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MENTAL HYGIENE.

[THE following, an abstract of a lecture delivered by Dr. W. E. Ford before the Young Men's Christian Association of Utica, N. Y., in the *American Journal of Insanity*, contains so many excellent and practical things that, although quite lengthy, we feel sure our readers will consider it well worth a perusal.—ED.]

Hygiene, in general, is the art of preserving health, and is a subject that engages attention in proportion to the degree of civilization a community has reached. Savages that live by the chase, and men in the lower conditions of civilized life, pay but little, if any, attention to matters of this kind. How great its importance is to us may be gathered from statistics which show that the annual loss of life in this country from causes now demonstrated to be preventable, is one hundred thousand. In addition to this great mortality, there are in the United States constantly sick, from causes we have every reason to believe are preventable, one hundred and fifty thousand persons. Every year one person in each five hundred of our population becomes insane, or is at least mentally maimed. Thus the productive capacity of a community, as a whole, is reduced, needlessly and in part wickedly, at least thirty per cent.

The causes of sickness are classified thus into: 1. Hereditary; 2. Physical and chemical; 3. Organized or vital; and 4. Mental. It is only of this latter division of the subject that I shall speak to you to-night. Mental Hygiene is so great a question, embracing as it does so much of psychology and metaphysics, that but few glimpses can be obtained here and there of its more obvious phases in a single paper. All men are to a greater or less degree observers and students of mind. The humblest and the most learned, each from his own standpoint, is a judge of the mental phenomena exhibited in his own person. There is something so mysterious in the relation of the mind to the body, and of such vital importance, that no one is so dull as never to have thought of it. The little peculiarities and failings we see in others are causes of constant speculation, while our own variations from what we consider normal and right conditions, cause us much anxiety and unhappiness. I am persuaded that if we understood more thoroughly the physical causes which produce the fluctuations of feelings, and knew how to avoid the many undesirable states of mind we all experience, we should not only order our lives more carefully, but also be enabled to enjoy to a greater degree our present conditions.

Of no other period of human history can it be so emphatically asserted as of the present, that the race is not to the swift, nor the battle to the strong. In ruder civilizations, brute force, brawn, and muscle played the most prominent part in elevating men to leadership; and the hero was the man of the greatest physical strength and endurance. To-day the ends which men most covet are obtained by peaceful methods, and brawn plays only a secondary part, furnishing the basis for healthy mental activity. For the struggle now is between mind and mind, rather than between limb and limb, and the best examples of mere physical excellence are less regarded than the mental endowments of the average man. Phys-

ical culture should be looked upon as a means only, the great end being a better intellectual growth.

We know of the mind only in association with a brain, and yet it is not a secretion or product of the brain, but is an independent essence or principle, requiring a brain, however, not for its existence, but as its only means of manifestation. A healthy brain is, therefore, necessary for a healthy and normal manifestation of mind. It is practically a unit, too, embracing, however, several elements, as volition, feeling, and intellect, a derangement in function in any one of which destroys man's power to adjust himself properly to his surroundings.

When we consider the brilliancy of the best minds, the power which great intellectual development gives, we can but be humiliated at the thought that this is after all dependent in a great measure upon good digestion, pure air, refreshing sleep, and a comfortable temperature.

Examples of this truth readily come to mind, and we are particularly struck with it if we search the pages of history. The men most distinguished in English literature, as a rule, possessed strong and healthy bodies, and largely because of this fact were enabled to accomplish what they did.

Newton went through his course of mathematical investigations unhampered by a single day's illness. Bacon had a physical constitution strong beyond that of most men, and the nice discernment of character which has made Shakespeare the poet for all time, could have come only from perceptions never disturbed by ill health. Burke scarcely ever lost a day from ill health. Walter Scott, with a strong body, trained by daily habits of exercise and recreation, was enabled to sustain a long career, than which there is none more brilliant in the annals of literature. Indeed, in every vocation the best results are obtained when there is continued good health.

The success of great military enterprises is often determined by the physical vigor of the general. How great this was in the case of Wellington, is shown by the fact that the rest he craved amid the cares of the camp was to follow the hounds, and after spending the day in active hostilities, he is known to have retired to his tent, and to have written a masterly article on the establishment of the National Bank in Portugal.

Napoleon seemed to have a body that knew no fatigue. He was as untiring in the council chamber as he was in the field, and yet he once suffered such pain upon the field of Borodino, where his fate depended upon the result, that he learned of the progress of the battle without interest or emotion, and here he met his first decisive check.

It will, of course, occur to you that many equally distinguished in literature and statesmanship were so unfortunate as to be hampered during their entire lives by frail bodies. Such were Pascal, Cowper, Channing, and Robert Hall. The list, however, if complete, would be comparatively small, only large enough to make an exception to a very general rule.

If we, therefore, say that the normal development and expression of mind is so largely dependent upon physical strength, then in the subject of mental hygiene must be included all those conditions which are necessary to bodily health.

That early training plays a most important part in securing both sound bodies and sane minds, no one will deny. The only question is, what kind of early training will best secure mental stability and strength? No boy, even with a healthy body, can be crowded and filled with facts, and no attempt be made by him to assort his facts and draw rational conclusions from them, without giving him an unbalanced and unwieldy sort of mind. A little knowledge, clearly held in the mind and ready for use, is a great power. Schooling is not so much for the thing taught as for the mental development that comes in the process of learning. It is undoubtedly a mistaken tendency of this commercial age to abandon the classics, and in their stead to teach more modern things to boys, because the modern things have a commercial value. It is of no use to store a mind with knowledge of the most useful kind unless there be at the same time developed the power of observation and reasoning.

The world is full of men whose minds are richly stored with facts, whose memories are wonderfully trained, but who are not able to occupy places of importance, because they do not know the relative value or the proper use of the knowledge they possess.

Common sense is regarded all the world over as of more value than technical knowledge of any kind, and yet common sense is nothing more than an equal development of all the mental faculties.

The aim, then, of early training should

be not only to impart such knowledge as shall be useful in the affairs of life, but also —and it seems to me chiefly—to evenly develop the mental faculties. If a child shows a remarkable memory, the mistake is usually made of allowing and assisting the child to tax this faculty to its utmost, and thus to dwarf other and more important faculties of the mind, especially those of observation and reasoning. This is the precocious child that rarely makes a strong-minded or long-lived man.

The faculty of remembering is not one of the highest of the intellectual powers or functions. Even idiots with slow and imperfect apprehension are often seen to perform real feats of memory, while the dog and the horse exhibit a marked capacity for recollecting their associations with persons and places and events after a long interval of time has elapsed. The powers of observation and of reasoning are much higher and more necessary in man, and, therefore, ought to secure a larger share of attention in the training of young minds. For this reason the kindergarten method is infinitely superior to mere didactic teaching.

Children with vivid imaginations need more careful training of the memory and more cultivation of the habit of observation. If a highly imaginative child is given ghost stories, fairy tales and extravagant myths, and later, the trashy novel, the tendency is to make the man live in an unreal world, and render him visionary and unstable. These persons when young often form the habit of day-dreaming, a habit that is always bad. It is more commonly found in minds that are not of the highest order, and often prevents the attention's being placed upon those things that would enable the individual to improve his condition and lot.

Thus, while about their duties or at their studies, these youths carry on in their minds a play, the chief figure, the hero, the heroine, the altogether desirable character, being taken by themselves, and about this central figure they weave all sorts of incidents contributing to their vanity. I am convinced this pernicious habit is carried far beyond juvenile years, and that besides wasting much time and dissipating mental energy, it strengthens one's egotism, and causes a distaste for the wholesome duties and pleasures of life.

This does not include the worse vice of developing a prurient and unclean imagination, either by bad associations or by bad books, a thing too common and too well understood to require any further mention here. But simple, innocent day-dreaming I am sure plays no unimportant part in warping the judgment, in causing offensive egotism, and in relaxing the control over the emotions.

The dreamers are to be found in every walk in life. The dull and uninterested apprentice, who dreams of the splendors of luxurious idleness instead of applying his energies to the business in hand, makes a poor mechanic, and attributes his want of success in after life to the oppression of the rich. The apathetic and listless clerk, filled with thoughts not connected with his duties, fails to command a better place, and continues to be somebody's drudge through life. The inactive student, who builds castles in the air instead of conjugating his verbs, finds practical success in life eluding him, and he turns to vinegar, rails at fate, and abuses more successful men. The scholar, who lives in a world created by his own imagination, gets into a profession to find it crowded by better men, and turns to dissipation in some of its many forms to relieve his disappointed egotism. All these are familiar enough examples of the result of this unhealthy mental activity. The young girl who indulges the habit of day-dreaming, and keeps before her satisfied imagination the picture of herself surrounded by luxuries and fineries, far beyond her actual lot in life, in this manner whiles away many an hour that would otherwise, perhaps, be irksome, but she also comes to place a false value upon mere show and external splendor, and to be dissatisfied with the commonplace duties and pleasures of life. She may, perchance, try to realize some of the pleasures of her own fanciful pictures by little adventures not approved by older heads, and may lose in a day what she cannot regain in years; or it may be she is sought in marriage by a worthy and substantial man in her own sphere, and refuses him because he cannot place her amid the splendors her roving imagination has painted. Her reason tells her she is wrong, her friends wonder at her decision, but she is haunted by a vision created by her unbridled fancy, and she lives to regret the habit of day-dreaming which thwarted her destiny.

These things are not the result of fate or chance, but rather the legitimate results of the dwarfing of the higher mental faculties and an overdevelopment of its lower powers. Cramming and straining of brains develop activity, but not strength

and stability, and excepting in those cases where there are unusual endowments, the process is likely to be followed by mental squints, moral obliquities and perversions, from which the cranks, the nihilists, anarchists, and dynamiters are made.

What is the cure for this day-dreaming? Timely advice given by parents and teachers may do much to prevent the habit; while the cultivation of other faculties of the mind not directly related to imagination will prevent the surrender of the individual to any mental habit that is deleterious. Education should repress tendencies as well as draw out powers. The powers of observation must be stimulated by interesting children in out-door amusements, that they may learn to love animals and flowers, and become acquainted with the processes of nature. I have observed that the boys most interested in horses, dogs, rabbits, and birds, and later in field sports, in fishing, in botanical or geological studies, usually become practical and efficient men with well-poised intellects. Nothing is more calculated to promote, not only the healthy growth of the body, but also the symmetrical development of mind, than an early and intimate association with nature.

It is a singular fact that in all large cities in this country, as often as every third generation, the large interests and the learned professions pass into the hands of men who were born and bred in the country. Name over the men in our city who are to-day the representative men in business, and see how few were born in this city and inherited their success.

This argues that the luxury and the temptations of the city wreck many men before they arrive at the period of their greatest possible usefulness, but it also demonstrates what to me is as significant a fact, that the country life for the child and the youth develops the habit of observation and of reasoning, which makes the strongest kind of a mind. In England the climate, the social distinctions and differences in manner of life, very materially alter the case.

The part played by the emotions in the formation of character, as well as in the preservation of bodily health, cannot be overestimated, and in any talk on mental hygiene must be carefully considered as to their development, their direction, and their control. That volition and intellect are much higher qualities, no one can deny, and yet we all know that in a large proportion of individuals the emotions override the one and pervert the other. The operations of the will are something distinct from our emotions, yet in every instance the primary cause of the volition is an emotion.

The influences of fear, of desire, of love, have everything to do in determining our belief. If we fear an object, the evil it can do us is usually exaggerated in our minds; if we love an object, we are proverbially blind to its defects; or if we hate an object, we are equally oblivious to the good qualities, and thus do our emotions lord it over our intellects.

The anticipation of pleasure, or the desire for acquisition of property, precedes in my mind the determination to go forth in pursuit, and thus our conduct is largely ruled by our pleasures and pains through our emotions.

Uncontrolled emotions strike us with intellectual blindness, preventing us for the moment from calculating the advantages or disadvantages of a line of conduct, and in this state we are guilty of our greatest imprudences.

The emotion of fear exhibits the greatness of its power over us by inducing the most irrational beliefs. I have known persons to allow themselves to fall so completely under the control of fear of pain, fear of sickness, or of death, that an ordinarily good judgment has been completely overthrown, and they sought remedies and means of relief that are repugnant to reason. How often do we hear men revile quack nostrums, expose the vileness of some impostors, disclaim all belief in clairvoyance, mind-reading, faith-cure, etc., and yet, when threatened with some sickness, or alarmed at some obscure sensation, they first brood over the matter, then become terror-stricken, and next seek consolation from one or from all of these sources! They are honest enough in both instances, but have not the power or the skill to escape the thralldom of this emotion, and are duped and cheated in their weakness. Actual experience, or total failure to secure the desired result, does not seem to deter them in the presence of the next wave of terror from trying the same thing over and over again.

In extreme cases of anger this one emotion may acquire such control of the individual as to lead to words and acts the most debasing and calamitous. The falsehoods, mistakes, and confusions growing out of untrained emotions are seen in every relation of life. Individuals and

races may differ much as to the kind of emotions that predominate, even as the strength of an emotion differs in individuals, and yet the control and direction of them is largely a matter of habit and training. In so far, therefore, as they may be made subservient to the will, and be regulated by reason, are we responsible for their manifestation.

TO BE CONTINUED.

Reported for GOOD HEALTH.

SANITARY CONVENTION AT YPSILANTI, MICHIGAN.

GREAT interest was manifested in the Ypsilanti Sanitary Convention, which was held June 30 and July 1, 1885, under the auspices of the Michigan State Board of Health. The physicians of Ypsilanti, the professors of the State Normal school, and a large number of prominent citizens of that place were in constant attendance. About twenty physicians and health officers from other places were also in attendance.

C. L. Yost, Mayor of the City, opened the Convention with a brief address of welcome, in which he said that "in times past we have been honored with the presence of other assemblages for consultation upon religious, political, medical, or other interests; but this is the first time that disinterested philanthropists have come to us to discuss those great practical questions relating to the guardianship of public health." He thought that the adage, "an ounce of prevention is worth a pound of cure," was the inspiring motive that brought them together. Their city was more than usually blessed with conditions for good health; still they recognized the value of detailed instruction in sanitary subjects. Sanitary science is in its infancy, and all attempts to further it and bring intelligent attention to its teachings should be welcomed by thinking men everywhere.

Edwin Willits, President of the Michigan State Agricultural College, presided over the Convention; and in his address, he dwelt upon the value of human life considered from an economic standpoint, as worked out by eminent statisticians. A number of people who should produce $3,000,000 when in good health, could produce only $2,000,000 when not in good health. Here is a loss of one-third, much of which could be saved by applying the simplest sanitary precautions. It is the duty of a community to keep these human earning machines in good condition of health, or earning capacity, even from economical motives. A community has the legal right to do this. We want pure water and plenty of it, clean streets, clean sewers and drains, swamps drained, cess-pools filled up; and we should not count the cost on our fingers. The crowning labor of our medical science is the warding off of disease. Given by heredity a sound constitution, pure air, pure water, and nutritious food ought to guarantee to every human being, as he puts his foot on this earth, his three-score years and ten, with which assurance he might plan the labors of a well-rounded life.

Rev. Dr. Woodruff, of Ypsilanti, read a paper on "The Moral Effect of Sanitation." He told of the importance the ancient Jewish people gave to sanitation, and in a forcible way pointed out its power in elevating man morally as well as socially and physically. He thought the present attention given to sanitary matters is not temporary. The reform has come to stay.

Prof. Austin George, of the State Normal School, spoke on "Sanitary Needs of School Buildings and Grounds." 1. School sites should be on gravelly soil, a natural knoll, admitting thorough drainage. 2. Wells should not be nearer than 100 feet to the outhouses. 3. Basements should be high, with free circulation of air under ground floors. School rooms should contain 250 cubic feet of air space for each child. The light should come in over the left shoulder. The windows should extend to the ceiling, and within three and one-half feet of the floor. The blackboard should be on the side of the room opposite the windows, and never have a glossy surface. 4. The simplest heating and ventilating apparatus is the hot-air furnace, and for small buildings, the jacketed stove. The foul air outlets should be ample, and at the floor level. With any system, the rooms should be frequently flushed with fresh air through windows and doors. The temperature should be kept at 70°, not by teachers' sensations, but by thermometers. 5. Perfect desks are not yet made; they should be adjustable to suit different sizes, and be constructed with reference to the curves of the body. There should be foot-rests which could be raised or lowered until each pupil is made comfortable, and able to take a healthful position. Many spinal

complaints and pulmonary diseases are produced by improper desks. 6. Means for drying wet wraps should be provided. 7. Precautions against fire should be taken, especially in the heating apparatus and the chimney. 8. "Inasmuch as the State educates the children, and compels their attendance in public buildings, the State should see that the children are not subjected to any preventable cause of disease."

This paper called out a long discussion, participated in by Dr. Avery, of Greenville, Pres. of the State Board of Health, Prof. Vaughan of Ann Arbor, member of the State Board of Health, Prof. Mc. Louth of the State Agricultural College, Prof. Langley of the Michigan University, and many others.

Dr. Bion Whelan, of Hillsdale, Mich., spoke on "Sanitation in Small Cities." The water supply should be guarded from contamination from cess-pools and vaults. If we could not have sewers, the most feasible plan for disposing of garbage is to divide the city into districts, and have it removed by licensed scavengers. Sanitary science should be taught in the schools. The women should be taught sanitary needs, as much of sanitary work falls upon them. The nature of contagious diseases, and means for their restriction should be known by all.

Dr. J. H. Kellogg, of Battle Creek, member of the State Board of Health, treated of the "Disposal of Slops and Garbage," illustrating by use of the blackboard. He pictured in a graphic way the ordinary condition of back yards, as contrasted with front yards. He prefaced his subject proper with a brief description of bacteria and other low forms of microscopic life, and showed the relation of these to decay, no decay being possible without their intervention. He showed the importance and usefulness of certain sorts, and the dangerous nature of others. He spoke of flies in relation to filth. They are a very strong indication of the presence of filth, and consequently of germs, and it is even believed that the germs of certain diseases may be spread by them. Whenever a house is full of flies, you may be certain that slops or garbage or filth of some sort has been allowed to accumulate about the premises. He stated that the air about cess-pools, foul-drains, and other filthy places is usually swarming with micro-organisms, and he believed that even if such germs were not the direct cause of certain diseases, the continual breathing of such air predisposes thereto. All sources of filth should be carefully and speedily removed from the habitation and its vicinity. Garbage can be reduced to a minimum by a little attention to domestic economy. Much food that becomes garbage through carelessness could be turned to good use if not neglected. Even after due care, however, some refuse will remain. So far as possible, this should be burned. This is the best method of disposal. Where it is impracticable, a water-tight, covered receptacle can be used for receiving such refuse, which should be removed frequently by a paid scavenger, or otherwise. Slops should not be thrown upon the ground, into open drains, or into cess-pools in the yard. He had known of frequent instances in which wells and cisterns were contaminated from the sewage of foul privies, drains, and cess-pools. If slops must be poured on the ground, set off a portion of the back end of the garden, and distribute the slops on different parts of it on alternate days, giving in this way some opportunity for the soil to oxidize the organic matter. Slops containing excreta from contagious diseases should be thoroughly disinfected.

Chas. R. Whitman, of Ypsilanti, one of the regents of the Michigan University, read a paper on the "Limitations and Duties of Local Boards of Health." The powers and duties of local boards of health should be as follows:—

1. To ascertain the causes of sickness and of death, and from time to time the prevailing diseases among all classes.

2. To prevent or mitigate diseases, especially zymotic or epidemic, endermic, and contagious diseases.

3. To effect the periodical or special vaccination of the inhabitants.

4. To ascertain, prevent, and remove or abate nuisances dangerous to public health.

5. To prevent the introduction of malignant, infectious, or contagious diseases, and to isolate persons afflicted or believed to be afflicted with such diseases.

6. To establish, locate, and manage hospitals for persons having contagious diseases.

7. To prevent the sale of any article for food or drink which is unwholesome.

8. To enforce these regulations by a sufficient penalty.

Mr. Whitman said that the radical defect in the law defining the powers and duties of local boards of health, is the lack of a general law forbidding evils and im-

posing penalties. Such a law should be enacted, and it should be as sweeping and as readily enforced as is the criminal law. He thought that the subject of sanitation should become one of education in the schools, so that the future citizen, architect, and physician may be established in the principles of sanitation.

After a thorough discussion of this paper, participated in by Prof. A. B. Palmer, of the University of Michigan, and many others, it was voted that Mr. Whitman be requested to draw a bill suitable for presentation to the Legislature, framed to cover the question under discussion, and suited to correct existing defects in the present law. The bill is to be published in the proceedings of this Convention.

Dr. A. F. Kinne, in a paper on "Sources of Malaria in Ypsilanti," took the ground that malaria is caused by a malarial germ native in certain soils and waters. Boards of health should require that the basements and sub-floor spaces be thoroughly ventilated; and no mill-dam owner who uses water should be allowed to keep the pond much less than full.

Dr. O. W. Wight, Health Officer of Detroit, spoke on the "Prevention of Communicable Diseases." He showed clearly the contagious nature of those diseases; the great and unnecessary loss of human life resulting therefrom; and how they were best restricted, citing cases from his own long experience in Milwaukee and in Detroit. The main points to be observed in an outbreak of a contagious disease are:—

1. On the part of the householder and physician,—

(*a.*) Speedy determination of the nature of the disease.

(*b.*) Prompt notification of the health officer.

(*c.*) Cheerful acquiescence in the regulations of the health officer.

2. On the part of the health department,—

(*a.*) Immediate separation of the sick from the well, as only those required to nurse should be allowed in the room. The sick-room should be an upper chamber.

(*b.*) Strict quarantine of the premises, and placarding of the same; if small-pox, all exposed should be vaccinated in both arms.

(*c.*) Private funeral.

(*d.*) Thorough disinfection, after death or recovery, by chlorine gas or fumes of burning sulphur, of bedding, clothing, premises, etc.

Dr. Wight thought that diphtheria and scarlet fever were several times spread by careless physicians—criminal carelessness. During four years in Detroit he had witnessed a large growth of public sentiment in favor of public health work.

Dr. Victor C. Vaughan, of Ann Arbor, member of the State Board of Health, next spoke on "Water Supply." Sources of water-supply are three,—cisterns, surface, and subterranean. Cisterns should always be plastered outside and inside, with an excavation of at least two feet larger than the reservoirs, so that a brick or stone wall may be built or plastered as above. Cistern water, when boiled and filtered, is the best for use. Dr. Vaughan cited cases in Ann Arbor and Adrian in which drain water percolated into cistern water, causing malignant typhoid fever. In the discussion of surface water, he said that we had in this country all the conditions for the development and spread of the cholera germ, should it once reach our shores. Well-water is a suspicious water because of the ease with which contamination can be carried down through the sand and gravel into the well. Subterranean water is not necessarily pure. By carefully selected illustrations he showed that contamination would be carried through the soil an almost limitless distance by the percolation of water, the water acting as the carrying agent.

Prof. Jas. H. Shepherd, of Ypsilanti, read a paper on "The Present Condition of the Water Supply of Ypsilanti." The city has been settled from sixty to seventy years; it has no sewers, and the privy system is in use. The drinking water is obtained mostly from shallow wells. Ten careful analyses of well-water had been made, and in eight of them chlorine and albuminoid ammonia were found largely in excess of what pure water should contain. The water of a drive well, and that of the Huron river, which runs through the city, was comparatively pure.

A paper by Prof. C. F. R. Ballows, of Ypsilanti, on "The Future Water Supply of Ypsilanti," was next read. It was an able paper, but of rather local interest, although the principle recommended may be quite generally adopted. The proposal is to have a general water supply from one very large well outside the city proper, in such a locality that the water-shed supplying the well shall not be liable to contamination by privies, etc.

The papers on water supply called out a spirited discussion, led by Dr. Wight, of

Detroit, and Prof. Palmer, of the University.

Dr. Ruth A. French, of Ypsilanti, read a paper on "Management of Earth Closets." It is a practical way out of the "privy nuisance" for towns too small to have sewers and a general water supply. Earth closets deodorize the excreta, destroy germs of contagious diseases (?) and are necessary to invalids.

Erwin F. Smith, of Lansing, spoke on the "Relations of Sewage and Water Supply to the Death-Rate in Cities." His general propositions were:—

1. Some method of sewage disposal is a necessity of civilized life.

2. Dry-earth closets, *properly cared for*, will answer for isolated dwellings and small villages, but water carriage is the only system adapted to large towns and cities.

3. The prevalence of typhoid and cholera is in an inverse ratio to the sewage of a city.

4. The modern increase of diphtheria cannot be attributed to sewers.

5. The death-rate from all causes falls whenever a city is thoroughly sewered, and never attains its *ante-sewered* maximum.

6. Judged solely from the standpoint of pecuniary economy,—the lowest of all standards,—sewage and water supply can be safely defended against all opposition.

The statistics used in this paper are drawn from the highest authorities, American and foreign, are brought down to the close of the year 1884, and in many cases cover long periods, from ten to forty years. They show that typhoid fever has fallen off from one-half to nine-tenths in several cities since they adopted sewage, and that such cities are practically secure from the ravages of cholera. *Per contra*, in non-sewered cities, the typhoid fever and the cholera mortality is as great to-day as it was thirty years ago.

Dr. H. F. Lyster, of Detroit, advocated the separate system of sewage as best, and said it could be built in small cities for about $6,000 per mile. He spoke of the evil influence of soil infection by vaults and privies, and urged sewage as a sanitary necessity.

At the close of the Convention, arrangements were made for the organization of a local sanitary association, the local committee of the Convention being made a committee to complete this organization.

DIET AND CHARACTER.

THE plainest man alive may tell ye
The seat of empire is the belly:
From hence are sent out those supplies
Which make us either stout or wise;
The strength of every other member
Is founded on your belly-timber;
The qualms or raptures of your blood
Rise in proportion to your food;
Your stomach makes your fabric roll,
Just as the bias rules the bowl.
That great Achilles might employ
The strength designed to ruin Troy;
He dined on lions' marrow, spread
On toasts of ammunition bread;
But by his mother sent away
Amongst the Thracian girls to play,
Effeminate he sat and quiet;
Strange product of a cheese-cake diet.
Observe the various operations
Of food and drink in several nations:
Was ever Tartar fierce or cruel
Upon the strength of water gruel?
But who shall stand his rage and force,
If first he rides, then eats his horse!
Salads, and eggs, and lighter fare
Tune the Italian spark's guitar;
And if I take Dan Congreve right,
Pudding and beef make Britons fight.

—*Prior.*

DIET IN RELATION TO AGE AND ACTIVITY.

BY SIR HENRY THOMPSON, IN THE NINETEENTH CENTURY.

I HAVE come to the conclusion that a proportion amounting at least to more than one-half of the disease which embitters the middle and latter part of life among the middle and upper classes of the population, is due to avoidable errors in diet. Further, while such disease renders so much of life for many, disappointing, unhappy, and profitless, a term of painful endurance, for not a few, it shortens life considerably. It would not be a difficult task—and its results if displayed here would be striking—to adduce in support of these views a numerical statement showing causes which prematurely terminate life among the classes referred to in this country, based upon the Registrar-General's reports, or by consulting the records of life insurance experience. I shall not avail myself of these materials in this place, although it would be right to do so in the columns of a medical journal. My object here is to call the attention of the public to certain facts about diet which are insufficiently known, and therefore inadequately appreciated. And I shall assume that ample warrant for the observations made here is within my reach, and can be made available if required.

At the outset of the few and brief re-

marks which the space at my disposal permits me to make, I shall intimate, speaking in general terms, that I have no sympathy with any dietary system which excludes the present generally recognized sources and varieties of food. It is possible, indeed, that we may yet add considerably to those we already possess, and with advantage; but there appears to be no reason for dispensing with any one of them. When we consider how varied are the races of man, and how dissimilar are the climatic conditions which affect him, and how in each climate the occupations, the surrounding circumstances, and even the individual peculiarities of the inhabitants, largely differ, we shall be constrained to admit that any one of all the sources of food hitherto known may be made available, and may in its turn become desirable, and even essential to life.

To an inhabitant of the arctic region, for example, a vegetarian diet would be impracticable, because the elements of it cannot be produced there; and were it possible to supply him with them, life could not be supported thereby. Animal food in large quantities is necessary to sustain existence in the low temperature to which he is exposed. But I desire to oppose any scheme for circumscribing the food resources of the world, and any form of a statute of limitations to our diet, not merely because it can be proved inapplicable, as in the case of the Esquimau, under certain local and circumscribed conditions, but because I hold that the principle of limiting mankind to the use of any one class of foods among many is in itself an erroneous one. Thus for example, while sympathizing to a large extent myself with the practice of what is called "vegetarianism" in diet, and knowing how valuable the exclusive, or almost exclusive, use of the products of the vegetable kingdom may be for a considerable number of the adult population of our own and of other countries in the temperate zones, and for most of that which inhabits the torrid zone, I object strongly to a dogmatic assertion that such limitation of their food is desirable for any class or body of persons whatever. Moreover, an exclusive or sectarian spirit always creeps in sooner or later, wherever an "ism" of any kind leads the way, which sooner or later brings in its train assertions barely supported by fact, the equivocal use of terms, evasion,—in short, untruthfulness, unintended and unperceived by the well-meaning people who, having adopted the "ism," at last suffer quite unconsciously from obscurity of vision, and are in danger of becoming blind partisans.

Thus the term "vegetarian" as used to distinguish a peculiar diet, has no meaning whatever unless it implies that all the articles of food so comprised are to be products of the vegetable kingdom; admitting, of course, the very widest scope to that term. In that sense the vegetable kingdom may be held to embrace all the cereals, as wheat, barley, rye, oats, maize, rice, and millet; all the leguminous plants, as beans, peas, and lentils; all the roots and tubers containing chiefly starch, as the potato, yam, etc.; the plants yielding sago and arrowroot; the sources of sugar in the cane and beet, etc.; all the garden herbs and vegetables; the nuts, and all the fruits. Then there are the olive and other plants yielding the important element of oil in great abundance; an admirable assortment, to which a few minor articles belong, not necessary to be specified here; an excellent display of foods, which suffice to support life in certain favorable conditions, and which may be served in varied and appetizing forms. And to those who find their dietary within the limits of this list, the name of vegetarian is rightly applicable. But such is by no means the practice of the self-styled vegetarians we usually meet with. It was only the other evening, in a crowded drawing-room, that a handsome, well-developed, and manifestly well-nourished girl—"a picture of health" and vigor—informed me with extreme satisfaction that she had been a "vegetarian" for several months, and how thoroughly that dietary system agreed with her. She added that she was recommending all her friends (how natural!) to be vegetarians also, continuing, "And do you not believe I am right?" On all grounds, one could only assure her that she had the appearance of admirably illustrating the theory of her daily life, whatever that might be, adding, "But now will you tell me what your diet consists of?" As happens in nineteen cases out of twenty, my young and blooming vegetarian replied that she took an egg and milk in quantity, besides butter, not only at breakfast, but again in the form of pudding, pastry, fritter, or cake, etc., to say nothing of cheese at each of the two subsequent meals of the day; animal food, it is unnecessary to say, of a choice, and some of it in a concentrated form. To call a person thus fed a vegetarian is a palpable error; to proclaim one's

self so almost requires a stronger term to denote the departure from accuracy involved. Yet so attractive to some, possessing a moral sense not too punctilious, is the small distinction attained by becoming sectarian, and partisans of a quasi-novel and somewhat questioned doctrine, that an equivocal position is accepted in order to retain, if possible, the term "vegetarian" as the ensign of a party, the members of which consume abundantly strong animal food, abjuring it only in its grosser forms of flesh and fish. And hence it happens, as I have lately learned, that milk, butter, eggs, and cheese are now designated in the language of "vegetarianism" by the term "animal *products*," an ingenious but evasive expedient to avoid the necessity of speaking of them as animal food!

Let us, for one moment only, regard milk, with which on nature's plan we have all been fed for the first year, or thereabout, of our lives, and during which term we made a large growth and a more important development than in any other year among the whole tale of the life which has passed, however long it may have been. How, in any sense, can that year of plenty and expansion, which we may have been happy and fortunate enough to owe—an inextinguishable debt—to maternal love and bounty, be said to be a year of "vegetarian diet"! Will any man henceforward dare thus to distinguish the source from which he drew his early life? Unhappily, indeed, for want of wisdom, the natural ration of some infants is occasionally supplemented at an early period by the addition of vegetable matter; but the practice is almost always undesirable, and is generally paid for by a sad and premature experience of indigestion to the helpless baby. Poor baby, who, unlike its progenitors in similar circumstances, while forced to pay the penalty, has not even had the satisfaction of enjoying a delightful but naughty dish beforehand.

The vegetarian restaurant at the Health Exhibition last summer, supplied thousands of excellent and nutritious meals at a cheap rate, to the great advantage of its customers; but the practice of insisting with emphasis that a "vegetable diet" was supplied, was wholly indefensible, since it contained eggs and milk, butter and cheese in great abundance.

It is not more than six months since I observed in a well-known weekly journal a list of some half-dozen recipes for dishes recommended on authority as specimens of vegetarian diet. All were savory combinations, and every one contained eggs, butter, milk, and cheese in considerable quantities, the vegetable elements being in comparatively small proportion!

It is incumbent on the supporters of this system of mixed diet to find a term which conveys the truth, that truth being that they abjure the use, as food, of all animal flesh. The words "vegetable" and "vegetarian" have not the remotest claim to express that fact, while they have an express meaning of their own in daily use; namely, the obvious one of designating products of the vegetable kingdom. It may not be easy at once to construct a simple term which differentiates clearly from the true vegetarian the person who also uses various foods belonging to the animal kingdom, and who abjures only the flesh of animals. But it is high time that we should be spared the obscure language, or rather the inaccurate statement to which milk and egg consumers are committed, in assuming a title which has for centuries belonged to that not inconsiderable body of persons whose habits of life confer the right to use it. And I feel sure that my friends, "the vegetarians," living on a mixed diet, will see the necessity of seeking a more appropriate designation to distinguish them; if not, we must endeavor to invent one for them.

But why should we limit by dogma or otherwise man's liberty to select his food and drink? I appreciate the reason for abstaining from alcoholic drinks derived from benevolent motive or religious principle, and entertain for it the highest respect, although I cannot myself claim the merit of self-denial or the credit of setting an example, abstaining, like many others, solely because experience has taught that to act otherwise is manifestly to do myself an injury.

This brings me to the point which I desire to establish, namely, that the great practical rule of life in regard to human diet will not be found in enforcing limitation of the sources of food which nature has abundantly provided. On the contrary, that rule is fulfilled in the perfect development of the art of adapting food of any and every kind to the needs of the body according to the very varied circumstances of the individual, at different ages, with different forms of activity, with different inherent personal peculiarities, and with different environments. This may read at first sight, perhaps, like a truism; but

how important is the doctrine, and how completely it is ignored in the experience of life by most people, it will be my object here to show.

I have already alluded to the fact that the young and rapidly growing infant, whose structures have to be formed on the soft and slender lines laid down before birth, whose organs have to be solidified and expanded at one and the same time, in which tissues of all kinds are formed with immense rapidity and activity, requires animal food ready prepared in the most soluble form for digestion and assimilation. Such a food is milk; if the human supply is insufficient, we obtain in its place that of the cow, chiefly, and during the first year of life, milk constitutes the best form of food. After that time other kinds of nourishment, mostly well-cooked wheaten flour in various shapes, begin to be added to the milk which long continues to be a staple source of nourishment to the young animal. Eggs, a still more concentrated form of similar food, follow; and ultimately the dietary is enlarged by additions of various kinds, as the growing process continues through youth to puberty, when liberty arrives more or less speedily to do in all such matters "as others do." On reaching manhood, the individual, in ninety-nine cases out of a hundred, acquires the prevailing habit of his associates, and he feeds after that uniform prescription of diet which prevails, with little disposition to question its suitability to himself. A young fellow in the fullness of health, and habituated to daily active life in the open air, may, under the stimulus of appetite and enjoyment in gratifying it, often largely exceed both in quantity and variety of food what is necessary to supply all the demands of his system, without paying a very exorbitant price for the indulgence. If the stomach is sensitive or not very powerful, it sometimes rejects an extravagant ration of food, either at once or soon after the surfeit has been committed; but if the digestive force is considerable, the meals, habitually superabundant as they may be, are gradually absorbed, and the surplus fund of nutrient material unused is stored up in some form. When a certain amount has been thus disposed of, the capacity for storage varying greatly in different persons, an undesirable balance remains against the feeder, and in young people is mostly rectified by a "bilious attack," through the agency of which a few hours of vomiting and misery square the account. Then the same process of overfeeding recommences with renewed appetite and sensations of invigorated digestion, until in two or three, or five or six weeks, according to the ratio existing between the amount of food ingested, and the habit of expending or eliminating it from the body, the recurring attack appears, and again clears the system, and so on during several years of life. If the individual takes abundant exercise, and expends much energy in the business of life, a large quantity of food can be properly disposed of. Such a person enjoys the pleasure of satisfying a healthy appetite; and doing so with ordinary prudence not only takes no harm, but consolidates the frame, and enables it to resist those manifest unseen sources of evil which are prone to affect injuriously the feeble. On the other hand, if he is inactive, takes little exercise, spends most of his time in close air and in a warm temperature, shaping his diet, nevertheless, on the liberal scheme just described, the balance of unexpended nutriment soon tells more or less heavily against him, and must be thrown off in some form or other.

After the first half or so of life has passed away, instead of periodical sickness, the unemployed material may be relegated in the form of fat to be stored on the external surface of the body, or be packed among the internal organs, and thus he or she may become corpulent and heavy, if a facility for converting appropriate material into fat is consistent with the constitution of the individual; but some constitutions appear to be without the power of storing fat, however rich the diet or inactive their habits may be. When, therefore, this process cannot take place, and in many instances, also, when it is in action, the over-supply of nutritious elements ingested must go somewhere, more or less directly, to produce disease in some other form, probably at first interfering with the action of the liver, and next appearing as the gout or rheumatism, or to cause fluxes and obstructions of various kinds. Thus recurring attacks of gout perform the same duty, or nearly so, at this period of life, that the bilious one accomplished in youth, only the former process is far more damaging to the constitution, and materially injures it. In relation to liver derangement and inordinate fat production, we may see the process rapidly performed before our eyes, if we so desire, in the cellars of Strasburg. For the unfortunate goose, who is made by

force to swallow more nutritive matter in the shape of food than is good for him, which, excellent in appropriate conditions, is noxious to the last degree when not expended by the consumer,—I mean good milk and barley meal,—falls a victim in less than a month of this gluttonous living to that form of fatty liver, which under the name of *foie gras*, offers an irresistible charm to the gormand at most well-furnished tables. The animal being thus fed is kept in a close, warm temperature and without exercise, a mode of feeding and a kind of life which one need not, after all, go to Strasburg to observe, since it is not difficult to find an approach to it, and to watch the principle carried out, although only to a considerably less extent, anywhere and everywhere around us. Numerous individuals of both sexes, who have no claim by the possession of ornithological characteristics to consanguinity with the animal just named, may be said, nevertheless, to manifest signs of relation in some sort thereto, not creditable, perhaps, to the goose—the Strasburg dietary being an enforced one—by their habit of absorbing superfluous quantities of nutriment while living a life of inactivity, and, of course, sooner or later become invalid in body, unhappy in temper, and decrepit in regard to mental power.

Let us observe that there are two forces concerned in this matter of bountiful feeding, which must be considered a little further. I have said that a hearty, active young fellow may eat, perhaps, almost twice as much as he requires to replace the expenditure of his life, and repair the loss of the machine in its working, without much inconvenience. He, being robust and young, has two functions capable of acting at the maximum degree of efficiency. He has a strong digestion, and can convert a large mass of food into fluid aliment suitable for absorption into the system; this is function first. But besides this, he has the power of bringing into play an active eliminating force which rids him of all the superfluous materials otherwise destined, as we have seen, to become mischievous in some shape; which is function second. To him it is a matter of indifference, for a time, whether the quantity of material which his food supplies to the body is greater than his ordinary daily expenditure demands, because his energy and activity furnish unstinted opportunities of eliminating the surplus at all times. But the neglect to adjust a due relation between the "income" and the "output" cannot go on forever without signs of mischief in some quarter. A tolerably even correspondence between the two must by some means be maintained to insure a healthy condition of the body. It is the failure to understand, first, the importance of preserving a near approach to equality between the supply of nutriment to the body and the expenditure produced by the activity of the latter; and secondly, ignorance of the method of attaining this object in practice, which gives rise to various forms of disease calculated to embitter and shorten life after the period of prime has passed.

TO BE CONTINUED.

EXERCISE FOR GIRLS.

PROF. GEO. WILSON, in his admirable treatise on Healthy Homes, speaks thus upon the subject of exercise for girls:—

Up to the age of eight or ten years, I do not see that there need be any very material difference in the training of both sexes. Plenty of play-ground space, simple drill exercise, rope-skipping, swings, and so on, should be provided and encouraged as much as possible. It is after this period that the great mistakes which are made in the physical education of girls are likely to occur, and do still occur, notwithstanding all which has been said and written on the subject. At most ladies' schools, the humdrum daily walk, and that only when the weather is fine, is almost the sole form of exercise in which the girls are allowed to indulge. It is quite true that nowadays we hear a good deal about calisthenics; but it is very much to be feared that, like a good many other items in the showy prospectuses of ladies' schools, they do not amount to very much in the long run. Unfortunately, too, the tyranny of dress and fashion interferes to a very serious extent with many forms of active exercise, which, while they are seemly enough in themselves, would make growing girls more graceful, and certainly much more vigorous and healthy than many of them are.

It should always be remembered, in the case of girls as well as boys, that school life is the time when the organism most requires the strengthening and purifying influences of bodily recreation, and hence every reasonable scope should be given for the healthy flow of natural joyousness. But as a matter of fact, the school-girl of the present day is taught to curb her nat-

ural spirits, to regard innocent amusements and any kind of romping as unladylike, to indulge in no exercise except that which is allowed by a prison-like routine, and to accept the dull monotony of her school life as an absolutely essential training for the part which by and by she will be expected to play in the conventionalities of every-day life. All her physical energies are sacrificed to the bondage of a genteel deportment; and is it to be wondered at, that whatever may be the long list of her showy accomplishments when she leaves school, she returns home with an enervated constitution, which makes her a ready victim to all sorts of nervous disorders? In order to become healthy women, and above all, healthy wives and mothers, it cannot be too strongly insisted on that girls' schools should be utilized as places intended for healthy recreation and bodily culture, as well as for sound education and mental culture; and surely there might be large concessions made in this respect, without any risk of sacrificing either to refinement or good breeding. No one would care to see young ladies emulate their brothers in the cricket-field; but there are many games in which they could indulge, and which would prove equally beneficial. The misfortune is, however, that in large towns the play ground space either does not exist at all, or is so largely curtailed that it is practically useless, and to meet this difficulty, it has been suggested that schools might club together to provide a joint play-ground, care, of course, being taken that the social position of the pupils is duly considered. The same joint efforts might also be made, under a responsible committee, to provide a suitable establishment where swimming, rowing, and a few special gymnastic exercises might be taught. Swimming and rowing are both of them excellent exercises for girls, and so is riding, when family resources are sufficient to afford it.

If parents and guardians made it a duty to inquire personally into the opportunities afforded for healthy recreation, and, indeed, into the general sanitary condition of schools, before sending their charges to them, there would, no doubt, be a speedy and general improvement in this direction; but at present the teachers exert all their efforts in taxing their pupils' brains with a medley of subjects which they soon forget, and often with accomplishments, as they are called, for which they have neither capacity nor liking, while physical recreation is grossly neglected.

But apart from out-door games, active in-door amusements ought to be encouraged, and one of the healthiest of these is dancing. To quote the eloquent words of the late Canon Kingsley, who wrote so much and spoke so well on this subject of physical education: "If the promoters of higher education for women will compel girls to any training analogous to our public school games; if, for instance, they will insist on natural and wholesome exercises, in order to develop the lower half of the body; on singing to expand the lungs and regulate the breath; and on some games —ball or what not—which will insure that raised chest, upright carriage, and general strength of the upper torso, without which full oxygenation of the blood, and therefore general health, is impossible; if they will steadily forbid tight stays, high heels, and all which interferes with free growth and free motion; if they will consider carefully all which has been written by Mr. Chadwick and others, and accept the certain physical law, that in order to renovate the brain day by day, the growing creature must have plenty of fresh air and play, and that the child who learns for four hours will learn more, and learn it more easily, than the child who learns for the whole eight hours; if, in short, they will teach girls not merely to understand the Greek tongue, but to copy somewhat of the Greek physical training, of that 'music and gymnastic' which helped to make the cleverest of the old world the ablest race likewise,—then they will earn the gratitude of the patriot and the physiologist, by doing their best to stay the downward tendencies of the physique, and therefore ultimately of the *morale*, in the coming generation of English women."

THE DIRTIEST CITY IN THE WORLD.

LIPPINCOTT'S MAGAZINE teaches a good sanitary lesson by the graphic description which it draws of how a city ought not to be.

The municipal system of watering the streets is on an exceedingly limited scale, being confined to a few buckets of drain-water brought by the official scavengers when not engaged in carrying the most abhorrent sewage from the houses to the fields. Each householder is required every evening at sunset to water that section which is before his own door. At

this moment, therefore, all the slops are brought out from every house, and are sprinkled over the highway. If there is any stagnant sewer drain or pond within reach, no matter how foul its waters, a few extra buckets are drawn from thence, and the happy population, who seem totally devoid of all sense of smell, rejoice in the sudden cessation of the suffocating dust. But in truth, there is little to choose between the two evils; for the appalling odors which pervade the whole city during this process are not only sickening at the time, but suggest, only too vividly, the nature of the dust which under to-morrow's sun we shall be compelled to incorporate.

The miracle is to see the people thrive on the poisonous atmosphere, which they must forever inhale, and which makes us positively sick. In the narrowest, most crowded streets, where the air is most pestilential, with foul open drains under their very windows, these people look just as fat and healthy as in the open country. They are at least saved the danger of subtle drain-poison, for their giant stink stalks unrebuked into open day. And yet, though these people have been inured to this condition of things since the hour of their birth, and therefore do not appear conscious of it, there is no doubt that the prevalence of sore eyes and disgusting skin-diseases (to say nothing of small-pox and typhoid epidemics) must be greatly due to the general dirt and all the foul smells which pervade every corner.

Speaking of small-pox, I think that oriental phraseology may be said to have reached its highest capability in the selection of four characters which are inscribed on a board hung outside of every house in which there is a virulent case of this loathsome disease. "First-class heaven-flowers" is the euphonious description.

Of course the dirt which is so apparent in the streets, reigns rampant in the houses, the habits of the people being intrinsically unclean. At meals they throw bones and scraps of food on the floor, and spill grease, but never dream of sweeping out the room except, perhaps, just the middle, while the accumulated filth finds safe quarters in the corners and under the furniture. Even in the houses of the rich, the annual cleaning is limited to rubbing up dingy furniture, and pasting clean paper over dirty windows. All through the long winter, personal washing is limited to rubbing the face and neck with a flannel wrung out in hot water As to clothes, they are never changed, day or night. A succession of thick wadded garments are heaped on, one above the other, as the weather grows colder, and are cast off one by one with the return of spring.

Although on the wall we reached a level somewhat above its hateful influence, we none the less beheld the curse of Pekin in full action; for while from the outer face of the wall we looked down on the desert of dust, stretching on each side of the broad highway, where long caravans of heavily laden Mongolian camels trudged along, or couched beneath the shadow of the walls, we had but to take up a position above the great gateway in order to look straight up the broad, busy street, where all day long crowds of men and beasts had been stirring up stifling dust-clouds as they hurried to and fro beneath the blazing sun. Only when seen from above, is the actual width of this or any other main street of Pekin visible. The street is really over ninety feet wide; and right down the course runs a slightly-raised causeway, which is the imperial highway.

The houses on each side are mean looking, one-story brick buildings; and though some have handsomely-carved and much-guilded wooden fronts, even these are so begrimed with the mud of many winters, and the dust of many summers, that they do little to enliven the general dreariness when you are close to them. The great width of the street defeats its own object; for the people, nowise appreciating such magnificent distances, establish rows of locomotive booths and shops on each side of the central causeway, while another row of temporary booths is erected facing the permanent shops. Consequently, no one on the street sees more of it than one side at a time. The true street has a moderately ornamental wooden frontage, some of the shops being really highly decorative, when you come to look close at them, with very elaborate designs; but though, as I said, these were once resplendent with gold and scarlet, they are now so dingy and dirty as scarcely to look out of keeping with the rag-fair opposite. The fact is that in so variable a climate as this, all gold quickly tarnishes and wears away, and it is rarely renewed. From these carved fronts project gigantic poles, with dangling signs representing the trade of the owner, and guilded dragons uphold very varied sign-boards. Of course the

shops are all entirely open to the street, glass windows being unknown luxuries. Most of the temporary booths are a mere frame-work, covered with matting, in which are sold all manner of articles,—ready-made clothes, candles, books, fans, but especially food of all sorts, and birds in cages.

"The central roadway is reserved for cart-traffic, which plies ceaselessly, summer and winter, on the paved road. This, being never repaired from one year's end to another, is in the same atrocious condition as the road from Tung-Chow, and all others, both within and without the city.

"You will think I tell you enough, and to spare, concerning Pekin dust, but no wonder. Only be thankful you have not to inhale it by throat and nostril, to find your hair and clothes all powdered with it; for it is no ordinary dust, to be classified as clean dirt. Very much the reverse; it is the sun-dried, pulverized filth of the whole city, which day by day as the centuries roll on, becomes more and more unclean, and is never purified. It is not a nice subject to touch, but I cannot give an adequate idea of the capital of the North without saying that, as there is no provision for household sewage, the open streets are the receptacles for the most horrible filth; and official scavengers go around the town with baskets on their shoulders, carrying small rakes with which to collect manure for their fields. I do not mean to say that the city is without drainage; on the contrary, there is a very elaborate and complete system of underground drains built of solid stone and covered with large stone slabs. These are opened and cleared every spring, after the winter frosts break up and before violent rains are due, otherwise the city would be flooded."

HOW TO SLEEP.

It is very important to sleep so that the rest taken shall be sound, producing beneficial results, that on waking in the morning there be no weariness or discomfort. To obtain a good night's rest there must be peace of mind; nothing so hardens the bed as a reproachful conscience. Heavy suppers, or indigestible food, produce restlessness and nightmares; alcohol dulls the brain, but does not soothe the spirit into a comfortable night's rest. The head should not lie too low, just enough to allow the blood to recede freely from the brain. The body should repose on the right side to allow the food that is digested to pass out of the stomach (which then takes the position of an inverted bottle). The bedclothes should be just enough for comfort; if too heavy, they produce restlessness, and indisposition to rise at the proper time in the morning; if too few, failing to keep the body warm, the sense of cold hinders sleep. There should be plenty of fresh air, having the window, and if possible, the door, left open, and never on any account let the fireplace be closed. Very much attention should be given to having a suitable, well-lighted, well-aired bedroom, with bedstead as free from hangings as possible, so as to allow the air free access to the sleeper. As one-third of our time is spent in our bedroom, it therefore follows that great care should be taken to have all its surroundings clean, wholesome, and adapted to the requirements of the body.

—Children under six years of age ought never to be put to the study of books. From six to ten years, three hours per day should be the extreme limit of confinement to study, or to any sedentary employment. From ten to fifteen years, four hours. From fifteen years (after puberty) to twenty, six hours; and at no period of life ought the time thus occupied to exceed seven hours.

—The brain receives more blood, in proportion to its size, than most other organs of the body. Hence it follows that tight cravats and tight shirt bands (which impede the return of blood from the head by compressing the external jugulars) cause congestion of the brain, vertigo, and apoplexy. Many public speakers and men of letters have died from this cause.

—The mortality of large cities is nearly twice as great as the mortality of non-malarial districts in the country. In cities having a population of half a million or more, the ratios of births and deaths are generally nearly equal. If such cities increase in population, therefore, it is mostly by immigration.

—Gloomy thoughts impair the appetite and prevent sleep. The poor and unfortunate magnify and increase their misfortunes by too much thinking.

TEMPERANCE AND MISCELLANY.

Devoted to Temperance, Mental and Moral Culture, Social Science. Natural History, and other interesting Topics.

Conducted by MRS. E. E. KELLOGG, A. M., Superintendent of Hygiene of the National W. C. T. U.

A NOTED ENIGMA.

'Twas whispered in heaven, 'twas muttered in hell,
And echo caught faintly the sound as it fell ;
On the confines of earth 'twas permitted to rest,
And the depths of the ocean its presence confessed.
'Twill be found in the sphere when 'tis riven asunder,
Be seen in the lightning, and heard in the thunder.
'Twas allotted to man with his earliest breath,
Attends at his birth, and awaits him in death ;
Presides o'er his happiness, honor, and health ;
Is the prop of his house, and the end of his wealth.
In the heaps of the miser 'tis hoarded with care,
But is sure to be lost on his prodigal heir.
It begins every hope, every wish it must bound,
With the husbandman toils, with the monarch is crowned.
Without it the soldier, the seaman may roam,
But woe to the wretch that expels it from home !
In the whispers of conscience its voice will be found,
Nor e'en in the whirlpool of passion be drowned.
'Twill not soften the heart, but, though deaf be the ear,
It will make it acutely and instantly hear.
Yet in shade let it rest, like a delicate flower ;
Ah ! breathe on it softly—it dies in an hour.

—*Catherine Fanshawe.*

DAYS IN THE TROPICS.

BY MRS. E. E. KELLOGG.

Glimpses of Havana.

We went on board the steamer just as the last rays of the setting sun were gleaming over the bright waters of the Gulf, and gilding the spires and towers of the quaint and picturesque city of Key West. Owing to delays necessitated in obtaining proper passports for the passengers, the vessel did not leave her moorings for some time afterward, and in the interim we had an excellent opportunity to watch the interesting phenomenon of phosphorescence caused by myriads of luminous little animals that swarm in the warm waters of the Gulf. The naturalist of the party procured a pail and a row-boat, and by dint of much perseverance, succeeded in capturing one of these curious little creatures. In appearance it was eel-like, about the size of a knitting-needle, from one and a half to two inches in length, and every few seconds emitted a beautiful pale-greenish light, far more brilliant than that of the common lightning-bug. As the twilight deepened, the twinkling of the stars above and the bright scintillations of the millions of these little phosphorescent creatures in the water beneath us, presented a most magnificent spectacle.

We spent the night crossing the Strait, and early the next morning found ourselves in sight of the "Queen of the Antilles," and ere long we were approaching the harbor of Havana, the largest city and chief commercial metropolis of the West Indies. The entrance to this harbor is a channel half a mile or more in length, and so narrow that only a single vessel can pass at a time. The whole length of the narrow passage is guarded by immense fortifications. On either side, like two massive gate posts to the channel, stand the strong tower of the *Punta* and the famous *Morro Castle*, bristling with guns and formidable artillery. From the entrance of the port the aspect of the city with its fine edifices, its broad arcades and pretty parks, its diverse structures of all sizes and styles of architecture, painted in the most fantastic colors, its numerous spires mingled with the towering palms, and back of all the evergreen hills, is one of the most gay and picturesque imaginable. To us as we saw it that April morning in the mellow light of the tropical sunshine, it appeared like a veritable city of "crazy patchwork," wherein each building formed a "piece" joined to some other piece by arabesques of flowers and foliage, which toned down the harsher outlines, and served to make it one harmonious whole. As our vessel sailed into the harbor, we were met by a flotilla of curious little row-boats, over the stern of each of which was stretched a semi-circular canvas covering, giving it an appearance similar to the top of a western "emigrant wagon;" while from the front of the little craft arose a flagstaff, upon which fluttered the national ensign of Cuba. These little boats were for the transfer of passengers from the ship to the landing, and as soon as the government officials, who boarded the ship upon its arrival in the harbor, had completed their examination, we were quickly ensconced beneath the canvas awning of one of them, and rode to the *machina*, or custom house, as comfortably as though the mercury was not away up in the nineties, and the heat of the tropical sun beating fiercely down upon everything unprotected from its heat.

The arrival of a Spanish vessel just previous to our own, had crowded the custom house with baggage for inspection, so that we were obliged to wait for our turn; but meanwhile we found it interesting to watch the courteous officers in the performance of their duties, and the jargon of Spanish chattering around us was quite as amusing as it was unintelligible.

Having finally secured the requisite chalk mark upon our baggage, we proceeded to our hotel, catching glimpses on the way of the curious and interesting city. In the older portion of Havana, within what was the original city walls, the streets are extremely narrow, so narrow, indeed, that it is quite customary to see an awning stretched over the entire way, and though generally well paved, are ill-provided with side-walks, a narrow ledge on each side, barely wide enough for one person, being the only provision for pedestrians. Outside the old wall

the thoroughfares are broad and ample, and fringed on either side with rows of graceful palms.

The prevailing style of architecture is the same as that of Southern Spain. The houses are constructed with very substantial walls, about twenty inches thick, and are painted in bright, showy colors, sky blue, light green, pink, and yellow predominating; they are either one story and covered with a pointed tile roof, or two stories, built around an open *patio*, or court, with a flat roof surrounded by a substantial railing, and sometimes surmounted by a *mirador*, or look-out. Each room opens upon a covered veranda surrounding the open court, which is usually adorned in a most tasteful manner with parterre of flowers and shrubs and a fountain in the center. The doors are usually double and very ponderous; the windows, which are merely apertures in the walls, without sash or glass, are strongly latticed on the outside with iron bars, while solid wooden shutters inside, protect from heat and dust. These shutters are kept tightly closed during the day, giving to the houses more of the aspect of a prison than of a dwelling. Few of the inhabitants venture out during the day, save on business; but when the sun is set, and the cool breezes from the Gulf have modified the atmosphere, then all is changed; the streets, parks, and dwellings are brilliantly lighted; shutters are thrown open, and there is music and revelry within; while outside a gaily dressed throng are chatting and promenading, or driving in their elegant equipages about the city and its environs.

In the hotels and dwellings of the wealthier class, the floors and stairs are of marble, the ceilings finished with massive beams of some dark wood highly polished, the decorations and furniture tasteful, and seemed to us quite home-like, save that in their arrangement about the room the chairs (the majority of them are rocking-chairs of assorted sizes) were placed in rows one behind another, like seats in an audience room.

Havana possesses many beautiful boulevards, squares, and parks filled with magnificent tropical trees, luxuriant flowers, elegant fountains, columns, and statues, some of them ranking among the finest specimens of art in America.

"A TROUBLER IN ISRAEL."

BY ELEANOR KIRK.

CONCLUDED.

In due time Nellie was firmly and carefully buttoned into other garments, but she lost no time in straining them apart. Punishment was sure to follow these muscular efforts, such as long confinements in the dark bedroom, staying in from play, and sometimes she was kept home from school. This last was the hardest penalty she could pay for these struggles for liberty.

A couple of years after the baby's death, another boy baby came to the Westbrooks; and he looked so much like the first one that Nellie sometimes thought he must have been sent back by mistake. He screamed half the time, and wasted to a skeleton, exactly as the other one had, and remained an inhabitant of this mundane sphere about the same length of time. This time Nellie refused to be comforted, and her sorrow took the form of an intense and bitter indignation. It was not so much that the baby had died, but that it had been obliged to suffer so. It was many months before she ceased to hear the piercing, agonized shrieks of this poor miserable little last baby.

There was something indescribably awful, too, in what she heard said about the will of God as manifested in this affliction. If the child could have recalled one single day in the baby's life that had been free from pain, it might have comforted her a little. Somebody was fearfully to blame in this matter, but it was not God. She was sure of that.

"Don't you think it is wicked," she asked her father about this time, "for everybody to say that God did it? Did God tell mamma to give the baby all those nasty things, and make her pin him up so tight, and keep him where 'twas so hot and sticky all the time?"

"But, my dear, you ought to feel that your mamma knows more about taking care of a baby than you do," Mr. Westbrook replied for the want of something more appropriate to say. "All babies have to be kept where it is warm, especially delicate ones."

"But why did my little brother have to be sick all the time?" the child insisted. "And why would God want him to be sick? Mrs. Miller's babies are never sick. Why don't God want them to have pains all the time, and why don't he want them to die?"

"My child, my child!" said Mr. Westbrook in desperation, "can you not see that there are some questions that can never be answered? Look at Mrs. Reed's little boy that died last week so suddenly; he had never been ill since he was born, but he died in three days."

"Papa, I heard Johnnie Reed's grandpa and his auntie both tell him not to eat any more green apples, but he never minded, and just stuffed 'em down as fast as he could. His auntie said, 'Johnnie, you will certainly be sick if you eat another one,' and he did eat lots more, and he was sick, and he did die. God didn't make him eat all those apples, did he?"

Thus were the old questions of predestination and free will, that Mr. Westbrook had looked into and frequently discussed, brought forward in another form. Now what response was possible to this string of inquiries? This gentleman wished that he might have been a spectator while his daughter propounded these conundrums to his wife's minister. He tried to think what he would have said to her. It surely wasn't wrong for this wide-awake child to seek for information on these points; but her father had none to give.

"I'll tell you what I think it is," Nellie proceeded, after waiting a reasonable time for her companion to reply. "Mrs. Miller knows about babies, what is good for them and what is n't, and mamma don't. So it is n't God that's the matter. It's mamma."

Mr. Westbrook never forgot these words; and when Nellie grew older, she saw in detail just what she had intuitively discerned in the large, and had no occasion to change her opinions. She saw that ignorance and vanity were responsible for the early death of her brothers. Her natural grandmother, who had lived only long enough after Nellie's birth for the child to

know that she detested her, had "made her daughter's figure" exactly as Nellie's mother had set about making hers. But there was this great difference: the grandmother had succeeded, and the mother had not.

It would be hard to tell whether Nellie's disgust or delight was the greater when she discovered by study the reasons of things. It was delightful to find that her repugnance to certain habits and customs was well founded. But how terrible to think that there were those who persistently and undeterred by consequences, set every rule of right doing at defiance, and for the sake of what they considered desirable in personal appearance, would not hesitate to undermine their own health and that of their unborn children.

After the punishment narrated in the last chapter, Nellie never again submitted to the torture of tight clothes. She said nothing, but she made such gaps and tears, such awful havoc among the bead-like stitches, that her mother was literally forced to give up all attempts at figure-making. The child was shut up, scolded, shaken, and even pinched occasionally; but what was a black-and-blue spot once in a while compared with chronically sore and crowded ribs and restricted breath? What was half a day in the dark bedroom?—A mere trifle. Given space to breathe in, Nellie was happy anywhere. A large part of the time Mrs. Westbrook was so absorbed with her aches, pains, spasms, and fine sewing that her daughter could occupy herself as she pleased. To faint away while fitting, embroidering, tucking, or beading some most elaborate garment, became so common that Nellie and the servant ceased to be alarmed by it. The former used often to wonder why her mother did not swoon when wearing these articles of wardrobe to dinner parties, receptions, etc., etc. It was exceedingly difficult for straightforward Nellie to understand the cause of this; and if she felt sometimes that these scenes might have been avoided, who can blame her? She did not know at that time that even exhausted and demoralized nerves will, under the influence of excitement and a strong will, stretch themselves to do what is expected of them, and that it was no proof of shamming or even of giving up too easily, that a woman should swoon a dozen times while preparing for a party, and preserve a beautiful equilibrium when attending it.

When Nellie became old enough to be taken somewhat into her mother's confidence,—this was inevitable, but not agreeable to the girl,—she found a state of things truly terrifying. There was not a single internal organ that performed its function properly. Misplacement, inflammation, and congestion were household words. Every day added to the chapter of weaknesses. Nellie knew now what had been the matter with her brothers; and her soul, that had been evolved from a state of protest, burned with indignation. Nothing that she could say or do would be of any use, she knew. The experience of her childhood had taught her not to make suggestions of any kind to her mother; but when on the occasion of an unusually serious attack, Nellie with some difficulty had unfastened the invalid's clothes, and endeavored to coax back the breath of life by the vigorous application of her hand, and found that the ribs of the right side overlapped the ribs of the left, all the bottled up wrath of years found vent. Strangely enough, this explosion was received without anger. The combination of chronic and acute suffering had at last done its work. Mrs. Westbrook was ready to try any experiments in the hygienic line, was willing to leave off corsets, and of her own accord suggested a diet of fruit, grains, and milk. Mrs. Miller was hastily summoned to the bedside. Mrs. Westbrook must begin a course of treatment immediately.

"I want some wheat and cream right away," the invalid told her companion. "Nellie seems to like it very much, and Mr. Westbrook says it agrees with him beautifully. I should like you to fix me some, Mrs. Miller."

Like many others, Mrs. Westbrook was quite sure that when she got ready to renounce her idols, something else would be substituted. If she was willing to accept the comforts and benefits that would spring from a new regime, she had only to signify it by a wave of her imperious hand. But tubercles had already formed in her lungs, and a few months later, after the most intense suffering, the poor woman paid the last penalty of her crimes.

There are hosts of women in society to-day whose ribs, like Mrs. Westbrook's, have been trained to lap. There are thousands of young girls whose "figures" are now being made by vain and ignorant mothers, and thousands more who are lacing themselves into chronic invalids or early graves unbeknown to their mothers, from the example set by their viciously instructed companions. Doctors come and doctors go, but they either think best not to interfere with this suicidal habit, or they do not know enough to make a straight diagnosis.

"If these women could only die before they brought more human beings into the world to suffer, there would be some hope for the human race," said a well-known medical man to the writer not long ago. "And I tell you," he added, "that it is no more use to talk to women who are so consumed by vanity that they glory in being uncomfortable, than to throw feathers against the wind. They have no fear of consequences, and they are bound to have their swing."

"But where is help to come from?" I inquired.

"From the influence of sensible women, from here a little and there a little in newspapers and magazines, from readable books and other avenues of this kind. Hygienic instruction ought to be begun in the primary classes of our public schools. But what's the use of preaching? Nobody will listen, excepting those who hold the same opinions."

A SOUND mind in a sound body is a short but full description of a happy state in this world: he that has these two has but little more to wish for, and he that wants either of them will be but little the better for anything else.—*Locke.*

HOUSE KNOWLEDGE FOR BOYS.

THE Governor of Massachusetts, in an address before the Worcester Technical School, June 25, spoke some words that are worthy of noting. He said: "I thank my mother that she taught me both to sew and to knit. Although my domestic life has always been felicitous, I have, at times, found this knowledge very convenient. A man who knows how to do these things, at all times honorable and sometimes absolutely necessary to preserve one's integrity, is ten times more patient when calamity befalls than one who has not these accomplishments."

A commendation of "girls' work" from such an authority emboldens the writer to add a word in favor of teaching boys how to do work that may be a relief to a nervous, sick, worried, and overworked mother or wife, and be of important and instant use in emergencies. A hungry man who cannot prepare his food, a dirty man who cannot clean his clothes, a dilapidated man who is compelled to use a shingle nail instead of a button, is a helpless and pitiable object. There are occasions in almost every man's life when to know how to cook, to sew, to "keep the house," to wash, starch, and iron, would be valuable knowledge. Such knowledge is no more unmasculine and effeminate than that of the professional baker.

"During the great civil war, the forethought of my mother in teaching me the mysteries of household work was a 'sweet boon,'" as the late Artemus Ward would say. "The scant products of foraging when on the march could be turned to appetizing food by means of the knowledge acquired in boyhood, and a handy use of needle and thread was a valuable accomplishment."

Circumstances of peculiar privation compelled the writer, as head of a helpless family, to undertake the entire work. The instruction of boyhood enabled him to cook, wash, starch, iron, wait on the sick, and do the necessary menial labor of the house in a measurably clean and quiet manner. This knowledge is in no way derogatory to the assumptive superiority of the male portion of humanity; a boy who knows how to sweep, to "tidy up," to make a bed, to wash dishes, to set a table, to cook, to sew, to knit, to mend, to wait on the sick, to do chamber work, is none the less a boy; and he may be a more considerate husband, and will certainly be a more independent bachelor, than without this practical knowledge. Let the boys be taught housework; it is better than playing "seven-up" in a saloon.—*Scientific American.*

LET nothing disturb thee,
Nothing affright thee;
All things are passing;
God never changeth;
Patient endurance
Attaineth to all things;
Who God possesseth
In nothing is wanting;
Alone God sufficeth. —*Longfellow.*

THE MINISTRY AND TOBACCO.

REV. DR. T. DE WITT TALMAGE, in a recent stirring and able sermon on "Tobacco and Opium," said:—

One reason why there are so many the victims of this habit is because there are so many ministers of religion who smoke and chew. They smoke until they get the bronchitis, and the dear people have to pay their expenses to Europe. They smoke until the nervous system breaks down. They smoke themselves to death. I could name three eminent clergymen who died of cancer in the mouth, and in every case the physician said it was tobacco. There has been many a clergyman whose tombstone was all covered up with eulogy, which ought to have had the honest epitaph: "Killed by too much Cavendish." Some of them smoke until the room is blue, and their spirits are blue, and the world is blue, and everything is blue. Time was when God passed by such sins, but it becomes now the duty of the American clergy who indulge in this narcotic to repent. How can a man preach temperance to the people when he is himself indulging in an appetite like that? I have seen a cuspidor in a pulpit, where the minister should drop his quid before he gets up to read, "Blessed are the pure in heart," and to read about "rolling sin as a sweet morsel under the tongue," and in Leviticus to read about the unclean animals that chew the cud. I have known Presbyteries, and General Assemblies, and General Synods where there was a room set apart for the ministers to smoke. Oh! it is a sorry spectacle,—a consecrated man, a holy man of God, looking around for something which you take to be a larger field of usefulness. He is not looking for that at all. He is only looking for some place where he can discharge a mouthful of tobacco-juice. I am glad that the

Methodist Church of the United States, in nearly all its conferences, has passed resolutions against this habit, and it is time we had an anti-tobacco reform in the Presbyterian Church, and the Episcopal Church, and the Baptist Church, and the Congregational Church. About sixty years ago a young man graduated from Andover Theological Seminary into the ministry. He went straight to the front. He had an eloquence and personal magnetism before which nothing could stand; but he was soon thrown into the insane asylum for twenty years, and the doctor said it was tobacco that sent him there. According to the custom then in vogue, he was allowed a small portion of tobacco every day. After he had been there nearly twenty years, walking the floor one day he had a sudden return of reason, and he realized what was the matter. He threw the plug of tobacco through the iron grates, and said: "What brought me here? What keeps me here? Why am I here? Tobacco! Tobacco! O God, help! Help, and I'll never use it again." He was restored. He was brought forth. For ten years he successfully preached the gospel of Jesus Christ.

There are ministers of religion to-day indulging in narcotics, dying by inches, and they do not know what is the matter with them. I might in a word give my own experience. It took ten cigars to make a sermon. I got very nervous. One day I awakened to the outrage that I was inflicting upon myself. I was about to change settlements, and a generous wholesale tobacconist in Philadelphia said if I would only come on to Philadelphia and settle, that he would all the rest of my life provide me with cigars free of charge. I said to myself: If in these war times, when cigars are so costly and my salary is small, I smoke more than I ought to, what would I do if I had a gratuitous and unlimited supply? And then and there, twenty-four years ago, I quit once and forever. It made a new man of me, and, though I have since then done as much hard work as any one, I think I have had the best health God ever blessed a man with. A minister of religion cannot afford to smoke. Put into my hand the money wasted in tobacco in Brooklyn, and I will support three orphan asylums as grand and as beautiful as those already established. Put into my hand the money wasted in tobacco in the United States of America, and I will clothe, feed, and shelter all the suffering poor of this continent. The American Church gives $1,000,000 a year for the evangelization of the heathen, and American Christians spend $5,000,000 in tobacco.

—Louisa M. Alcott says of the education of girls: "I can only hope that with the new and freer ideas now coming up, some of the good old ways may also be restored. Respect shown to the aged, modesty, simple dress, housekeeping, daughters learning from good mothers their domestic arts, are so much better than the too early frivolity and freedom so many girls now enjoy. The little daughter sent me by my dying sister has given me a renewed interest in the education of girls, and a fresh anxiety concerning the sort of society they are to enter by and by. Health comes first, and early knowledge of truth, obedience, and self-control; then such necessary lessons as all must learn, and later, such accomplishments as taste and talent lead her to desire,—a profession or trade to fall back upon in time of need, that she may not be dependent or too proud to work for her bread. Experience is the best teacher; and with good health, good principles, and a good education, any girl can make her own way, and be the braver and better for the exertion and discipline."—*Sel.*

Popular Science.

Sand.—There are few things so common and so varied as sand. An old sea-captain nearing the Atlantic coast will tell exactly where he is by the sand which the lead brings up from the bottom; and once an important robbery in Prussia was traced by means of a bag of sand. A box of treasure, belonging to the Royal Bank, which had been sent from Berlin to Münster, was found, on being opened, to contain one thousand dollars' worth less of gold coin than when it started, the money having been taken out, and its place filled with a bag of sand. The robbery had been skillfully executed, for the box showed no signs of having been disturbed, and all efforts to find the thief were unsuccessful, until a famous geologist suggested that some of the sand should be sent him, with specimens of that near all the stations through which the box had passed. This being done, he quickly told where the robbery had been committed, and the police, having this clue, soon secured the thief.

Varied as are the minor elements in sand, the main body of it is always quartz. We may get

some idea of the amount of this mineral, by remembering that it not only forms the vast deposits of sand along our coasts, and in the deserts, but also the great underlying strata of sandstone rocks; that it is present in all soils, and is necessary to all animal and vegetable life. Rock crystals, and many of our favorite jewels, such as topaz, chalcedony, blood-stone, chrysophrase, and jasper are also quartz, and it enters largely in the shape of veins into rocks, in the composition of which it has no part.

Banks of drifted sand stretch along our Atlantic coast from Newfoundland to Cape Cod. The highest point of these, known as Sable Island, lies about eighty-five miles off the coast of Nova Scotia. It is twenty-three miles long, and one and a half wide, and is said to rise to a hight of one hundred feet. Its surface consists of rounded hills of sand, and is continually being changed by the action of the weather. There was formerly a good harbor on one side, but it has now been entirely closed by a storm. Coarse grass grows upon the island, and also cranberry and whortleberry plants. Various animals, such as horses, rabbits, and rats, have been carried there and naturalized. The walrus, or sea-horse, used to frequent the island, and the Greenland seal is still found there, together with the shells of tropical fish. Thus upon this sand-bar meet the denizens of the torrid and the arctic zones, the one brought by the Gulf Stream, and the other by the Polar Current. In the last forty years, the western extremity of the island has diminished seven miles, and the whole has been growing narrower, while its hight has been increasing, especially at the eastern end. The difference between its position on old charts, and on those recently made, shows that the whole island is being moved eastward by the steady westerly winds, as, very probably, may be the whole sand-bank upon which it rests, although it covers an area one-third as great as that of Nova Scotia.

Sand is never long stationary; for the grains slip over each other so easily that the firmest appearing banks are moving slowly in the direction of the prevailing winds. We have all heard of the terrible sand-storms which travelers meet in crossing deserts, and of Memphis, once the Egyptian capital, lying for centuries so deeply buried by drifted sand that until within a few years its site has been unknown. Nor is it in the neighborhood of great deserts alone that sand-floods are destructive. In the eastern part of Scotland, many large tracts of once fertile land are covered with sands as unstable as those of Arabia.

Early in this century, a parish in Aberdeen County was reduced to two farms, and not a vestige of any of the buildings was to be seen, unless it might be a fragment of the church. At another place, a large and valuable tract was covered by an inundation so rapid that, in a single season an apple-tree was covered so that only the very summit could be seen. This flood was caused by the cutting down of some trees that had served as a barrier to the sand, and the pulling up of the bent, or star, a species of mat-grass, whose long roots creep into the sand, and bind it together. So useful is this plant in checking sand-floods, that in the reign of George II. an act was passed by Parliament forbidding its destruction, and the planting of it has been earnestly recommended wherever a flood threatens. It grows best in pure sand. Cattle will not touch it, for its long, rush-like leaves are stiff and pointed. It seems to be especially intended to control the movements of sand dunes, and to it the Dutch owe the existence of a part, at least, of their country.

Sir Charles Lyell speaks in his "Principles of Geology," of the destruction of three ancient villages on the eastern coast of England. Two have entirely disappeared, and of the third all that remains is the steeple of a church. In this case, the destruction has, however, been rather the work of water than of sand, for the sea has worn and beaten away the coast; but the sand dunes have moved steadily in advance, burying the land, and then uncovering it to the action of the water. Sir Charles Lyell gives two pictures of the ruined church, taken twenty-three years apart. In the first, the steeple is half buried in sand-heaps, and in the second, the dunes have moved on to the inland, and the sea is beating at the foot of the steeple. The church is thought to have been built about three hundred years ago, and at that time the site must have been considered safe from the encroachments of the sea. Several villages in England, France, and Jutland have been buried by blown sand. In Suffolk, one thousand acres of land were covered in one hundred years, and in Cornwall have been found hills several hundred feet above the level of the sea, which are constantly moving forward, and disclosing the ruins of ancient villages which have been covered by them.

So steady are the movements of the sand dunes, that it has been proposed to use those in Holland as an index by which to determine how long the country has been in its present condition, it being thought that if the rate at which they now move were determined, it would be easy to calculate how long a time had passed since they started from the coast. But in order to do this, it must first be proved that the line of the sea-coast has not altered, and that is not possible, for there is always change where water beats upon land.

But it must not be supposed that the work of blown and drifting sand is all evil. Between Eccles and Wintecton it has closed the mouths of several small estuaries, and rendered possible the reclaiming of many acres of land. In the days of the Saxons, Norwich stood upon an open estuary leading up from the sea. About the time of the Norman Conquest, the sands upon which Yarmouth is built became firm enough to be habitable, and they have since been steadily increasing. The closing of the wide estuary, and reducing it to a river, shut back the tides, and rendered fit for cultivation many thousand acres, in which upwards of sixty fresh-water lakes have been formed, varying in depth from fifteen to thirty feet, and in size from one acre to twelve hundred acres.—*Ellen Bertha Bradley, in Alden's Book of Knowledge.*

GOOD HEALTH.

BATTLE CREEK, MICH., AUGUST, 1885.

J. H. KELLOGG, M. D., EDITOR. TERMS, $1.00 A YEAR.

HEALTHY HOMES.

THE home is the nursery of the nation; and unless its inmates are provided with the conditions requisite for health, the nation, as well as its constituent families, must languish and deteriorate in physical stamina. This fact seems to have been overlooked, or at least imperfectly appreciated, by many writers on general hygiene, and a disproportionate stress has been laid upon what is termed "public hygiene," a subject of vast importance, and worthy of all the attention it has received, and more; but still, in our opinion, it is of secondary importance when compared with that branch of the great subject of hygiene which may be termed *domestic hygiene*.

The able advocates of the need of general sanitary reforms, such as chiefly concern cities of sufficient size to require water and sewage systems, cite with great confidence as a conclusive evidence of the paramount importance of public sanitation, the fact that in countries in which statistical records have been carefully kept for a long series of years, it is possible to show an increase in the average length of life which is commensurate with the improvements made in the general sanitary arrangements of cities during the same length of time. It is claimed that the average length of life has been thus increased from about twenty-five years to nearly forty years.

This appears at first sight to be a conclusive showing; but when we carefully investigate the matter, we find that this increase in average longevity is wholly the result of the lessened frequency of such infectious or contagious disorders as typhoid and typhus fevers, small-pox, cholera, plague, etc., which a century ago were responsible for a large part of the entire mortality of cities and thickly settled country districts. While these disorders are by no means exterminated, they now hold a much less conspicuous place in the mortality tables; but consumption and various other constitutional and structural disorders have come to the front as the leading causes of human mortality. At the present time, nearly one-fifth of the total number of deaths occurring annually in this country, is due to consumption,—a very great increase over the death-rate from this cause half a century ago.

Another noticeable fact which bears directly upon this question is the lessened number of centenarians now to be found in our city and town communities; while the average length of life has been increased, the chance of an individual's living to great age has been diminished. The average length of life has been increased by increasing the longevity of the weak and feeble, rather than by adding to the lifetime of the strong and vigorous. Indeed, it would seem that there has been a material lessening of the average longevity of the strong, although this loss is more than balanced by the additions to the lease of life of the feeble. A century ago, epidemics of various sorts, unrestrained by efficient quarantines and other sanitary measures, weeded out the sickly and physically inferior individuals, thus preserving in a purer state the constitu-

tional stock of he strong; whereas, at the present time, the natural operation of epidemics being prevented, the feeble are preserved, and, mingling and intermarrying with the strong, deteriorate their vital stamina, and so lessen their longevity.

This is the natural operation of those sanitary measures which are usually included in the term "public hygiene;" and it seems evident to us that unless something more is done for the physical improvement of the individual, the ultimate effect o public sanitary measures—neglecting ndividual and domestic hygiene—will be to deteriorate, rather than to improve, the race. Epidemics and plagues act as a means of natural selection, which preserves the strong, and makes them still more vigorous, while sacrificing the weak. Public hygiene is certainly in the highest degree humanitarian and philanthropic, but it does not necessarily follow that its results to the race, considering man as an animal merely, are wholly beneficent.

We trust it needs no further argument to demonstrate the necessity for the hygienic care of the individual, as well as of the community. By this means the feeble will not only be preserved alive, but will be so improved that the feebleness may be outgrown; the hereditary tendency to pulmonary disease may be overcome; the seeds of transmitted disorders may be kept from germinating until they are finally obliterated; and thus the race may be improved, rather than deteriorated.

It needs no argument to establish as a fact the statement that one of the most essential things for the maintenance of individual health is a healthy home, the essentials of which are, 1. A salubrious location as regards the surrounding country; 2. A healthful site, as regards position, soil, etc.; 3. A properly constructed house, with proper arrangements for heating, ventilation, and admission of sunlight; and 4. A copious and pure water-supply.

—The number of deaf-mutes in the world is estimated at between seven and nine hundred thousand. The infirmity seems to be increasing.

Delicatessen.—The delicatessen shop has been imported into some of the large cities of this country from Europe, but does not seem to thrive well, not considering the demand for *pâte de foie gras,* limburger cheese, and similar delicacies. Under the head of "A Vile Delicatessen Shop," a New York paper comments as follows:—

"Cæsar Wall sold delicacies at No. 243 Bowery until it was discovered that much of his stock was unfit for use. Dr. Cyrus Edson caused Wall's arrest. Soon afterwards Wall made an assignment. Yesterday Auctioneer Wedell attempted to sell Wall's stock, but it was found to be all in a putrid condition, and was sent to offal docks.

"A '*vile*' delicatessen!—did any one ever know a delicatessen shop that was not vile? It is an undoubted fact that anything that smells offensive is not fit for human food. The passer-by anywhere near one of these imported cheese cellars gets a bouquet alongside of which a dissecting room or bone boiling establishment would be perfume. Does any one mean to assert that such putrid, decomposing, and animalculæ-filled stuff is healthful for the human stomach?"

Water for Babies.—The following paragraph by an Eastern medical writer is very appropriate for this season of the year when babies often suffer greatly for want of water. They should not be given very cold or ice water; but water about the same temperature as the air is as good as that which is colder, and may be given in larger quantities without danger.

"I was one day called upon to visit a sick little one in a family residing near my office. The babe I found in apparent good health, but crying and struggling in its mother's arms as though suffering from excruciating pains. The mother informed me that the child seemed desirous of nursing continually; and that to quiet it, she had given it the breast as often as the crying commenced. When that did not

soothe the little one, a dose of Mother Somebody's cordial had been administered.

"'My good woman,' I inquired, 'when did you last give your babe a drink of water?'

"'I don't remember,' replied the lady; 'I seldom let him drink water. Does he need it?'

"'Need it? Why should he not need it as much as you? This child is suffering from thirst—nothing more.'

"I called for cold water, gave the infant a few teaspoonfuls, and it was relieved of all its trouble, stopped crying, and sank peacefully to sleep in its mother's arms. Let this be a reminder to mothers and nurses. Infants who nurse at the breast often suffer as much from want of water as adults who eat more solid food. Often when a child cries, it is only thirst which causes it. Do not, then, dose it with the poisonous 'soothing syrups,' or nursing cordials, or press it to the breast, which it will eagerly grasp, expecting to satisfy its burning thirst; but, filled to the brim with its natural food, it cries on harder than ever. Use a little discretion. The poor little one cannot tell its wants; if it could, it would often cry, 'Water! water!'"

Contagion in Straw.—Persons living in large cities would do well to look to their straw, if they have occasion to purchase any, as it has recently been discovered that the proprietors of European steamships sell about four hundred tons of straw a week, which has been used for beds in steerage berths. The straw is largely used for packing purposes, and thus might readily be the means of distributing the contagion of cholera or small-pox over a very wide territory.

—There is some hope that the habitual diner at city restaurants may experience a slight improvement in his digestion, as the papers report that the main lobster canners have been obliged to close much earlier than usual this year, on account of the scarcity of lobsters.

DANGER IN DRIED BEEF.

DURING the last month, the newspapers have contained startling accounts of extensive poisoning from eating dried beef in the village of Momence, situated near Kankakee, Ill. The matter is one of much interest, as it exposes a danger which has heretofore been little regarded, and, indeed, scarcely known to the common people, namely, that of using flesh food in a state of partial decomposition.

It is customary with many butchers to keep those portions of slaughtered animals which are used for steaks and chops for some days, often for a week, after the animal is killed, before offering for sale, so as to enable the flesh to become more tender. In England it is quite customary to allow meat to acquire a "high" flavor by allowing decomposition to advance considerably before supplying it to consumers. Thorough cooking doubtless considerably neutralizes the effect of slight decomposition, but dried beef is usually eaten without cooking, and steak and mutton chops are more often eaten rare or half cooked than well done; consequently the danger of poisoning from partial decomposition of meat, especially during the warm season of the year, is by no means slight, and it is possible that this may be an unrecognized cause of a large number of cases of illness occurring during the warm season, which are usually attributed to heat, the use of unripe fruit, malaria, and other causes of fever and bowel disturbances.

The *New York Analyst* has taken the trouble to make a thorough investigation of the cases of poisoning at Momence, and the matter is of so much interest we present our readers with the entire report:—

"MOMENCE, Ill., July 13.—The community of Momence is shrouded in gloom, awaiting the outcome of a terrible malady which made its appearance last week. It is now clearly established that the malady arose from eating dried beef which was filled with animalculæ. The disease is something like trichinosis. So far, it has caused one death. The victim was Mrs. Dr. Shrouts, who died Sunday afternoon.

As far as can be learned to-night, the following families are stricken, and are requiring the constant care of their neighbors and friends: "—

Here follow the names of fifteen families.

"There are probably half a dozen other sufferers whose names have not been reported; and these, with those who have recovered, make a total of about fifty who have thus far been stricken down by the disease.

"To-night a consultation is in progress between Dr. Ullry of the State Board of Health, who has just arrived from Springfield, Dr. Ellis of Kankakee, and Dr. Keyser of this village.

"None of the cases are fresh ones, so there is hope that the disease will be kept from spreading beyond those originally affected. Four or five of the cases to-night are reported as critical, and there may be more deaths before morning.

"The malady first appeared last Wednesday night, though its prevalence did not become known till some forty-eight hours afterward. The symptoms, at first, were almost identical with cholera-morbus, and the sufferers were treated for this. But when it became no better, and it was found that people in all parts of the village were affected, the discovery was made that all the patients had partaken Wednesday evening of dried beef bought at Scramlin's butcher store. According to the statement of the villagers, he is in the habit of getting his meat from the Rice Butchers' Supply Company of West Jackson Street, Chicago. Wednesday last a great many people were supplied with dried beef from the same cut. Mr. Scramlin and two members of his family were taken dangerously ill, and this fact served to warn others who had bought meat at his market, in time to prevent a more general consumption of the tainted meat. Though it is nearly a week since the first appearance of the trouble, the majority of the patients are still quite ill, and many of them are said to suffer great pain.

"SYMPTOMS AND TREATMENT.

"Their illness has been marked by looseness of the bowels, very offensive discharges, resembling those of typhoid fever, coming and going at intervals, and leaving the patient very much exhausted. The evidences of poisoning are very acute, but do not resemble trichinosis. Drs. Keyser and Ellis, who have had experience in treating the latter trouble, both agree to this. Dr. Keyser has also examined the diseased beef under the microscope, and declares that the animalculæ are not trichinæ. He describes them as greatly resembling a garter-snake. It is also said by some that the beef was spoiled before it was cured. The treatment of the patients since it was discovered that the malady was not cholera-morbus, has been mainly to relieve the great pain of which they complained. A number are constantly delirious, but others, when not in a stupor from the opiates administered, describe their feelings as those of great languor, and the few days' sickness seems to have taken away all their strength. The flesh is greatly reduced, and one man, who is now getting better, is said to have lost twenty-three pounds. It has not been possible during the week to secure medical attendance enough, and the two doctors who have looked after the wants of the sick night and day, are themselves nearly prostrated with fatigue.

"One of the first to be taken sick was Dr. Shrouts, and the disease in his family took on its severest form, all the members being prostrated. Sunday afternoon Mrs. Shrouts died, suffering, it is said, awful agony, and plucking the hair from her own head in her delirium. The servant-girl is one of those who is not expected to live till morning. The community is worn out with the care of the sick ones, who require constant attention. The feeling to-night is, however, more cheerful than it has been for days past, and hope is universal that in most of the cases the crisis is past, and the visitation will not be marked by many deaths. Everything possible is done to ameliorate the condition of the sufferers; but it is apparent that the malady must run its course, as the patients show no improvement after a certain stage.

"ORIGIN OF THE DISEASE.

"Steps have been taken to establish definitely the cause of the disease appearing in the community, and the investigations already made seem to show that there can be no question that it originated in eating the diseased dried beef. It has been found that every person who has been on the list of those taken suddenly ill last Wednesday night, ate of the dried beef bought of Scramlin, and they were all attacked within from two to five hours after eating. Members of families where there are several patients say those who

did not partake of the beef uniformly escaped. It is also stated that the severity of the sickness has to some extent been measured by the quantity of the meat eaten. Some of the dried beef was taken to Chicago yesterday for a microscopical and chemical analysis. It is possible that the results there obtained will develop the exact nature of the disease; but that it is not identical with trichinosis the examination already made indicates clearly.

"It cannot be learned here whether the same article was shipped by the Chicago firm to other parts of the State or not, but the people of Momence are now demanding that the State Board of Health follow up the matter vigorously, which the information already at hand would seem to make an easy matter. Dr. Ellis will probably return to Kankakee in the morning, while Dr. Ullry will remain long enough to get, if possible, a *post-mortem*, and to gather the facts that will be of use to the State Board.

"THE CHICAGO DEALER.

"'Hoag is one of our regular customers,' said Isaac Rice last night. 'We sold him thirty or forty pounds of dried beef last week. Of late we have been getting all our dried beef of George Brougham, the Kinzie Street packer, and the meat we sold to Hoag was obtained at Brougham's. It appeared fresh and sweet, or we would not have sold it. Brougham smokes the beef every week, and we get our supply regularly, and generally dispose of it in a day or two. Our trade is mostly with country buyers. Hoag was a small buyer, never taking more than thirty or forty pounds at one time. Smoked meat will keep all summer if properly cured. I never heard of trichinæ in beef before, and it seems strange that the many other parties to whom we sold quantities of this same beef should never have sent in a word of complaint. Any meat will breed worms if left to itself in hot weather, but worms are not poisonous. My system is to examine all meat that comes in by smelling and tasting it in all parts of the piece, and the test never fails. I never had any meat returned on account of being wormy or unsound, but some has been brought back because not cured enough.'

"Mr. Brougham, of whom the Rice Supply Company say they got their meat, said last night that he did not furnish it to them. He was at a loss to account for the poisoning, as he knew of nothing in the process of putting up meat of that kind which could cause it. In his opinion, the poison came from some other source.

"Immediately upon receipt of this report, in accordance with our usual custom, we wrote and telegraphed for particulars, which are here given:—

"CHICAGO, July 15.—Dr. G. A. Mariner, the chemist and assayer to whom samples of the dried beef which caused the wholesale poisoning at Momence, Ill., have been submitted for microscopical analysis, today made a preliminary report with a view to furnishing the Momence doctors with information upon which to base their treatment of the persons poisoned. The examination does not disclose the presence in the beef of trichinæ or worms or any kind of living organism. 'It proves, however,' says the doctor, 'that there are numerous micrococci and other kinds of bacteria, such as accompany and indicate decomposition and decay in meat, and the presence therein of poisonous alkaloids called *ptomaines*. It is to these *ptomaines* that the poisonous effects are undoubtedly due, as they are intensely poisonous, even in the most minute quantities. If a physician, in making a dissection of a decomposing body, gets even a small particle of the flesh containing them in contact with a scratch or cut on his hand, death is almost certain to ensue. The alkaloids in this beef are identical with those contained in what is called a "mellow" body in the dissecting room. The present bad condition of the meat may be accounted for in two ways: it may have been poor meat to begin with, or it may have been insufficiently cured, so that decomposition set in after the curing. I am inclined to think the latter supposition the more reasonable.'

"Dr. H. Gradile made a microscopical examination with practically the same results. 'The meat,' he says,' may not have been properly cured; but from what I have seen of it, I am inclined to think it was spoiled before it was smoked. I am going to try the effect of the poison on a live animal as soon as I can get a dog.'

"It will thus be seen that the summing up of this case again is in one word—'*ptomaines*.'

"This last case is of great importance, not only from the number of victims, the fact that in this instance the meat was *not canned*, but more—that this Mr. Brougham is the maker of an extract of beef."

DOMESTIC MEDICINE.

Cow's Milk for Infants.—A writer in the *Medical Record* ably sums up the chief facts relating to the feeding of infants on cow's milk as follows :—

"While nothing is equal to a healthy mother's breast, proper artificial feeding is better than many a mother's milk. A good, healthy cow should be selected between the ages of four and ten years, of mild disposition, which has been giving milk from four to eight weeks previous to the birth of the child. She should be fed on good clean grain, and hay free from must. Roots, if any are fed, should be of good quality, and she should have plenty of good clean water from a living spring or well. Her pasture should be Timothy grass or native grass, free from weeds; clover alone is bad. She should be cleaned and cared for like a carriage horse, and milked twice a day by the same person and at the same time. Some cows are unfit by nature for feeding infants. Take three or four parts of warm water to one part of milk, and a little fine white sugar; bring all to the temperature of the body. Give the baby about two ounces every two or three hours. This strength is generally sufficient for the first two or three months, when the proportion of milk is gradually increased, so that by the time the child reaches four months it will be taking milk and water about equal parts, and an increased quantity.

"Should the child appear to be insufficiently nourished, increase the quantity of milk to water, or use barley water in place of simple water, especially if any tendency to diarrhea is present. The dangers from overfeeding, whether by too large a proportion of milk, or too great a quantity given, are greater than the opposite conditions, especially during hot weather. The cases are rare where the child can take pure milk with safety before the ninth month. No solid food, or table-feeding of any kind, is allowed until after a number of teeth are through.

"The causes of failure in this kind of artificial diet are as follows: 1. Want of cleanliness of the utensils; 2. Carelessness in the preparation of the food, as to the exact proportion of milk and water, at each meal; 3. The want of regularity as to time and quantity of feeding; 4. Changing from one cow's milk to another, or using mixed milk from different cows; 5. Allowing the child to nurse or drink too rapidly. There is a tendency among some in the profession to make the artificial feeding of infants too artificial by supplanting milk, or giving it a secondary place. This cannot be done successfully."

Hot Water for Babies.—A New York doctor has just found out that drinking hot water is the best means of curing cholera infantum, a disease which carries off many thousands of babies every year. It is by no means a new remedy, but it is a very good one. Put hot water, as hot as you can hold your finger in, into the nursing bottle, and let the baby take it *ad libitum*. Most babies will drink liberal quantities with avidity. In addition, use large and frequent enemas, and apply either moist or dry heat over the stomach and bowels.

A Wonderful Pain-Killer.—It has recently been found that the newly discovered and wonder-working remedy which can sell at ten times its weight in gold, cocaine, will afford instant relief from the terrible pain of a severe burn.

Rice as a Dressing.—Powdered rice is recommended by a French journal as the best dressing for wounds. It should be applied on lint thickly covered with the powder.

To Quiet the Baby's Colic.—A Boston philosopher, whose meditations had been cruelly disturbed by the screams of a colicky infant, set himself to work to discover something better than peppermint tea and sweetened water, and has magnanimously given his great discovery to the world. Here it is :—

"Lay the baby on its back, and pat it from its neck downward, the whole length of the trunk, giving particular attention to the region where the intestinal wrangles are going on, and using great care not to pat upwards. The movements must always be downward. In a few moments the agonies will begin to subside, bringing great relief to the infant as well as to the rest of the family and the neighborhood."

The only objection we see to the method,

which certainly has merit, is the difficulty in keeping the wriggling victim of sugar plums and sour nursing bottles on its back.

Peptonized Milk for Infants.—The great difficulty in the use of cow's milk for infants is, that in case the digestion is not vigorous, the large curds which are formed are so long in digesting that the milk sours, and the undigested curds produce intestinal disturbances, which are further increased by the irritation of the undigested curds which are passed in the stools.

Prof. Leeds, of Steven's Institute, New York City, the most scientific authority on infant foods in this country, suggests the following method of treating cow's milk so as to render it as nearly like human milk as possible :—

"1 gill of cow's milk, fresh and unskimmed.
1 gill of water.
2 tablespoonfuls of rich cream.
200 grains of milk sugar.
1½ grains of extractum pancreatis.
4 grains of sodium bicarbonate.

"Put this in a nursing-bottle, place the bottle in water made so warm that the whole hand cannot be held in it without pain longer than one minute. Keep the milk at this temperature for exactly twenty minutes. The milk should be prepared just before using."

—Dr. Austin Flint, the eminent New York practitioner, remarks : "A fever patient never takes cold." This would be a good thing for persons to remember who hesitate about using water in fever, fearing that the patient may take cold.

—To remove freckles, apply to the skin a mixture consisting of equal parts of lactic acid and glycerine. This is highly recommended.

—For burns, paint the burnt surface over with balsam copaiba.

Question Box.

Catarrh of the Bowels.—A correspondent wishes to know what treatment is best for catarrh of the bowels.

Ans.—It is impossible to make a prescription which will meet every case of this formidable disease, which frequently taxes to the utmost the skill and patience of the most able physicians. We have found much benefit in such cases in the use of the hot enema. From one to three quarts of hot water—hot as can be borne without much discomfort—should be administered by enema two or three times a day at first, and less frequently afterward. Many cases will yield to this simple treatment.

Diet for Nursing Mothers.—A mother inquires : "Should a mother while nursing a seven-months' child eat twice or three times a day?"

Ans.—We have known many mothers who have reared large families while adhering closely to the two-meal-a-day plan, and have no doubt that a mother who has been accustomed to eating but twice a day, and who has a vigorous digestion, will be able to support her own system and a growing infant as well on two meals a day as by taking an additional meal. But we would not advise a nursing mother, or, indeed, any mother to go hungry, and do not conceive that any particular harm would come from taking a glass or two of hot milk or some simple food in the latter part of the afternoon, if the dinner has been taken at noon. It should be remembered, however, that it is what is digested, rather than what is eaten, that furnishes strength and nourishment to the body.

Rheumatic Tendency.—A mother, whose little daughter is just recovering from an attack of inflammatory rheumatism, wishes to know how the tendency of this disease can be removed from the child's system.

Ans.—The "tendency" to rheumatism is usually the result of diet which clogs the system, producing inactivity of the liver and an excess of waste elements in the body. This condition is more frequently the result of the free use of flesh food, butter, sweets, pastry, and condiments, than of any other cause. Inattention to the skin and inefficient exercise in the open air, are additional causes worthy of attention. The diet should consist chiefly of fruits, grains, and milk. The skin should be kept active by daily baths and vigorous rubbing with a towel; and abundance of out-of-door exercise should be taken daily.

Lettuce as a Food.—An Ohio subscriber asks : "Do you consider lettuce admissible as an article of diet?"

Ans.—The nutritive value of lettuce is so small that it is really not worth eating. If taken simply as a relish or to give bulk to the food in the spring of the year, when it is best that the diet should be less concentrated in character than during the cold months, it may be considered not unhealthful, if used in moderation. The usual concomitants of vinegar and condiments should be discarded. A little lemon juice and sugar make a healthful dressing.

Pimples.—An Iowa correspondent inquires : "What will cure pimples on the face?"

Ans.—These annoying excrescences are frequently the result of indigestion, torpid liver, inactive skin, or inactivity of the bowels.

Removal of the cause will usually remove the

effect. Various astringent lotions are of service, if applied two or three times a day. Sulphate of zinc, one dram to the pint of soft water, is a good lotion for use in these cases. In very bad cases, electricity is required for their removal.

Quinsy.—An old subscriber inquires if there is any way to break up quinsy in the beginning of the attack.

Ans.—A hot blanket pack or a good sweat taken in some other way, ice compresses or bags to the throat, and ice pills swallowed every few minutes, with fomentations applied to the throat for fifteen minutes once in two hours, is the proper treatment. These measures employed thoroughly, and followed up for a day or two, will abort most cases of tonsilitis.

Cocoa.—E. J. C., of Mass., inquires as follows: "What is your opinion of prepared cocoa as a drink. I cannot drink tea or coffee without bad effect, but cocoa seems to be entirely harmless."

Ans.—Cocoa as usually sold is less stimulating in its effects than either tea or coffee, though it contains the narcotic principle of theobroma, the effects of which are identical with theine and caffeine. It often disturbs the digestion. It is claimed by many that its nutritive value is great, but this really amounts to but very little. A cup of cocoa or chocolate, aside from the milk and sugar which it contains, has about as much nutritive value as a teaspoonful of oatmeal mush.

Morphine Poisoning.—Mrs. R. A., of Ill., states that her son of five years was poisoned with morphine when four weeks old. He was treated for it by injecting strong coffee into the veins, since which time small lumps have appeared on the skin where it was punctured, breaking after a time and discharging. She wishes to know the cause, and best method of treatment.

Ans.—The hypodermic injection of coffee introduced into the tissues foreign matter, which caused local inflammations and resulted in abcess. The lumps are fairly attributable to this cause. If the lumps show a tendency to inflame, they may be poulticed so as to hasten the inflammatory process, and by producing suppuration, convert them into abcesses, and cause them to disappear.

Dyspepsia, Liver Disease, and Consumption.—A subscriber wishes to know if dyspepsia and liver disease are ever to be considered as predisposing causes of consumption.

Ans.—Indigestion and consequent impoverishment of the blood and debility of the whole system is the most common of the predisposing causes of consumption. Anything which impairs the general health, will encourage an attack of this disease, especially in persons who inherit a tendency in this direction, which is the case among so large a proportion of all civilized people at the present time.

Cure of Erysipelas.—B. F. W., of Cuba, wishes to know if a hygienic manner of living will cure the erysipelas.

Ans.—A fruit diet, and healthful living generally, is the best means of combating diseases which arise from grossness of the system. If the condition alluded to is the case, he will find hygienic living the surest mode of cure.

Starvation for Rheumatism.—A correspondent forwards the following, which was sent to the *Scientific American*, with the reply of the editor of that able journal:—

"You mention in your issue of Sept. 6, a black snake cure for rheumatism, and properly suggest that a rubber tube filled with warm water would be better. Last Spring, in Ohio, many who were bedridden with rheumatism were flooded out of their houses, and had to take refuge in trees, and open fields, and on their roofs. They were for several days without food, exposed to rain and cold. In every case the rheumatism was cured. Since then I have preached the starvation cure for rheumatism. Any man can, without permanent injury, go entirely without solid food for many days, and yet most people are terrified at the idea of missing a single meal; and I have had sufferers from rheumatism tell me when I advised them to go without eating for just one day, that they preferred the rheumatism. SENEX.

"[Being put to soak in cold river-water, and then hung out to dry for several days in trees, etc., is not commonly deemed good treatment for the 'rheumatics;' and the idea of curing the poor mortals by starving them, during their washing and rough drying, would seem very strange were it not that no crude fancies in connection with the removal of disease can be found too absurd to meet with abundant supporters. The starvation plan is every now and then suggested by some one of ill-balanced mind; but all fair experience shows that while occasionally a case of some sort may be found where long abstinence from food can be of service, they are only isolated instances, and that the common belief that food is a good thing has really some ground for adoption.—ED.]"

The editor's reply is very cute, but not entirely satisfactory. He is evidently not quite as well posted in medical matters as in the most recent novelties in the electric lighting "Keely-motor" enterprise, etc. Experience has shown that the most successful treatment for acute rheumatism is the "hunger cure." The patient should suspend eating, not for a month, but for three or four days, or until the high temperature and other inflammatory symptoms subside. We have treated many patients by this plan with excellent success, and do not think any one at all likely to suffer any injury from a moderate dose of the "hunger cure" in such cases.

SCIENCE IN THE HOUSEHOLD.

CONDUCTED BY MRS. E. E. KELLOGG.

SIMPLE BEVERAGES FOR SUMMER.

A Refreshing Drink.—Take four ounces of tamarinds and the same of raisins; boil in three quarts of water, slowly, for fifteen or twenty minutes, or until the water is reduced nearly one-fourth; then strain, while hot, into a bowl with a small slice of lemon peel in it. Set away until cold before using.

Egg Lemonade.—Beat the white of an egg to a stiff froth, then mix with it the juice of a small lemon and one tablespoonful of sugar. Add a half pint of cold water.

Fruit Punch.—A very pleasant cooling summer drink is made from the juice of six oranges and six lemons, with the addition of sugar to taste; add to this some pounded ice and the juice of a small can of pine-apples, pouring over the whole two quarts of water.

Stokos.—Put into a large pan a quarter of a pound of fine fresh oatmeal, six tablespoonfuls of white sugar, and the juice and a portion of the rind of one lemon. Mix with a little warm water, then pour a gallon of boiling water into it; stir all together thoroughly, and use when cold.

Oatmeal Drink.—Boil one-fourth of a pound of oatmeal in three quarts of water for half an hour, then add one and a half tablespoonfuls of sugar. Strain and cool. It may be flavored with a little lemon or raspberry syrup if desired.

Another.—Take two teacupfuls of oatmeal, and turn over them two quarts of boiling water; stir quite often; let it cool, then add a small quantity of cold water; strain off, and put in a quart of milk and a lump of ice.

Fruit Drinks.—A great variety of these may be made by adding to the juice of currants, strawberries, raspberries, cherries, or a mixture of two, as raspberries and currants, as much water as juice, sweetening to the taste, and putting into each glass a small lump of ice. The juices of the various small fruits extracted by heating, the same as for jelly, and bottled, are very convenient for this purpose.

Pine-Apple Lemonade.—Lemonade made in the usual manner, and flavored with a few spoonfuls of the juice from the canned pine-apples, is excellent for variety. E. E. K.

Instructions for Removing Ink Stains.—To extract ink from silk and woolen goods, saturate the spot with spirits of turpentine, and let it remain several hours; then rub between the hands. It will crumble without injuring the color or texture of the fabric.

To remove ink stains from cotton and linen goods, apply alternately a strong aqueous solution of oxalic acid and chloride of lime. Rinse well with water.

The *Journal de Pharmacie d'Anvchs* recommends pyrophosphate of soda for removal of ink stains. This salt does not injure vegetable fibre, and yields colorless compounds with the ferric oxide of the ink. It is best to first apply tallow to the ink spot, then wash in a solution of pyrophosphate until both tallow and ink have disappeared.

Stains of red aniline ink may be removed by moistening the spot with strong alcohol acidulated with nitric acid. Unless the stain is produced by cosine, it disappears without difficulty.

Indelible ink stains may be promptly removed from clothing by simply wetting the stain with a solution of bichromate of mercury. Bichromate of mercury is a rank poison, and should be used with caution.

To take copying ink out of white goods, make a strong solution of chlorinated lime in cold water, and apply to the stains; then apply a strong aqueous solution of oxalic acid (cold). Repeat if necessary until the stain disappears. Rinse thoroughly in chilled water.—*The Laundry.*

Household Perils.—There are two or three volatile liquids used in families which are particularly dangerous, and must be employed, if at all, with special care.

Benzine, ether, and strong ammonia constitute this class of agents. The two first-named liquids are employed in cleaning gloves and other wearing apparel, and in removing oil stains from carpets, curtains, etc. The liquids are highly volatile, and flash into vapor as soon as the cork of the vial containing them is removed. Their vapors are very combustible, and will inflame at long distances from ignited candles or gas flames, and consequently they should never be used in the evening, when the house is lighted. Explosions of a very dangerous nature will occur if the vapor of these liquids is permitted to escape into the room in considerable quantity. In view of the great hazard in handling these liquids, cautious housekeepers will not allow them to be brought into their dwellings, and this course is commendable.

As regards ammonia, or water of ammonia, it is a very powerful agent, especially the stronger kinds sold by druggists. An accident in its use has recently come under our notice, in which a

young lady lost her life from taking a few drops through mistake. Breathing the gas, under certain circumstances, causes serious harm to the lungs and membranes of the mouth and nose. It is an agent much used at this time for cleansing purposes, and it is unobjectionable if proper care is used in its employment. The vials holding it should be kept apart from others containing medicines, etc., and rubber stoppers to the vials should be used.

Oxalic acid is considerably employed in families for cleansing brass and copper utensils. This substance is highly poisonous, and must be kept and used with great caution. In crystalline structure it closely resembles sulphate of magnesia, or epsom salts, and therefore frequent mistakes are made and lives lost. Every agent that goes into families among inexperienced persons should be kept in a safe place, labeled properly, and used with great care.—*Sel.*

—Oil-cloth must be wiped perfectly dry as it is washed. Use little soap and this in tepid water, change often. A good brush and a piece of dry flannel will make oil-cloth look like new, especially if linseed oil or skim-milk be well rubbed in after washing. If in addition to these precautions they are varnished annually, they are almost indestructible.—*Sel.*

Literary Notices.

POPULAR SCIENCE MONTHLY: Published by D. Appleton & Company, New York: 50 cts. a number; $5 a year.

"Concerning the Suppressed Book" is the title of the first article in the August number of the "Monthly." It is by Professor E. L. Youmans, and is an examination of the Spencer-Harrison correspondence, which is given in full, and which ended in destroying the new book on religion shortly after its issue by the Appletons. The writer makes a strong showing for the American side of the case, and gives the whole matter a very different aspect from that presented in the English papers.

Mr. James sully, in "Genius and Insanity," treats of the nature of genius as displayed in the careers of several distinguished personages, and of its relation to the general mental integrity of the individual. Dr. Mary Putnam-Jacobi describes "An Experiment in Primary Education," made by herself on her own child, in which, substituting the study of things for that of words, she obtained some very striking results well worthy the attention of our educators. Sir John Lubbock's illustrated article "On Leaves," begun in July, is completed in this number.

The addresses of Professor Huxley and the Prince of Wales at the presentation of the Darwin statue to the British Museum are given, and there are also articles of much popular interest on "Measures of Vital Tenacity," by Dr. B. W. Richardson; "Curiosities of Time-Reckoning," by M. L. Barré; and "Modern Bronzes," by Perry F. Nursey.

The sketch and portrait are of the distinguished French scientist, M. Michel Chevreul, who is now in the one hundredth year of his age, and still engaged in active scientific work. The "Editor's Table" and the other departments are characterized by their usual variety and interest.

GOOD HOUSEKEEPING: Published by Clark W. Bryan & Co., Holyoke, Mass. Terms $2.50 per annum.

This journal comes to our table every two weeks with a full list of good things on housekeeping topics, including sanitary and dietetic subjects, house furnishing and adornment, with advice on almost all the details of housework. It is one of the most practical and instructive as well as interesting of magazines.

GOOD CHEER and OUR COUNTRY HOME: Two monthly journals published by the Good Cheer Publishing Co., Greenfield, Mass. The first is, as its name indicates, a paper full of bright, cheery sketches, stories, and other interesting articles for general reading. The second is especially a journal of country life, well filled with articles on agriculture, stock-raising, and kindred topics. The same publishers have recently started a third enterprise, to be called THE HOUSEWIFE, which, as the prospectus states, is intended to be a well-stored compendium of helpful hints for hard-working, ambitious housewives. The three journals are all published at the uniform price of 50 cents a year.

LOOK WITHIN FOR FIVE THOUSAND FACTS THAT EVERYBODY WANTS TO KNOW: Published by A. H. Andrews & Co., Chicago, Ill.

We have just received from these enterprising publishers a most useful little volume. It contains 75 pages of condensed information on Mechanics, Statistics, History, Medicine, Astronomy, Finance, Mythology, Education, Mathematics, The Bible, Politics, Agriculture, Religion, Science, Temperance, Trade, etc., etc.; in fact there seems to be something for everybody, and nothing that some one will not be glad to know. It is embellished with a number of colored diagrams, and is by far the most valuable and complete Cyclopedia of its size we have yet seen. It is offered for sale at the exceeding low price of 15 cents, for which sum in stamps it will be sent post paid to any address.

WE have received the "Annual Catalogue" of the Michigan Agricultural College, now in the twenty-eighth year of its existence. This catalogue contains a list of the students and officers, and such general information concerning the College as will be of use to candidates for admission to this excellent school.

Publisher's Page.

☞ Thousands of babies have been made happy by the use of the Infant's Food manufactured by the Sanitarium Food Company, at Battle Creek, Mich., which is undoubtedly far superior to most, if not all, articles of this kind. The majority of infant foods consist chiefly of starch, and are on this account poorly adapted to the wants of the infantile stomach. A gentleman who has been using this food for some time, recently remarked, in sending an order for a new supply, "You know by the quantity I have ordered that I am well pleased with your food. We have sometimes changed to some other food for a time, but have always been obliged to return to yours again. We have recommended it to many of our neighbors, who are also using it." Recent improvements have been made in the manufacture of this food, which very greatly increase its value, but making it necessary to add to the price. As will be seen by reference to the inclosed circular, the price hereafter will be forty cents per pound. The Sanitarium Food Company wish also to call attention to a change in the name of one of their food preparations. The preparation heretofore known as *avena* will hereafter be known as *avenola*. All of these food preparations are increasing in their popularity, which is undoubtedly due to the fact that the high grade of excellence which was long ago attained in their manufacture has not only been maintained, but has been raised higher by continued improvements in the perfection of the processes of manufacture, etc.

☞ Notwithstanding the naturally oppressing effects of hot weather in most parts of the country, and of the generally prevailing "hard times," our list of subscribers receives monthly hundreds of additions from all parts of the United States. Scarcity of money emphasizes in the minds of intelligent people the importance of economizing health. When times are hard, who can afford to be sick? During the coming fall, we would like to have one thousand health missionaries in the field, canvassing for GOOD HEALTH, and introducing our health literature generally.

Agents' outfits are furnished gratis to those who will agree to devote some time to the work of canvassing.

☞ The Treasurer of the Sanitarium reports that the receipts of that institution have in the past week exceeded those of any preceding week since the organization of the institution. The large addition made last fall proves none too capacious to accommodate the hundreds of invalids who desire to avail themselves of the advantages for relief afforded by this institution. Improvements in every department are continually in progress, rendering still more thoroughly efficient the extensive appliances, which, among other advantages, render the Sanitarium superior to every other establishment of the sort in the country.

☞ The number of arrivals at the Sanitarium during the last month has been over two hundred and fifty.

☞ Mrs. E. G. White, the well-known author and public speaker, called upon us recently while on her way to Europe, with her son, W. C. White, manager of the Pacific Press Publishing House. Mrs. W. is well known throughout this country as one of the most earnest advocates of the principles of Health and Temperance. Her numerous works and writings are eagerly read and prized by all classes. While with us she spoke in the Sanitarium Parlors to the numerous patients, with much acceptance. May a kind Providence go with her on the European tour.

☞ Residents of the Peninsular State are enjoying a delightfully pleasant summer this year. There have been but very few hot days. The weather has been almost uniformly cool, sunny, and pleasant, with gentle breezes. Even the hot days were not sultry, as the air was cooled by lake breezes from the East, West, and North. Michigan is getting quite a reputation as a general sanitarium. During the summer, the whole northern part of the State is filled with invalids from every part of the United States. The winters are less severe than in the Middle and Western States, and the summers are entirely free from the extreme and depressing heat to which surrounding States are subjected.

Taking it all in all, it has much to boast of in its climate, though the reputation for "fever and ague" attached to it in its early days, still prevents a proper appreciation of its merits. At the present time, there are probably very few, if any, of the thickly settled States in the Union which are troubled with malaria less than the Peninsular State.

☞ WE receive encouraging accounts of the prosperity of the Rural Health Retreat at St. Helena, Cal., under its present management. At the latest reports there were fifteen patients, all of whom were prospering. Those persons who are looking out for a safe retreat from the rigors of a Northern winter, during the coming cold season, would do well to correspond with this delightfully-located institution. For terms, address RURAL HEALTH RETREAT, St. Helena, Cal.