek, Mich., or to this office.

PUBLISHER'S PAGE.

OUR readers will certainly enjoy another installment of Mrs. Miner's interesting story, and will be glad to know that there are other chapters yet to come. Mrs. Miner will be a regular contributor to the journal during 1889.

* *

PROF. W. H. MCKEE, of Battle Creek College, has promised to contribute to the journal, during 1889, abstracts of the morning talks to the students of the College, by the President, Prof. W. W. Prescott, which will present many valuable and timely thoughts and suggestions on education.

* *

MRS. E. G. WHITE promises for the present volume a series of articles on education, which we are very sure will be replete with practical instruction of highest value. Many of our older readers will remember the invaluable articles of Mrs. White in former volumes of the journal, and will be glad to welcome back so valued a contributor.

* *

THE holiday sale of "Sunbeams of Health and Temperance" has been so great that the publishers have been obliged to put through one edition after another, and have been crowded to the utmost to keep up in the shipping of orders. The last edition of this entertaining volume is just off the press, and, as a specimen of good printing, is the finest yet produced. Just the thing for a holiday gift.

* *

THE Sanitarium Training-School for Nurses numbers about eighty pupils. The class for 1888, organized in November last, is the largest in the history of the School, and includes a large number of young men and women of promise, several of whom are taking the first year in the Training-School as a preparation for a thorough medical course. We know of no better means for laying a solid foundation for a medical education than is afforded by this school.

* *

WE would call attention to the notice of the Battle Creek College in our advertising columns. This is a growing educational institution, and is surpassed by none in the United States in the thoroughness of the educational methods employed. The training in this school is not simply a drill in science, language, etc., but a true educational development of the whole individual. The course of study includes manual training, domestic economy, physical culture, and other practical instruction.

* *

"SOCIAL PURITY, AND A TALK TO GIRLS," is still finding its way into thousands of homes. This work, as its title indicates, is published in the interests of social-purity reform. Its authors have for years been successfully engaged in this line of work, and their extensive experience allows them to speak authoritatively on the subjects treated. There is no work which offers, for the small price of fifteen cents, so much valuable and startling information as is contained in this little pamphlet. The work is sold by agents, and is also for sale at this office.

* *

WE are sure that all of our readers who have perused the interesting articles by Dr. Oswald which have appeared in recent numbers of this journal, will want to follow this talented writer through the remaining articles of the series, which will deal with the tobacco question, and sundry other allied topics. We wish, also, to remind our readers of the promised series of articles under the general head of "International Health Studies," by Dr. Oswald, which we feel sure will be very delightful as well as instructive reading. The series will include a description of the health habits of the natives of Algeria, Italy, Spain, Switzerland, Lower Danube, Denmark, Belgium and Holland, Scotland, Mexico, Central America, our Southern Border-States, the Bermudas, and the West Indies.

* *

IN our advertising columns appears the announcement of the Mt. Vernon Sanitarium. This institution was formerly known as the Magnetic Springs Health Home. We understand that the proprietors have dropped this name, and have adopted the new one under which the advertisement appears, and that in so doing they have abandoned the idea originally held by those who gave the name to the institution, that some specific virtue resided in the so-called magnetic water furnished by the spring which supplies

the institution. We are glad to note this change in the name and character of the institution, and trust that the efforts of the managers to put it upon a thoroughly scientific basis will be successful, and if so, we doubt not that the institution will prosper. There is ample room for a properly conducted Sanitarium in the populous State of Ohio, and we trust this young institution will be blessed with a liberal patronage.

* *

MICHIGAN has been this year again favored with as delightful weather for fall and early winter as any one could wish. Even those who have lived in California for several years have been obliged to admit that the "Golden State" could furnish nothing better in the line of delightful, sunny, bracing weather, and hardly recognize the Michigan with which they were acquainted years ago, which usually included in its fall program of weather a number of weeks of clouds, fogs, slush, and drizzle, with only an occasional glimpse of sunshine. "Really, Michigan weather has reformed," said a gentleman the other day, and old settlers here all insist that within a generation there has been a decided change in Michigan weather. Summers are cooler, and winters are warmer; less fog and more sunshine at all seasons of the year. Just now, the young people are lamenting at the prospect of no snow for Christmas. Nevertheless, this sort of weather is delightful for invalids,—the air is cool enough to be tonic, exhilarating, invigorating, and free from germs. The Sanitarium doctors report a family of upwards of four hundred persons, including attendants, who are all thriving under Sanitarium regime and much calumiated Michigan weather.

* *

WITH this number, this journal enters upon its twenty-fourth volume. With a new cover and enlarged form, new type, and other new features, the publishers feel confident that the journal offers to readers interested in questions pertaining to health, larger inducements than any other in this department of journalism.

THE contributors whose services have been secured for 1889, promise a feast of good things in the line of health literature, such as no volume of this journal has ever before presented to its readers, and such as has never been equaled by any other journal of this class. It is hoped that the small addition which has been made to the price of the journal will in no way curtail its usefulness. Certainly, we trust that none of our old subscribers who may have forgotten to renew before the first of January,—the limit of the time set for the renewal of subscriptions at the old rate of \$1.00 per year,—will feel that they can afford to lose the advantages of a monthly teacher of hygiene and all that pertains to good living, in the best sense of the term, rather than pay the small addition to the subscription price, twenty-five cents per year.

THE price of the journal has always been, and still is, too low to be made a source of pecuniary profit. When the commission to agents is paid, and the necessary expense of publishing is met, the balance more frequently represents a loss than a gain. The most that the publishers expect of the journal is to secure from year to year an even balance of the loss and gain account.

* *

THE fourth quarterly meeting of the Calhoun County Medical Society was recently held in this city. The following report of the meeting we quote from the *Detroit Journal*:—

"The afternoon session was held in the city council rooms, and the program consisted of an essay by J. R. Brandt, M. D., of Cook County Hospital, Chicago, on the subject of 'Diphtheria'; papers by A. W. Alvord, M. D., and A. H. Kimball, M. D., both of Battle Creek; and another by C. P. Silva, M. D., Professor of Therapeutics, College of Physicians and Surgeons, Chicago, Ill., on 'Intestinal Antiseptics'; all of which were very interesting and received with marked attention.

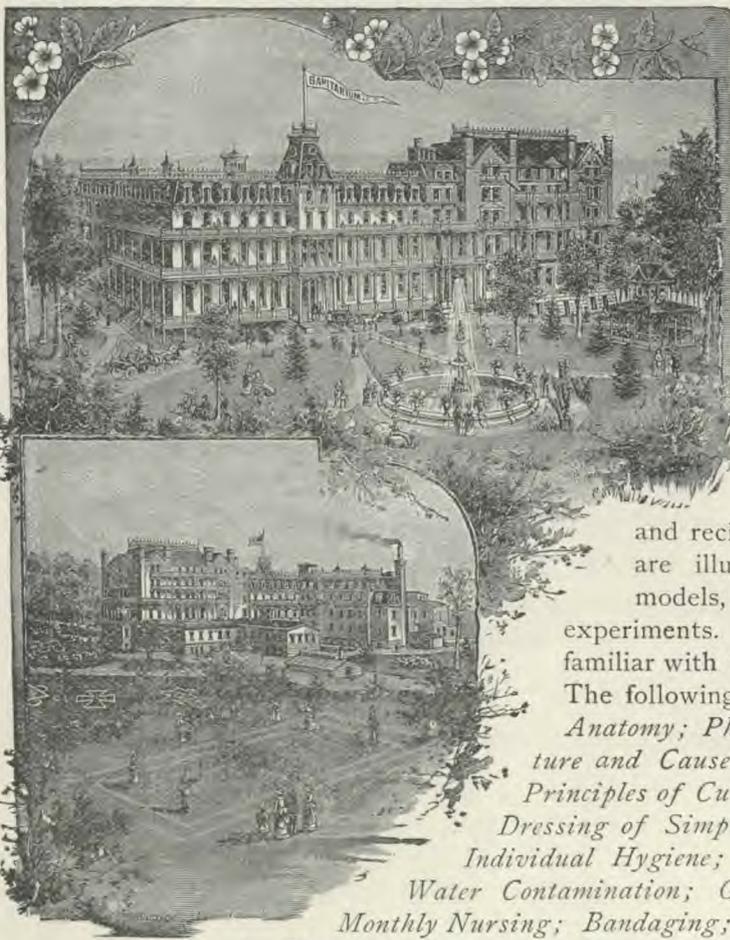
"The evening session was held in the audience-room of the new hospital building, just erected for use in connection with the Sanitarium. The senior class of the Sanitarium Training-School for Nurses, young ladies and gentlemen, to the number of twenty-five, and a few other invited guests, were present in addition to the medical society proper.

"The officers elected for the ensuing year were Dr. Joy, of Marshall, President, and Dr. Thomason, of Albion, Secretary and Treasurer. The principal feature of the evening was the address by the retiring President, J. H. Kellogg, M. D., Medical and Surgical Superintendent of the Battle Creek Sanitarium. His subject was 'The Medical Men of the Twentieth Century.'"

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FOR NURSES.

Regular Terms begin Nov. 1. Students Received at Any Time.



This School has now been in operation for five years, with constantly increasing patronage and success.

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The instruction is both theoretical and practical. Several lectures and recitations are given each week. Lectures are illustrated by means of colored charts, models, fine French Manikins, and numerous experiments. Each student is required to become familiar with the subjects taught, by actual practice. The following are among the leading topics taught: *Anatomy; Physiology; Elementary Chemistry; Nature and Causes of Disease; Language of Disease; Principles of Cure; Management of Common Diseases; Dressing of Simple Wounds and Injuries; General and Individual Hygiene; Ventilation; Disinfection; Air and Water Contamination; General Nursing; Surgical Nursing; Monthly Nursing; Bandaging; Hydrotherapy—theoretical and practical; Electricity—Faradic, Galvanic, Static; Diet for the Sick; Massage; Swedish Movements; Calisthenics; What to Do in Emergencies.*

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The advantages offered by this school are in many respects superior to those offered by any other, not excepting the older schools in the large cities.

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∴ ∴ ∴

*A Number of New and Talented Writers have been Engaged for 1889,
among whom are*

DR. FELIX L. OSWALD, Well-known to the reading public as a leading contributor to the *Popular Science Monthly* and other popular magazines. Dr. Oswald is one of the most talented of American writers, and his extensive travels and acute observations have given him a fund of material with which he cannot fail to interest many thousands of readers in a series of articles which he has agreed to contribute to the columns of GOOD HEALTH during 1889, under the general title, "*International Health Studies.*" Dr. Oswald will also continue in the early numbers of the year his able and interesting series of papers on "*The Stimulant Delusion.*"

DR. NORMAN KERR, OF LONDON, ENG., Will furnish a series of practical health papers which will be of great value and interest to all students of hygiene. Dr. Kerr is well known throughout the civilized world as a physician of high standing, and a pioneer in scientific studies of the problems of inebriety.

∴ ∴ ∴

A NEW DEPARTMENT. With the new volume will appear in the journal a new department devoted to EDUCATION. In this department will be represented the most advanced thought on this important question, under such topics as "*True Education,*" "*Modern Educational Methods,*" "*Educational Reform,*" "*Results of Physical Culture Combined with Mental Training.*" Mrs. E. G. WHITE, Prof. W. W. PRESCOTT, A. M., and others will contribute to this department.

∴ ∴ ∴

POPULAR MEDICAL PAPERS. The volume for 1889 will contain a series of popular medical papers of great value. The subjects treated will include the following: "*Popular Nostrums, What They Are, and the Mischief They Do,*" (including analyses of the principal nostrums and exposure of the fraudulent claims of their manufacturers.) "*Cancer and Cancer Quacks;*" "*Regimen for a Subject of Nasal Catarrh;*" "*The Terrible White Plague—Consumption;*" "*Rules of Life for a Consumptive;*" "*A Bad Heritage—How to Escape its Consequences;*" "*Studies in Physical Culture;*" "*The Plague of Leprosy in the House;*" "*Hygiene of the Eye and Ear.*"



Good Health for 1889 will Contain the following Departments:

General Articles,

Devoted to practical hygiene and popular medical papers.

Dress,

In the interest of rational "dress reform," opposing extreme notions and by practical illustrations and suggestions pointing out the way to a sensible conformity with the laws of health.

The Happy Fireside,

CONDUCTED BY MRS. E. E. KELLOGG.

Devoted to the interests of the home, temperance, moral and social culture, and popular science.

True Education.

Educational reform, the training of the whole individual, rather than the mind only, manual training, physical culture associated with mental training, and kindred topics.

Social Purity.

This department represents the "White Cross Movement" and its interests, and all that pertains to the purity of morals in the individual, the home, and society.

Editorial.

J. H. KELLOGG, M. D.

The editor each month serves up a rich variety of hygienic tidbits, pithy, practical, and representing the latest scientific thought in this channel.

Domestic Medicine.

In this department Dr. Kellogg condenses the most practical results of his extensive experience in the treatment of the sick. The Doctor believes in the education of the people in medical subjects, and proves his faith by his works.

The Question Box.

This interesting department, which affords a channel for communication between the editor of the journal and his readers, will be continued. Each month this department contains medical advice and suggestions which would cost ten times the price of the journal if obtained in the usual way.

Household Science.

In this department Mrs. Kellogg will continue to give to the readers of GOOD HEALTH the invaluable results of years of work in her experimental kitchen, and experience gained in the management of the cuisine of the largest Sanitarium in the world, and the instruction of classes in the Sanitarium School of Domestic Economy. Other writers will also contribute to this department.

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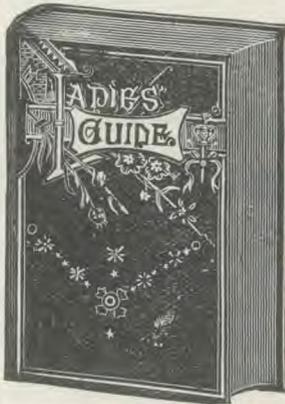
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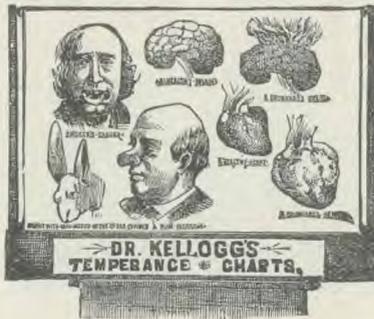
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New Temperance Charts.

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 Fatt. Kidney of Beer-Drinker. F.—Atrophied Kidn. 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.

Nothing so Complete in this line has ever been attempted before. These ten charts constitute a most powerful temperance lecture, the impressions of which will not be easily forgotten.

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Scribner's Magazine

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Articles on **ART SUBJECTS** will be a feature. Papers are arranged to appear by Clarence Cook, E. H. Blashfield, Austin Dobson, and many others. *Illustrated.*

FISHING ARTICLES describing sport in the best fishing grounds will appear. Salmon, Winninich, Bass, and Tarpon are the subjects now arranged. The authors are well-known sportsmen. *Illustrated.*

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The Dick Seamless Foot Warmers again. Warm, Soft, Strong; woven by hand, lined with wool. If your dealers have none order of us. Ladies' sizes \$1.35, Gents' \$1.60. (Children's sizes made.) Sent postpaid to any address. Write plainly and give size of shoe worn. We advertise in the early winter only, but fill orders throughout the year. **W. H. DICK, Manfr., Dansville, N. Y.**



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GOING WEST.					STATIONS.						GOING EAST.				
Chgo Pass.	Mall.	Day Exp.	Pack. Exp.	C. Crk. Pass.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	Dep.	Arr.	
.....	am	am	pm	pm	.....	.....	pm	am	am	am	.....	.....	pm	am
.....	5.55	7.15	7.55	4.00	.....	.....	10.20	1.15	7.35	.....	.....	.....	10.50	.....
.....	7.28	8.51	9.21	5.40	.....	.....	8.40	11.58	6.17	.....	.....	.....	9.17	.....
.....	8.08	9.10	10.10	6.20	.....	.....	7.55	11.27	5.40	.....	.....	.....	8.38	.....
.....	8.48	9.35	10.58	7.15	.....	.....	7.15	10.58	5.00	.....	.....	.....	8.00	.....
.....	10.00	11.30	12.10	8.25	.....	.....	5.20	10.07	4.00	.....	.....	.....	6.35	.....
.....	10.37	11.00	12.10	9.08	.....	.....	4.42	9.37	3.25	.....	.....	.....	6.02	.....
.....	am	11.30	11.45	1.15	.....	.....	3.45	8.55	2.35	.....	.....	.....	5.15	.....
.....	6.30	am	12.05	1.20	.....	.....	3.40	8.50	2.30	.....	.....	.....	am	.....
.....	7.15	.....	12.50	2.21	.....	.....	2.52	8.11	1.44	.....	.....	.....	.....	.....
.....	7.25	.....	1.00	2.32	.....	.....	2.40	.....	1.35	.....	.....	.....	.....	.....
.....	8.18	SUN	1.50	3.19	.....	.....	1.50	7.25	12.45	.....	.....	.....	.....	.....
.....	8.55	Pass.	2.30	4.07	.....	.....	1.05	6.50	12.00	.....	.....	.....	.....	.....
.....	10.05	am	3.41	5.30	.....	.....	11.54	.....	.....	.....	.....	.....	.....	.....
.....	10.20	am	4.00	5.50	.....	.....	11.40	5.30	10.30	.....	.....	.....	.....	.....
.....	12.40	10.00	6.25	9.10	.....	.....	9.05	8.25	8.15	.....	.....	.....	.....	.....
.....	pm	am	pm	am	.....	.....	am	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, Chicago Passenger, Ft. 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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STATIONS.								
Chicago.....	*	A. M.	A. M.	P. M.	P. M.	P. M.	P. M.	P. M.
Michigan City.....	†	5.00	9.00	d 3.10	d 10.10	d 9.10	4.40
Niles.....	‡	7.23	11.03	4.54	12.23	11.27	6.57	.....
Kalamazoo.....	§	8.37	12.10	5.49	1.51	12.55	8.20	.....
Battle Creek.....	||	10.20	1.40	6.58	3.75	2.27	10.70	5.30
Jackson.....	¶	11.15	2.18	7.33	4.25	3.15	as 7.10	6.25
Ann Arbor.....	**	1.20	4.15	8.49	6.15	4.45	9.25	8.30
Detroit.....	††	2.43	5.37	9.41	7.50	6.00	10.40	.....
		4.10	6.45	10.45	9.20	7.30	11.50	.....
		P. M.	P. M.	P. M.	A. M.	A. M.	A. M.	P. M.

TRAINS WEST.		Mall.	Day Exp's	Ch'go Exp's	P'cific Exp's	Evo's Exp's	Kal. Acc'n	Local Pass.
STATIONS.								
Detroit.....	††	A. M.	A. M.	P. M.	P. M.	P. M.	P. M.	A. M.
Ann Arbor.....	**	7.30	9.10	d 1.30	d 10.15	d 8.00	4.00	.....
Jackson.....	¶	8.57	10.40	2.24	11.35	9.15	5.41	.....
Battle Creek.....	||	10.13	11.45	3.27	12.54	10.55	7.10	6.25
Kalamazoo.....	§	12.09	1.16	4.38	2.15	12.27	8.50	7.55
Niles.....	‡	12.50	1.55	5.15	3.07	1.20	pm 9.45	8.40
Michigan City.....	†	2.27	3.20	6.27	4.32	3.07	6.40	.....
Chicago.....	*	3.48	4.15	7.32	5.43	4.34	8.04	.....
		6.10	6.40	9.30	7.45	7.04	10.20	.....
		P. M.	P. M.	P. M.	A. M.	A. M.	A. M.	P. M.

*Connects with railroads diverging. †Connects with L. E. and W. and L. N. A. & C. ‡Connects with C. W. & M. §Connects with G. R. & I. and L. S. & M. S. ¶Connects with L. S. & M. S. and Grand Trunk. **Connects with T. A. A. and N. M. ††Connects with railroads diverging and Steamboat lines. ‡‡Daily. All other Trains daily except Sunday. O. W. RUGGLES, General Pass. & Ticket Agent, Chicago. O. E. JONES, Ticket Agent, Battle Creek.

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