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ZOOLOGICAL HEALTH-STUDIES.

BY F. L. OSWALD, M. D.,

Author of "Physical Education," "Days and Nights in the Tropic," etc.

11. Genetic Instincts.

IN the progress of science, identical truths have often been reached by different roads of approach, and many principles of sexual hygiene, learned in the costly school of experience, might have been deduced from the revelations of instinct. Ethics and physiology have really the same basis, though the by-law tangle of the matrimonial code may have tempted more than one independent thinker to ascribe the entire system of sexual restrictions to the caprices of pedantry. There was a time when the intermarriage of Hebrew and Trinitarians was punished as a capital offense, and the deceased wife's sister controversy is still raging in the birth land of Hudibras; but as the principles of morality outlive dogmatism, the essentials of genetic science are gradually being winnowed from the unessential, and the chances of their full recognition have not been lessened by the process of emancipation.

Comparative biology, for instance, proves that polygamy and consanguineous unions become less frequent as we ascend the scale from the lower to the more intelligent species of our fellow creatures. The stupid turkey gobbler and the buffalo bull undertake their matrimonial contracts by the dozen; while the eagle and the lion are monogamists, and Sir Emerson Tennent tells us that some of our Darwinian relatives actually scandalize the savages of the Sunda Islands by their lack of Mormon enterprise.

"What a fellow to set up for a great chieftain!" they said of Rejah Brooke; "he has but one wife, like a Wanderoo ape."

Flocks of partridges and herds of wild sheep are so many traveling seraglios, but the beaver and the weaver-bird congregate only for the purpose of applying the strength-in-union principle to architectural problems, and under the common roof each pair sets up a well-guarded, separate household of its own. Others again, like the Norwegian lemming, unite on their travels for mutual protection, but the informality of their camp-life does not degenerate into free-love license. And only in that sense can any species of our nearest mammalian relatives be called gregarious. A Brazilian traveler states that near some tributary of the Rio Negro he saw "a perfect stream of monkeys" (probably in the month of Ape-rill, remarks one of his critics); they were sapajous, or white-faced capuchin ringtails, on their way to more inviting feeding grounds. At the end of the dry season, when fruit in the coast plains gets scarce, they travel hundreds of miles in that manner, but keep a watchful eye on their coquettes; and soon after their arrival in the promised land of the foothills the host of pilgrims separate into family groups, and ring-tailed Don Juans run a risk of being mobbed.

The dog-faced baboons travel habitually in troops of three or four dozen; the dangers of an East African wilderness are too serious to be met single-handed, and the leaders of the troop are true heroes, vigilant, self-denying, and bold as lions when trials of strength become inevitable. These chieftains do, however, claim the privilege of the medieval warrior-kings, and contract morganatic marriages,

especially after a campaign in the agricultural districts, when there is a surplus of widows; but such contingencies are exceptional, and the baboons, with their long snouts and formidable tusks, are really no true monkey, but form a sort of connecting link between apes and carnivorous brutes.

The man-apes, or primates of the animal kingdom, are as monogamistic as Parsee saints. The chimpanzee assists his wife in watching her young, but holds that children have outgrown their usefulness if they cease turning somersaults, and begin howling in the light of the mystic moon. His family associations are not permitted to increase by adoption, and at intervals varying from five to six years, branch out into independent unions. The gorilla, too, deems one wife at a time abundantly sufficient in a country where silence is the price of successful forays. Mrs. G. can deliver a shoulder blow like the kick of a government mule, and to mitigate the consequences of possible altercations her precautionary husband conducts his courtships on the plan of choosing lesser evils; and thus, in the course of ages, has reduced the average weight of his female partners to about two thirds of his own. The long-armed gibbon trusts his lady-love out of sight when the search for comestibles requires extensive investigations, but at the approach of darkness recalls her with trumpet-like whoops that can be plainly heard from a distance of two English miles.

The fastidiousness of sexual selection, too, increases with the progress of evolution from minnows to man, and favors what sociologists call a tendency to exogamic unions,— the disposition to seek mates among kindred tribes, rather than within the circle of immediate relatives. Arthur Schopenhauer, a philosopher who in his specialties exceeds the penetrative insight of Rousseau and Herbert Spencer, points out the true biological significance of the all-mastering passion of specialized love.

"A passion forcing its way in spite of all obstacles, in spite of all conflicting interests and even of the instinct of self-preservation," he says, "could hardly be explained if its only object were the guarantee of the certainty that every Jack finds his Jill, for its caprices admit of no compromise; a host of radiant peris cannot console the infatuated lover for the loss of the perhaps homely damsel on whom his fancy happens to have fixed. But the explanation of the apparent paradox fully justifies that uncompromising vehemence. No trifles are at stake; the importance of the object is commensurate with the zeal of the pursuit, while the sexual passion, *per se*, merely guarantees the perpetuation of the species, selective love decides the quality of future generations, the composition and consequent weal or woe of unborn millions. It is the genius of the species who guides the steps of the inamorata, who strengthens the arm of Leander among the storm-waves of the Hellespont, and in Petrarch's elegies bewails the loss of an irretrievable opportunity. Romeo and Juliet will cry out against the prosaic realism of my hypothesis, though, in truth, the object named is of infinitely greater importance than all their sentimental soap-bubbles. An instinct representing the interest of all posterity presides at every lover's choice."

Hence the growing preference for non-consanguineous unions as life becomes more complex. The apparent caprices of sexual selection in the higher animals tend to supplement individual deficiencies, to neutralize defects, and favor the progress of the next generation in the direction of an ideal completeness in the assortment of qualities promising victory in the struggle for existence.

That end can naturally be best secured by the union of contrasting types — though perhaps only in a limited number of results. The progeny may happen to include specimens that seem to have inherited only the worst qualities of their parents, in others the father's merits may just neutralize the mother's defects, or vice versa; but a fair percentage will prove to have inherited the brightest attributes of both lines of ancestry; the combination will mark an advance over the highest standard of either type, and by just that much the interests of the species will have been promoted. For it is the inheritors of those combination advantages that have the best chance of survival, the best chance to attract mates and to transmit their desirable qualities to the largest progeny. A British bulldog appearing in a community of Italian grayhounds at once becomes a center of attraction; an Eskimo dog starring the lower latitudes eclipses the native Abelards; he may be as homely as a catfish, and as snappish as a wolf, but his shaggy coat of frost-resisting abilities is a mantle that covers a multitude of small demerits.

A disciple of the ant-worshiping Lubbock holds that "insects of several species shame the human race by exhibiting a degree of public-spirited self-denial conquering all personal passions whatever, since it has committed the work of propagation to a class of specialists, and devotes the plurality of the citizens to incessant toil in the interest of the commonwealth."

That amendment of republican institutions would be hopelessly unpopular; but it is true that many

species of animals, including our nearest zoological kinsman, set us a noteworthy example in protracted and temporarily perfect continence. In several varieties even of polygamous animals the sexual passion is dormant for months together, and among the larger quadrumana is kept in abeyance for a length of time that surprises the casual observer. Sir Stamford Raffles, who for a long series of years studied the habits of the apes and rhesus monkeys that enjoyed the freedom of his tropical park, remarks that he could not have guessed the sex of individual specimens from their conduct; they quarreled about tidbits, huddled together at sight of an intruder, romped for hours like school children on a picnic, but seemed to have adopted the principles of the Buddhist ascetics in regard to the advantages of celibacy.

But if the experiment of caging them pairwise were tried, a curious difference would be observed. In a state of freedom, however, they find other pastimes, and, besides, the males know from experience that the females do not encourage flirtations as long as they have helpless youngsters to take care of.

The proposed test of that theory really suggests a revision of our entire code of ethics and sexual hygiene. Enforced idleness and the lack of better pastimes are infinitely more frequent causes of sexual intemperance than natural depravity or climatic influences, and the reformers who suppress harmless holiday sports in the interest of morals are apt to miss their purpose.

"Voluntary prisoners risk to lock themselves in with the devil," said Erasmus, and visitors of the traveling menagerie may often be tempted to believe that the imps of the pit must have got into the monkey cage, but liberation would restore those sinners to a state of almost childlike innocence.

Low morals and low latitudes are supposed to be natural concomitants, but that idea rests on what logicians call the tendency to mistake an indirect for a direct cause. A warm climate favors idleness, and may thus indirectly become a cause of incontinence; but the restless Bedouins and the ever-galloping Gauchos prefer ghost tales to love stories; and travelers agree that the two lewdest races on earth are the Eskimos and the almost equally snow-bound natives of Kamtschatka. Sintzeskows' chronicle of a two-years' sojourn among the latter bipeds is hardly translatable, but certainly eclipses the strongest of Foster's experiences among the natives of the South Sea Islands, who again surpass the sinners of Borneo and Papua, in the immediate neighborhood of the equator.

Where a moderate snowfall or the advance of civilization makes winter work possible, Northern nations are exceptionally moral, simply because they are exceptionally busy; but a conspicuously virtuous city, as times go, has also sprung up in Southern Africa — closer to the equator than Rome or Babylon. It is the cosmopolitan mining-town of Johannesburg, where 108,000 men and 35,000 women have been turned loose with a minimum of home missions, and with very little tree-shade to mitigate the fervor of the climate, but with remunerative work enough to keep them busy from morning till night. They build houses, dig sewers, grade miles of streets, haul shrubs and earth to build up gardens from the foundation, peddle water, fruit, and ice, delve, cobble, wash and cook; and the inexhaustible gold diggings pan out all expenses, together with an excellent reputation for moral purity.

Intoxication at first neutralized those advantages, but since the sale of liquor has been interdicted to the natives, the very Kaffirs (who dress alike) behave so well that, to borrow the expression of Sir Stamford Raffles, "The sex of individuals can hardly be guessed from their conduct." Both men and women wear short, wide trousers; many of them have no other dry-goods; they have no Roosevelts, but there is work for all; fun, too, in the outer diggings, where any proprietor of a mattock is welcome to try his luck; and, as in the ape-park of Bencoolen, the participants of the perpetual picnic do not think it worth their while to waste the golden hours on vices.

(To be concluded.)

CLEANLINESS AND HEALTH. — Sir B. W. Richardson says: "Cleanliness covers the whole field of sanitary labor. Cleanliness means purity of both air and water; cleanliness in and around the house; cleanliness of person; cleanliness of dress; cleanliness of food and feeding; cleanliness in work; cleanliness in the habits of the individual man and woman; cleanliness of life and conversation; purity of life, temperance, — all these are directly in man's power."

WHISKY is not a tonic. It is probably an alterative; it certainly alters dollars to cents, virtue to crime, and men to brutes.

TUBERCULOSIS, OR THE "GREAT WHITE PLAGUE."

BY G. W. BURLEIGH, M. D.,

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(Concluded.)

THE COMMUNICABILITY OF TUBERCULOSIS.

In all infectious diseases there exists a specific germ as the active cause. The infectious character of tuberculosis was well established by a German investigator seventeen years before Koch's discovery of the germ tubercle bacillus. Smallpox and syphilis are examples of infectious diseases in which a specific organism has not yet been demonstrated as the true cause.

The study of tuberculosis which has led up to our present knowledge is interesting and instructive. The work has been carried on along three different lines : —

1. *Experimental Study.*— Villemin was the first to demonstrate the communicability of tuberculosis by inoculating animals with tubercular material from man. He took small portions of the tubercles, or tumors, and injected them by means of the hypodermic needle into the peritoneal cavity of guinea-pigs and rabbits. Inoculations were also made into the trachea, and directly into the blood. After a few weeks had elapsed, he made post-mortem examinations, and invariably found a condition in the animal similar to that of the patient from which the tubercular matter had been taken. He at this time knew nothing of the germ theory, but fully demonstrated the fact that tuberculosis was transmissible from man to animals. Various animals were used for inoculation, and different methods of transmitting the disease to the lower animals were employed. Animals were fed upon food infected with the sputum of tubercular patients.

Still another method was employed by Tappeiner, who used powdered sputum, and succeeded in introducing the disease into guinea-pigs, rabbits, and dogs, by causing them to inhale it. He not only demonstrated the fact in this way, but he himself accidentally inhaled a portion of the infected dust, and died of tuberculosis.

In later years, since the discovery of the germ by Koch, many investigators have taken up the work with renewed interest, and have shown that dust containing the germ of tuberculosis, when inhaled under favorable conditions for its development, will cause the disease. Cornet made some very extensive observations with dust. He gathered dust from floors, walls, picture frames, window-sills, etc., in rooms occupied by consumptives, and then inoculated guinea-pigs. One hundred and forty-seven specimens were thus gathered, placed in distilled water, and then injected into three hundred and ninety-two guinea-pigs. Fifty-nine of the guinea-pigs became tuberculous. One hundred and ninety-six died of other infectious diseases. One hundred and thirty-seven escaped infection.

Less than one year ago Dr. Irwin Hance reported to the New York Academy of Medicine his work in a similar line of experiments, which he made at the sanitarium for consumptives in the Adirondack Mountains. His experiments were of great value, and cannot be too often placed before the public. While he demonstrated that the germ is dangerous, he also showed that it is possible to make a hospital occupied by consumptives safe for others to live in. A tuberculous patient never infects others by contact. It is only in the dried and pulverized sputum that the danger lies. The expired air of a tubercular patient, like that of well persons, is absolutely free from germs. Germs will not leave a moist surface.

Examinations made recently in Germany under the direction of the imperial board of health showed not only that the dust from railroad carriages contains large numbers of germs, but that some of the animals inoculated with the dust died of tuberculosis.

2. *Evidence from the Study of Cases.*— Many reports have been published which prove that tuberculosis is communicable from patients suffering with that disease to apparently healthy people. We quote from *Modern Medicine* for January, 1896, the following note : —

" A lad of fifteen, shortly before his death from pulmonary phthisis, tattooed his two brothers, aged respectively ten and thirteen years, and another boy fifteen years old. The material used was India ink, rubbed up in the palm of his hand with his own saliva. The three lads came under medical observation from three to five weeks after the tattooing, with a pathological condition which Mr. Jonathan Hutchinson considered the production of the inoculation of tuberculosis."

Auto-inoculation, or self-infection, quite often

occurs among tubercular patients. The tongue of tubercular patients not infrequently becomes the seat of local tubercular ulcers through injury by burning with hot food or drink, or otherwise.

The production of local tuberculosis from cuts received while making post-mortem examinations upon tubercular patients is quite a frequent occurrence. Cases have been reported in which a person having fallen over an earthenware cuspidor and broken it, has received an injury which has resulted in inoculation and local tuberculosis.

3. *Statistical Evidence.* — There are striking evidences to be presented from this line of study, showing the communicability of this disease. In France, some years ago, a quiet little village by the name of Mentone had acquired the reputation of being a good place for consumptives. The inhabitants were strong, healthy, and prosperous. As consumptives visited the village, they were entertained by the village people, who opened their doors to them and cared for them, washing their clothes and nursing them. It was not long before every house in the village was the home of tubercular patients. In visiting this village to-day, one finds its inhabitants, who but a few years ago were in health, coughing, expectorating, and bleeding from the lungs — all due to a lack of proper care of the sputum of tubercular patients.

Cornet, in his investigation among certain religious orders devoted to nursing, relates that in thirty-eight cloisters, having a residence of 4026, among 2099 deaths in the course of twenty-five years, sixty-two per cent. were from consumption.

The mortality from consumption in prisons is shown to be four times as great as outside.

Statistics go to show that it is also a house disease. Germs are carried from the streets, and deposited in carpets, upon book-cases, draperies, etc., ready to do their work of infecting whenever they are disturbed.

The only conclusions to be drawn from the above facts are, that tuberculosis is a communicable disease ; and that it is infectious from inhalation of the germ in the form of dust. It is in the drying of the sputum from tubercular patients that the danger lies. Surely now that so much information has been given to us through the study of dust from infected houses, there is no need of so alarming a death-rate from this disease.

Laboratory workers have repeatedly shown that by taking a portion of the sputum of a tubercular patient, and injecting it into the peritoneum of a guinea-pig, a rabbit, or any other susceptible animal, the animal soon sickens and dies. If a post-mortem examination is made of the intestines, there will be found, all over the peritoneum, little gray nodules, which we call tubercles. If we examine microscopically a thin section of one of these nodules, we shall find arranged among its cells the characteristic tubercle bacilli which originated in the tubercular patient from which we inoculated our animal.

The following are a few examples of infection from different materials : —

Infection by Milk. — For many years it has been held by medical men that for a cow to communicate tuberculosis through the milk, the udder must be tubercular. Ernst, a German investigator, has shown that a cow suffering from tuberculosis of the lungs will communicate the disease through the milk in many cases. He gives an instance in which the owner of a herd of cows known to be tubercular withdrew his milk from the market and fed it to his hogs. The swine were almost without exception infected, and the whole herd had to be killed. Quoting from *Modern Medicine* for February, 1896 : —

"An investigation of the milk supply of Boston made under the supervision of the Massachusetts Agricultural Experiment Station at Forest Hill, showed tubercular bacilli in twelve out of thirty-six animals furnishing milk for distribution in the city of Boston.

"It is interesting to note that in none of these cases was there any infection of the udder. Tuberculosis was communicated to guinea-pigs by milk from six of these cows. Experiments made with different animals showed that four per cent. of rabbits, fifty per cent. of guinea-pigs, and thirty per cent. of calves were infected by milk from the tuberculous animals."

It is not safe to use milk or butter that has not first been sterilized. The experimental proof of late years has been entirely conclusive. When we consider the wide dispersion of this disease, and note the careful experiments made by numerous laboratory workers, we cannot afford to cast such observations aside.

Infection by Meat. — The danger of communicating the disease by this means is not as great as in the case of milk ; still uncooked meats are as unsafe as unsterilized milk. Many unscrupulous butchers knowingly place upon the market tuberculous meat. Unfortunately, but a small proportion of the meat used in this country is inspected. The meat juice of tubercular animals, when injected into guinea-pigs, is very infectious.

Infection by Flies.— Ten years ago, Huffman demonstrated that tubercular germs were to be found in the bodies of flies which occupied the room of a consumptive. When injected into guinea-pigs, they proved very virulent.

Modern science teaches us that tuberculosis is very seldom hereditary, and practically is always communicated. If not altogether preventable, it is capable of great restriction. With this knowledge at our command, it becomes the of every one to assist in the battle of stamping out this dread disease, which daily, in the United States of America alone, sacrifices over four hundred and fifty thousand human lives.

The time has fully come when all should be aroused to the great danger of the communicability of tuberculosis. One of the best means of helping in the work is to educate the people in regard to the nature of the disease, how it is communicated, and the proper way of putting an end to it. No better plan than that adopted by the State Board of Health of Michigan can be recommended. By this plan it is obligatory upon every physician, and every householder to report to the local board every case of tuberculosis. To each patient, to his friends, and to all who come in contact with him, is sent a circular of information setting forth in simple terms all the facts concerning the nature, communicability, and necessary preventive means to be observed to protect himself and his friends from the further spread of the disease.

Every teacher in the public schools should be able to pass an examination upon the subject of infectious diseases which are dangerous to mankind.

It is not too much to hope that the day is not far distant when public sentiment will require every one to control the discharges of the mouth as we have been taught from our infancy to do in the case of other excretions. There are many persons all about us in the last stages of consumption, who have been sufferers from the disease for years, and have ignorantly expectorated in the house, the yard, etc., where people sit and children play. Such persons must be educated.

Within the last two years the writer has made several hundred examinations of sputum, and is in a position to say that fully eighty per cent. of the cases discovered to be tubercular were ignorant of the fact until the examination was made. These persons were not only going rapidly down to death, but were daily exposing others to the liability of the same fate.

When it is remembered that by treatment in a well-equipped sanitarium located in an elevated region, nine tenths of these cases may be saved, if taken in hand early, the importance of the examination of the sputum will be at once appreciated. Such an examination is also a most important means of determining the progress of the disease in either direction.

One of the greatest needs of the present day is intelligent instruction, which should be reiterated on every proper occasion, so that all may be informed. It is possible for every communicable disease to be stamped out, and the sooner all intelligent persons become fully awake to the importance of this subject, the more quickly will this great plague be stayed.

FOOTBINDING IN CHINA.

BY A MISSIONARY.

THE custom of binding and crippling women's feet in China is a very old one, having prevailed for over one thousand years; nor is it confined to any one province or class of people, but, unfortunately, extends over the whole vast empire, among rich and poor. Its origin lies buried in obscurity, even to antiquarians; but its utility is everywhere recognized! Women are made to be "keepers at home" by this strange, evil practise. Moreover, long usage has educated the Chinese eye to prefer the tiny three and one-half inch foot, with its high twisted bones, to the natural foot placed firmly on the ground. The former is designated as "beautiful," "golden lilies," etc., while the latter is scoffed at as "vulgar," "large," "like a man's." Thus the evil is deeply rooted in the hearts of the people.

Before coming to China, I had heard of an iron shoe's being used for infants, etc., as the method taken to obtain the desired results. But this and all stories like it are only the fanciful thoughts of the Occidental. Chinese mothers use a strong coarse cotton bandage three inches wide by two yards long, woven for the purpose. They are to be had in all shops. Six is the age at which the binding usually begins, and it is continued until sixteen, when girls reach

their growth. Sizes vary from the three-inch foot of the fine lady who cannot set the sole of her foot upon the ground for very delicateness, to the six-inch foot of the peasant who works in the fields. The foot is the standard of refinement; thus the higher one aspires in this direction, the tighter must the bandages be drawn.

Crippled at six, in a sense invalided, a girl's education is entirely one of pain. Her home, large or small as the case may be, becomes her prison; therefore a Chinese girl of sixteen or eighteen is one of the shyest, most timid creatures you ever saw, —fearful of everything strange to either the eye, ear, smell, taste, or feeling. Death from fright is very common. The writer knew a beautiful girl of twenty-one who was actually frightened to death in her mother's room by a companion's suddenly jumping out from behind a curtain. Uttering a cry, she fell back unconscious; fever ran high, and she died after four days' constant delirium. The sight of a foreign lady even, will sometimes prostrate a Chinese girl for days.

Many foreign physicians in China (not missionaries, therefore not so much among the people) claim that the bound feet give little or no pain in womanhood. But this view I cannot support, as it does not agree with ten years' observation. Chinese women, old and young, are always rubbing, resting, or caring for their feet in some way during every leisure hour, thus proving they are ever conscious of their existence and that not as things of beauty. This constant discomfort, added to the sufferings of childhood, exerts a very strong influence over the disposition, rendering it, as a rule, very inflammable, peevish, and cross, so that at fifty a Chinese woman's face is often hard and sour, telling tales to all disposed to read.

What shall we say of a cruel custom that steels a mother against the pain, cry, and entreaty of her little child? Are the Chinese mothers without love for their little ones? — It is not the love that is at fault, but the utter hopelessness and helplessness of their situation. Without "golden lilies" the daughter will never get a husband. No respectable family would have her. So the mother-love is strangled, and the cruel work begun. But what of the influence on mother and child? Words can merely outline a story of tenderness lost, sympathy destroyed, compassion forgotten, and confidence broken; imagination alone can supply the details. Is it possible for that love ever to revive in the mother's heart, or the child ever to regain her unspeakable losses?

The effects of this strange and cruel custom on the physical well-being are neither few nor far to seek. Not infrequently a foot mortifies, and must either be amputated by a foreign doctor (Chinese know nothing of the art) or cause death. Sores of all kinds form, proclaiming their presence to all around by their stench. Indigestion and constipation from inactivity are very prevalent. But perhaps the worst of all are the displacements of all kinds in the pelvis caused by the stilted, stumpy gait of the poor tortured feet. Childbirth, too, would be a very easy and natural proceeding with Chinese women were it not for the same cause. Falls and bumps do their share also; and thus it comes to pass that a woman in China is quite old at forty, has visions of the grave long before fifty, and is of "a great age" near sixty. Not being a physician, however, it is hardly becoming for me to do more than touch on this side of the evil.

What is being done to help this great evil? The world stands aghast or laughs, as the case may be, at the foolish custom, but it is left to the Christian missionary to fight it single-handed. And the odds are something like one to ten thousand! For, be it known, native preachers and pastors are not inclined to help. Custom rules everywhere, but in a conservative country like China, it is a tyrant wielding a rod of iron; and four fifths of the native preachers are not emancipated from its fetters. Perhaps in the face of the greater evils of idolatry, opium, etc., they have not been taught to lay great enough stress on footbinding. But if this be true of the past, it can no longer be said, for within the past two years antifootbinding societies have become fashionable throughout the length and breadth of the land.

In Shanghai and Hankow, European society ladies have entered the lists, headed by an energetic literary woman resident far inland. Just what they hope to accomplish is beyond my ken, for we must reach the feet through the heart. Moreover, Christians *must* take the lead. Those societies of foreign ladies issue quantities of good literature on the subject, but, alas! Chinese women cannot read. They are right, though, when they declare it is John Chinaman that needs converting, and not his wife. Whenever he will marry a woman with natural feet, the battle will be won; the women will quickly conform to his wishes.

Still our hope is in the gospel of Christ. In Foochow and Amoy we hear that a natural foot is the public badge of Christianity. O that we could say so of all China! The evil must be fought exactly as

intemperance is in the United States. Literature, lectures, Bible readings, and songs, all have their places in the work, but the surest remedy is thorough consecration.

"Take my feet and let them run
In the service of my King;"

and toward this point our churches in Ningpo, China, are surely coming.

COMPARATIVE DIETETIC VALUE OF FRUIT AND VEGETABLES.

THE comparative dietetic value of fruits and vegetables is a matter which seems to be very little understood. Vegetables are unquestionably valuable as food, but it needs only a superficial study of the subject of dietetics to make it clear that they are very greatly inferior to grains in nutritive value, and in their composition far less suited to the stomach than are the seed products commonly known as fruits and grains. An interesting fact, also, is that, considered from the standpoint of comparative anatomy, man's digestive organs are very different in structure from those of animals which subsist upon roots, leaves, buds, twigs, stems, and other products included under the general term vegetables. Another fact of very great interest in this connection is that vegetables were not included in the original bill of fare given to man by his Creator, as recorded in the first chapter of Genesis. Vegetables were given to the lower animals for their sustenance, and seeds and fruits to man.

Seeds and fruits are unquestionably the most highly elaborated products of the vegetable kingdom. Vegetables are much coarser in character and much less perfectly elaborated. Nearly all vegetables contain a large amount of woody matter, which requires the action of very powerful digestive juices and strong muscular action on the part of the digestive organs to reduce them to a fluid state, and to extract from them the small amount of nourishment which they contain. To a much less degree is this the case with the various grains, while in the case of fruits we find food substances more nearly prepared for assimilation and in a form more easily attacked by the digestive organs of man than any other.

The writer has met many cases in which invalids were really suffering, and that seriously, from ignorance of these facts. By a person in vigorous health and with strong digestive powers, these principles may be ignored with comparative impunity, and often for a long time; but a person whose digestive organs are feeble, and especially one suffering from dilatation of the stomach — an extremely common condition, especially among women, in consequence of their injurious mode of dress — often suffers seriously in consequence of the great labor required of the digestive organs in the use of such coarse vegetable products as celery and salads of various sorts. In some instances the tubers — parsnips, beets, turnips, and cabbage — are the only articles which need to be excluded from the dietary, while in others even potatoes are a source of serious digestive disturbance.

With many persons the evils arising from the use of vegetables are rendered conspicuous only when these articles are consumed in connection with others with which they do not well agree. Many persons have recognized that they can eat various articles of food separately or with certain others, when in other combinations they prove extremely unwholesome. The reason for this is the fact that fruits and vegetables require so different a degree and kind of activity on the part of the digestive organs. A ruling principle in relation to the combination of food is this: Those articles of food should be eaten together which are digested together; in other words, the bill of fare should be so arranged that the combination of food substances will harmonize with the action of the digestive organs upon those substances.

In applying this principle to vegetables, we find that the starchy vegetables are hard of digestion, and that the large quantity of potash salts which they contain is a source of irritation to the stomach, and interferes with gastric digestion. The coarse woody structure of nearly all vegetables also renders necessary the retention of the digested mass in the stomach for a long time, thus lengthening the time of disintegration.

In the case of fruits, on the other hand, when ripe and properly cooked, we have substances which are digested and assimilated with very great ease. The time required for the digestion of cabbage is between four and five hours, while a ripe apple digests in one hour. If these two articles are taken into the stomach at the same time, both must remain there until both are digested, as they will become so intimately intermingled that they cannot possibly be separated. The apple, digested and ready for absorption, if not absorbed, undergoes fermentation. It is a principle

which is constantly recognizable in relation to digestion that the delay of absorption of a food product after it has been digested is certain to result in its deterioration through fermentation and decomposition, which are set up by the numerous microbes constantly present in the alimentary canal. The same is true if the digestive product of one portion of the alimentary canal is not passed along with due promptness to another part of the digestive apparatus, where its further elaboration is to take place preparatory to absorption.

The combination of fruits and vegetables, for the reasons given, forms one of the most unsuited of all combinations for a person of feeble digestive powers. As before remarked, persons with dilated stomachs are especially likely to suffer from the use of vegetables, and still more so from the combination of vegetables with fruits, for the reason that with these persons there is a great delay of the food in the stomach in consequence of weakness of the muscular walls of the stomach, and hence inability of the organ to empty itself with due promptness.

It seems quite clear to the writer that vegetables might be wholly eliminated from the bill of fare of human beings without any serious loss. Still, for healthy persons these esculents are sometimes valuable, as they afford an opportunity for an agreeable change in the bill of fare, and also furnish suitable bulk for the alimentary mass, thus stimulating peristalis, which is likely to fail when a too concentrated diet is employed. The same difficulty may be avoided by the employment of grains in a more neutral condition, not excluding the woody, outer portion of the grain, which seems to be intended by nature as a natural stimulus of peristalis.— *Modern Medical Review.*

THE SECRET OF BEING TIRED.— Some years ago the Italian physiologist Mosso made some experiments on dogs, to ascertain the secret of weariness. Several dogs were used. One was made very tired by several hours of hard work, so tired that he could hardly stand up. Then a quantity of his blood was transferred into another dog, which had been resting all the while and was in good spirits and not weary at all. The result was the other dog also began to act weary, as if he had been hard at work. To make it certain that the cause of weariness was in the blood of the tired dog, still other dogs were used, and the blood of a dog which was not weary was transferred into the body of another dog, also not weary, and it produced no bad effect. The experiment was repeated so many times as to make it conclusive that there must be some poison in the blood of the weary dog, which, acting on the brain centers, made the animal tired. Wedenskey analyzed this substance, and found it to be of the same chemical nature as *curare*, a very active vegetable poison, in which Indians, especially those of South America, dip arrows, in order to make their effect more deadly. There seems to be no antidote known for it. If Wedenskey is right, his discovery is a very important one.

The conclusions we draw from these observations are these: Labor of body or of brain causes certain changes in the tissues and blood, and through these changes this poison is produced, and circulates in the blood.

Some studies were made, to illustrate this subject, on fifty grammar-school children who were about to be inflicted with one of those periodical "grinds" before examination. Before taking the examination their muscular strength was tested. Each one lifted all he could upon the dynamometer, and the average number of pounds for three trials was recorded as his "strength record." After the examination, lasting two and a half hours, was over, they made the same endeavor to lift all they could. With two exceptions, none could raise as much as before their intense mental activity.— *Journal of Hygiene.*

HEREDITY AND CRIME. — The following, taken from the *Medical Press*, compiled by Professor Pellmann, of the University of Bonn, relates the career of a notorious drunkard, who was born in 1740 and died in 1800: —

"This woman's descendants numbered 834, of whom 709 have been traced from their youth. Of these, 7 were convicted of murder, 76 of other crimes, 142 were professional beggars, 64 lived on charity; and 181 women of the family led disreputable lives. The family cost the German government for maintenance and costs in the courts, almshouses, and prisons, no less a sum than $1,250,000; in other words, just a fraction under $1500 each."

It would probably be difficult to find a more remarkable example of the evil effects of the transmission of hereditary defects.

A GROSSLY feeding Christian is akin to lions and bears. — *Tertullian.*

EXERCISE FOR STUDENTS.[1]

BY J. H. KELLOGG, M. D.

HEALTH cannot be preserved without symmetrical exercise, and that may consist of anything that will call into action all parts of the body,— it must be an all-round exercise; it must bring into play all the bodily powers and functions. In addition to this, it must be exercise which is especially adapted to individual requirements. The boy who has been sedentary in his habits at home needs to be gradually trained in active, vigorous movements; while the one who has had a great deal of leg exercise at home should have his lungs and heart exercised. Exercise of the lungs and heart is very far-reaching in its effects, however, and should not be neglected by any one. Exercise of the lungs has the effect of increasing the activity of the heart. The same movement which fills the lungs with air forces the blood into the heart. The circulation of the blood does not depend entirely upon the lungs, but with each movement of the diaphragm in breathing there is a strong reinforcement of the stream, and the blood is purified as it passes through the lungs; it goes in blue, and comes out red.

Indeed, one of the most important things for students, in exercise, is to develop the heart and lungs, because if these organs are weak, all the vital forces become impaired. Professor Claude Bernard, in an experiment made upon the students of the Joinville Academy, in Paris, found that, after giving them six months' exercise in the gymnasium, twice the former quantity of air passed through their lungs when asleep, as before their training. This receiving a double supply of air means something to the human body. How to construct furnaces with draft-producing apparatus and fans for driving blasts into the doors, etc., for the purpose of increasing the amount of combustion, is one of the problems studied in our schools and colleges. Now, by increasing heart action and lung action we increase vital combustion, and thus we increase the efficiency of the physical machine just as we increase the efficiency of the boiler or locomotive by increasing its power to consume fuel.

The amount of force which the body can develop depends upon the amount of food which it can digest. Nature has so arranged it that anything which increases consumption in the human body should increase both the demand for food and also the ability to receive food. The very thing which increases the ability to consume fuel in the body increases the ability to receive it. The same process which sucks air into the body calls for more food in the stomach, because there is an increased draft upon the nutrition. The movement of the diaphragm produces an internal effect upon the stomach, and thus increases the activity of the vital processes as well as the amount of oxygen taken in. The student's digestion would be better, his sleep sounder, his brain clearer, his blood purer, his nerves steadier, and all his vital functions more perfectly performed, if he would take a proper amount of daily exercise.

Now, for the proper increase of lung and heart strength, it is necessary that the exercise should have sufficient force to bring these organs into active play. The student must have exercise vigorous enough to make him breathe to the extent of his

[1] Abstract from a lecture delivered before the students of Battle Creek College.

lung capacity, so that his lungs will play with all possible vigor, and the heart beat to the utmost of its ability. Nature does not give us any more strength than we use; it ordinarily does not give us any more light, privileges, or strength until we improve those we have.

Now the lung exercise which brings the blood to the heart draws the surplus blood out of the brain. That is the reason exercise is so effectual in clearing the brain. When the student's mind is in a cloudy condition, exercise — especially breathing exercises, arm exercises, and other exercises which bring the lungs into active play — will clear his head and brighten up his ideas wonderfully. I think that students should have breathing exercises either at the end of every hour or at the end of each recitation. I once had a teacher who had the good sense to have his pupils carry out such a practise. At the end of every recitation we used to stand up in our places, between the desks or in the aisles, raise our arms, and take breathing exercises; and I remember how happy the students looked afterward. By pur suing this method the blood is put into active circulation. Respiration empties the veins, while inspiration pumps the blood into them. The reason of this is that the pumping action of the lungs draws the blood into the veins and heart, and away from the brain. You can readily see what this exercise does for the student who has not taken a deep breath for an hour or two, and whose brain is so foggy that he can scarcely get an idea through it. Such an exercise takes but little time, and it is of infinite advantage. It also teaches students a correct poise, which is of great importance; and not only that, but it instructs them how to breathe, which is of still greater importance.

Now as to the amount of exercise: Students are very likely to think that if they walk down town, or walk off half a mile or so into the country, they have done their full duty for the day in the matter of exercise. If one is to get exercise at an ordinary gait, he will have to walk ten miles in order to receive any particular benefit from it; while decided results may be had from the exercise of *running* half a mile,—first running very slowly, then a little faster, then faster and faster. Such an exercise will be more beneficial than a ten-mile walk at the ordinary gait, because it will bring the heart and lungs into more active play. The amount of labor which a person is capable of performing every day; that is, a physical day's work, is 1,800,000 foot-pounds. That is a normal day's work. Now we do not expect a student to do nearly this amount of work, but he does require one fourth of it.

There are several kinds of movements; for example, quick movements, co-ordination of movements, and other muscular movements, calculated to impart strength so far as the muscles are concerned. Gymnastics are useful for all these purposes, securing quickness of movement and also co-ordination. Calisthenics, club-swinging, walking exercises,— all these are exercises calculated to drill the individual in co-ordination. In some schools exercise taken in walking parties is a regular custom; and I do not see why it is not a very good way to get exercise,— not simply taking an ordinary walk, but a fast walk. There is but little exercise in a slow walk. To be sure, if a student walks at his ordinary pace, he can keep his mind at work on his studies, but he should not have his mind on his studies when taking exercise; he should forget his studies, and in order to make him forget his studies, he must walk twice as fast as ordinarily. His usual rate of walking is three miles an hour, but he must walk six miles an hour in order to get any proper exercise. Then if to this rapid walking are added exercises of different sorts, and various changes in the step,— running at a moderate pace, and perhaps a little military drill as well as various walking drills,— it will be of advantage.

If exercise in carriage and correct poise are added to these walking exercises, they may be made extremely beneficial; in cold weather in particular, I think it a very excellent practise. There are two or three schools in Philadelphia where this is the only form of exercise. Young ladies are taken out every day and made to walk. In some of the most fashionable schools of the country this is the regular practise, so that it becomes quite an entertainment to the community to see the students going down the street at a certain hour of the day regularly, rain or shine, unless there is a very bitter storm. This is one of the essential exercises taken by training pugilists. They are put through the walking and running exercise because it develops the heart and the lungs. It is very essential for students to develop the lungs, because they suffer from their sedentary habits. The amount of exercise which should be taken depends upon the person taking it. Enough exercise, however, should be taken to produce perspiration, and a gentle fatigue which may be recovered from in an hour or two. If one gets so tired that he feels the effect of his exercise the next day, he has overdone.

A little exercise the last thing before retiring at night is very excellent for the purpose of clearing

the brain, as it draws the blood into the legs and trunk, and brings it away from the head. There are three great physical areas, or means, by which the blood may be taken away from the brain,— the skin, the muscles, and the circulation. Any of these areas may be used for abstracting blood from the brain. Exercise at night is one of the best means of quieting a brain that has been active during the day.

EDUCATIONAL GYMNASTICS.

LET us inquire as to what a system of educational gymnastics should contain. For school purposes it should be a general, physical education, without regard to special training. It should aim at the development of health rather than of physical dexterity; for he possesses physical culture whose body is in a state of fairly normal functional activity, and who has his conscious forces well controlled. Special skill, such as is found in the professional athlete, may be necessary for freaks and clowns, who live and die to amuse the crowd; but for an average individual it is undesirable, since it will be found that no part of the body can be trained to possess exceptional power unless other parts are correspondingly neglected, the usual outcome of such training being ill health or lack of physical equilibrium. The body is to be exercised for its own sake, so that its parts may become properly balanced to form one smooth, complete whole, where the force inherent in the germ has reached its acme of power; it matters little whether this power is greater or less than that of others. All cannot reach the same intensity of either intellectual or physical force, and yet he who attains to the utmost of his abilities has succeeded in filling his place as perfectly as those who may outwardly surpass him.

The exercises to be used should aim to perfect the functional rather than the mechanical activity of the body; they should be so constructed that they heighten respiration, circulation, metabolism, etc., and hence they must be based upon the laws of physiology. They must also conform to the laws of anatomy and animal mechanics, for reasons so often demonstrated that they hardly need a review.

In the Swedish system the exercises have been carefully thought out and investigated as to effects; and in its present form the system offers the most complete general body education of any as yet produced. But it does still more; whole classes of exercises have been introduced especially to counteract the tendencies to abnormal development produced by perverted civilization, so that particular attention is given to the correction of posture and general outline, the system thus embracing both sides of education; it teaches and corrects.

The exercises should be so arranged that they make the mind conscious of the body; for as all movement originates in the will, it is necessary for this will to be so intimately connected with motor forces that they yield to even its slightest impressions. In other words, there should be the utmost concentration of the mind on the body during the exercises. The body is to be the servant of the mind; hence it should be subordinated to the will, and always ready to respond to it.

It is to be understood, however, that any and all exercise does not necessarily produce this conscious harmony between mind and body, but that this effect is accomplished only by exercises requiring the utmost volition. An easy way to call forth this consciousness is the use of commands in applying the exercises; for by these the pupil is forced to concentrate his mind upon his movements, to the exclusion of all other considerations; his mind returns into his body, his soul into its abode. This makes the pupil conscious of himself — conscious of his power; not self-conscious of his lack of power, whether this (or the lack of it) be physical, mental, or moral.

The use of commands also aids in cultivating discipline, another necessity of education. The subordination of the body to the mind producing self-control, the foundation of discipline is laid by the exercises cultivating the response to volition; and now we arrive at the next stage of its evolution; viz., the will subordinating itself to that of another. The teacher determines the movement and communicates his will by the spoken order; the pupil's will obeys, and the movement then occurs through his mediation. Obedience finally becomes acquired and blended into the character of the pupil; and the embryo will grow into the law-abiding mind of a citizen, a man of power and self-control.

Allow me to make a few suggestions as to the manner of introducing physical training into the schools. The problem is not as easy of solution as some have supposed, for not only are the schools of this country numerous, but the classes are large and numerous as well; and if special instruction must be engaged, the expense of gymnastics will be very

great. If any one should labor under the erroneous impression that special instructors are not necessary, let me state most emphatically that to teach gymnastics both a special education and a natural aptitude are indispensable, for in order to accomplish the best results, the one who applies gymnastics must be thoroughly familiar with all those sciences which are fundamental to gymnastics — and, believe me, it takes more time and study to acquire this knowledge than the average school teacher is willing or able to give; and even then a majority of teachers will find that teaching gymnastics is quite a different thing from giving object lessons or hearing recitations. Many an otherwise good teacher would prove a failure as far as physical training is concerned; at least, practical tests have proved this in several instances.

But since the expense makes it inexpedient to engage many special instructors, what would be the next best solution of the problem? — To let each teacher in the kindergarten, primary, and lower grammar grades teach her own class, or else let one of the teachers in each building apply the exercises throughout all the classes; and to have special instructors in the upper grammar and high schools who can easily visit several schools in a day. At the head of it all should be a supervisor, or director, of gymnastics, who should give weekly instructions to the teachers, thoroughly drilling them on what to do and how to do it. The director could be conveniently assisted in this work by the special instructors; but all supervision should be left to him. The director must necessarily be an expert and an experienced teacher of gymnastics, not merely a figure-head, drawing his salary, and relying on others to do his work. He should possess that broad knowledge of gymnastics which enables the teacher to carry out the kinesiological progression under the peculiar circumstances by which he will be surrounded in this country. For it is to be remembered that while the Americans form one nation, yet that nation is made up of the most different nationalities and races, each with its peculiar characteristics; and even though "anatomy and physiology are the same the world over," there is no eluding the fact that mental power is not the same, and that hence nationality and race must influence the choice of exercise as well as the progression.

Whosoever teaches gymnastics must remember that he has to develop individuals, and that if any one way does not succeed, he is to try another. There are no set forms of drill to fit all classes or teachers, any more than there is one size and shape of clothing that will fit all men.

In order that the best results should be obtained, gymnastic apparatus is a desideratum; and it is only a question of time when every grammar and high school will have its own gymnasium. For the lower grades, however, free-standing exercises in the schoolroom will always prove sufficient, and will, moreover, lay a good foundation for the more advanced work in the gymnasium. To sum up; physical education is a necessity; it is best taught by special instructors, and the Swedish system is recommended as the best. — *Baron Nils Posse, B. S. C., M. G., abstracted in the Health Magazine.*

THE EXAMPLE OF SANDOW. — The example of Sandow is not an altogether desirable one for our boys. To be well developed and to become a strong man is certainly a worthy ambition for any boy; but when carried to the extreme of producing such bulky muscles as Sandow exhibits, the example may be most pernicious. Dr. Lydston says that Sandow is confronted by two dangers: first, death at an early period after complete suspension of his athletic strain; and, second, death at middle age, or soon thereafter, from a continuance of his work. So soon as he rests from his muscular exertions, he will not be able to bring about a corresponding involution of his heart and lungs. Disuse means decay, and these overdeveloped organs will be very likely to undergo a rapid degeneration. Sandow is a wonderful man, but his example is pernicious. His system of muscle-building is dangerous. — *Sel.*

THE revival of interest in athletic sports, out-of-door recreations, and physical culture is one of the most hopeful signs of the day. Experience has shown that athleticism and sports, if properly controlled and directed, minister powerfully to everything that is wholesome and ennobling. — *Albert Shaw, in Review of Reviews.*

AMERICAN shoemakers state that the feet of women are getting larger, owing to the cycling, tennis, and other outdoor exercises. The feet are, however, said to be more healthy, and the chiropodist is finding his occupation gone.

ALL the world 's a road,
And all the men and women merely riders.
They have their tandems and their safeties,
And divers other wicked vehicles;
And each one in his time
Rides in various ways.

— *Sel.*

CHILDREN'S AMUSEMENTS.

BY MRS. E. E. KELLOGG.

THE amusements of children, as well as their reading, help to form their characters, and should receive much careful consideration on the part of parents and teachers.

With the young child, something to play with, or, in other words, play*things*, are considered essential. As the child grows older, and becomes capable of exercising more thought, games, exercises, and plays, or modes of playing, largely take the place of things to play with. The ball is the simplest and most universally used of all playthings. It was known to the early Egyptians, whose children doubtless loved to play with it as well as do those of more modern times.

Playthings should not be selected at random, but the needs of each child should be studied, and such things provided as will be helpful to him. It is not wise to provide for the young child such playthings as have their only merit in discordant jingle and noise, nor to tempt the little one with too frequent changes of amusements. More than two thousand years ago Plato sounded this warning to parents, "Changes of toys should not be made too rapidly for fear of developing instability of character." Parents are often at a loss to understand why their children seem so lacking in stick-to-it-iveness; may it not be that the reason for this lies in the treatment the little one so frequently receives at the hands of its elders during its earliest years? Says a writer in a recent magazine: —

"Watch the little babe upon the floor patiently endeavoring to transfer the pretty blocks from one box to another. If left to his own devices, he will not desist until he has completed his task. But the father enters, and, going to the child, picks him up and tosses him in the air, then plays with him a few minutes, after which he deposits the darling again upon the floor or in his cab, expecting him to continue his play as before. But the charm is broken; the little mind cannot again concentrate itself upon its tasks. He should not have been disturbed while so happily employed.

"Baby Grace is contentedly playing with her bright-colored kindergarten balls. Every faculty of her little being seems intent upon them. She moves them first in this way, then in that, forming one combination, then another; she has neither eyes nor ears for aught else. To her mother the darling looks so fascinatingly beautiful that she cannot resist the temptation of stopping her work and 'stealing a kiss' from those rosebud lips. O, but now that baby's attention is arrested from her balls, she is tired of them, and insists that mama shall take her up. Mama, who has much work to do, wonders why she is so easily diverted from her play."

Similar experiences daily enacted through the child's early years, and parents need scarcely wonder that their little ones are lacking in continuity.

Playthings that stimulate the constructive rather than the destructive elements in the child's character should be chosen. Building-blocks are for this reason particularly desirable playthings. Paper, pencil, and scissors, when rightly used, are likewise excellent playthings for children. Whips, toy swords, guns, pistols, cannons, and other warlike implements are playthings to be shunned, if we would have the children "seek peace and pursue it." If children are allowed the implements of war in their play, we need not be surprised if warlike feelings are developed in their hearts.

Mechanical toys capable of doing wonderful things, such as walking dolls and barking dogs, while they attract at first, do not satisfy long, for they can only do one thing, and to the child this

soon becomes monotonous and tiresome. A wagon which he can load and draw, a kite which he can fly, a set of garden tools which he can use, will afford the child more pleasure than the most intricate and costly toy. It is not the playthings that will do the most in themselves, but those that will help the child to do the most, that are to be sought. A blackboard with crayons, a box of water-colors, dissected maps and pictures, are among the many desirable playthings for children. These latter may be made by the children themselves by pasting a map or picture on cardboard, then with a sharp knife cutting into suitable parts. Indeed, the playthings which children can themselves manufacture are in general the most satisfying to them. A few materials to work with, a sympathetic mother to offer occasional suggestions and arouse the child's own thoughts, is far better for the contentment of the child as well as for his normal development than a room full of the most beautiful manufactured toys.

Most children enjoy very much those playthings and plays which call into requisition the exercise of their bodily powers, as the rolling of hoops, and such games as "hide and seek," "pussy wants a corner," etc. ; and for the child the exercise thus secured is particularly essential. Active games and athletic sports were a common amusement of the ancient Greek and Roman boys. Active exercise and outdoor sports are still essential for both boys and girls. A thoughtful writer upon children's amusements says : "Let the child's amusements be customarily inexpensive ; teach him that while recreation is desirable, it is not often wise to spend money for something that will simply amuse, and when the amusement is over, leave nothing to show for it. Teach him to distinguish between things that merely amuse and things that educate while they entertain, or such as afford strength and vigor while they amuse. Let the amusements be social and open, for whatever is open is more likely to be innocent. . . . Let the amusements be such as do not unfit the child for his duties, but which refresh him both in mind and body, so that he can return to his work with renewed strength. . . .

"Let the amusement be not such as will degrade or corrupt or enslave him to a habit, but such as will elevate and strengthen. The tendencies which the amusement has upon the child should be considered, and also the companionship which is likely to accompany the amusement. . . . The center of companionship in a child's amusements ought to be the parents themselves. They cannot, of course, always be their only companions, but through genuine sympathy they should show such evident interest in his amusements that the child will feel as close to his parents in this as in any other thing. It is a sad thing when a child must seek all his amusements outside his home." Dr. Bushnell says, "One of the first duties of a genuinely Christian parent is to show a generous sympathy with the plays of his children, providing playthings and means of play, and inviting suitable companions for them. . . .

"All children should find more enjoyment at home than away from it. Many parents make the mistake of selecting amusements (as they think) in order to keep their children at home which arouse the children's desire to go elsewhere for more amusement of the same sort in greater freshness and variety, as card-playing, dancing, etc. Those who are wise will secure to their children such home amusements as cannot be indulged in to the same advantage outside of the home. Make the pleasures at home so attractive that to go away from home would be felt a loss rather than a gain. This need not necessarily involve extra expenditure of means, but it will require the sympathy of parents, added to thoughtful interest and careful planning for the children, and participating in those pleasures when practicable. Parents will find the time spent thus with their children a most profitable investment. Make the evening hours in your homes the pleasantest of all the day. Give the children your attention ; read to them, sing with them, play with them, walk with them. If you have some surprise for them in the way of a new card, picture, or any coveted treasure, make the evening hour the time to present it to them ; in short, in every way possible make the evening hour a happy time for the children."

Some outside interests are of course necessary for a fresh or large life ; but when the child desires to spend the most of his evenings or his leisure hours away from home, he is becoming dissipated. We need a greater proportion of home life than outside life to develop true character. Children should be early taught that home is the proper place for them at night. In the choice of games, let all such as suggest sentimentality be carefully avoided ; many who would not allow their children to attend operas and theaters will permit their little ones to attend children's parties where all the games and all the tendency is toward sentimentalism and sex distinction.

Says Mrs. Irma T. Jones, late president of Michigan State Federation of Women's Clubs, upon this sub-

ject: "Few questions are more perplexing than that of determining how much mingling of boys and girls in sports or at evening entertainments can prudently be allowed. Evidently it is useless to sigh for the good old times when lights went out at curfew bell, and boys and girls had little thought of society beyond the home circle, for in those days families were so large in number that the home supplied abundant companionship. . . .

"Children's evening parties, even under the most favorable conditions, with their too frequent opportunities for juvenile flirtations, and their inevitable tendency to emphasize distinctions of sex, furnish too many temptations to be considered other than dangerous. Were there no other evils connected with them, these are sufficient to condemn them in the mind of every mother who has her child's moral welfare deeply at heart.

"That any woman can think or say of childish lovers, 'It is such a pretty sight to see them so devoted,' and then encourage them in separating themselves to each other's society to carry out the conceit, is most surprising.

"'Why, there is no harm,' say you, 'they are only children.' But can you not see to what such talk and such thoughts lead? how they weaken modesty and reserve, which are the strongest safeguards of purity? how they direct the thoughts of the growing boy toward matters with which maturity is often unable to cope successfully?

"Is this only a conservative whim, that it is unwise, nay, perilous, to allow any association of boys and girls during childhood, or even trifles of speech, which place their thoughts strongly upon difference in sex? If, by any mischance, there have come to either impure words or suggestions, such speech, such associations inevitably tend to fix and nourish them. It is impossible in such matters to overestimate the importance of 'little things, little decent ways, little safeguards and watchfulness.' One has said, 'Sow thoughts and reap actions; sow actions and reap habits; sow habits and reap character.' These words indicate the logical sequence of destiny — a life of purity or a life of shame, a life for God or a soul lost. This inexorable law of being explains why even so small an affair as a juvenile flirtation, or the evil companionship of an hour may be the beginning of unspeakable sin and misery. . . .

"In this land of democratic ideas, and while we are striving to understand and solve the problem of 'universal brotherhood,' our children are in constant and imminent peril from associations which it is difficult to forbid or control. Apparently, nowadays, many children and young people choose their associations as freely as birds their mates, without word or warning from parents. How much wiser that mother, seeing the lovely and helpful in some, should quietly encourage these, while the coarse and harmful are as quietly but firmly crowded away by what is better. Let it never happen that the young become suspicious of every one by his much speaking and condemning of what is manifestly corrupting in their associates; rather, with loving words of commendation for the good, and a silent withdrawal or disapproval of the bad, lead them to the best. Above all, let every woman know the character of those with whom her children associate."

THE VEXED QUESTION.

WHAT a clatter of tongues and pens there is on this dress question! One would think the feminine world had run wild on the subject. But in this, as in all other questions of wide interest, there is much common sense under the froth and foam.

That a reform in dress is needed goes without saying; for who can look upon the multitudes of physical wrecks, with pinched waists, round shoulders, curved backs, hollow eyes, and sallow complexions, and deny that something should be done?

But what to do — that is the question. If this effort is going to be all talk and no practical result, the subject might better be dropped without further waste of time. But it is not going to be all talk, for out of the confusion and débris of old ideas will arise a new Hygeia, whose rulings in the congress of fashion shall be received as law, and eventually there will appear a dress which will be the expression of all the "best" evolved from the "good" in this heretofore confused mass. That "dream of beauty" that is to be will satisfy not only the esthetical taste of the refined and cultivated, but it will leave nothing to be desired in its practical utility.

Who shall be the one to present to the world this perfect costume is a question not easily solved. And what shall be the pattern is another thing equally hard to determine. It may be the best results will come through a variety of costumes, though for the work-a-day world that would hardly be practicable. A bright, sunny morning might end

in a thunder-shower, with the rainy-day dress at the other end of the line.

The recent exhibit of Madam Manvell in Chicago, in which every dress shown was as healthful as it was perfect in an esthetical sense, is proof of another long step in the right direction; but it needs a heavy purse to patronize such costumers as Madam Manvell. Some one must come forth and give to the common people, the busy workers of the world, a dress within their means, yet practical and artistic and healthful. When, by means of the experiments now going on, and the multitude of designs continually placed before us, women really find out what they want, then the "reform" will have come to stay; and that reform must be such a radical one as will dispose of every article of apparel that is a menace to health in any way, and give us a costume that will allow free and untrammeled use of every organ with which the Creator has seen fit to endow us. Then indeed shall woman be an honor and a blessing to the world, and a perfect companion to the "man made in God's image." M. A. S.

AUNT RACHEL'S TREATMENT.

CRASH! An ominous sound came from the kitchen as I was sitting for a quiet talk with my friend, Mrs. Morrison. We had just been enjoying a well-prepared dinner at her table, and her husband and the two or three gentlemen guests had gone.

"Something broken?" I said.

"It sounds like it," she replied.

I expected her to get up and run nervously to the kitchen, but she quietly continued the conversation. A moment later there appeared at the door a Swedish girl with a most wobegone look on her face, and a tear on either cheek. I could not forbear an exclamation of dismay at perceiving that in her hand she held the fragments of my friend's largest meat dish, belonging to her fine dinner set.

"Broken?" asked Mrs. Morrison, looking at it as she might have looked at the wreck of a kitchen bowl.

"You might have selected something else to break, it seems to me, Lena," she added, with a little shake of the head, but still with a smile.

"It slipped right out of my hands," said the girl in great distress.

"O don't stop to fret over it, Lena. You don't break many dishes. No, it's no use to save the pieces. It can't be mended."

"Well, Ruth!" I exclaimed as Lena, greatly comforted, took her departure, "Pope must surely have known some ancestress of yours when he wrote: —

'And mistress of herself when china falls.'

Any one would think to see how coolly you take the ruin of that handsome dish, that you could have a new set any day, if you wanted it."

"Which is very far from being the case, as you know," said my friend soberly. "I am afraid I cannot match the dish, and if I can, I can scarcely afford the money for it just now."

"But you do not seem to mind the accident at all," I persisted, quite unable to understand her equanimity.

"O yes, I do — after a fashion," she went on very deliberately. "That set was a present from dear old Aunt Rachel, and I am sorry to see any piece of it broken. But if you are wondering because I do not fret over what can't be helped, I can only assure you, Eleanor, that I cannot afford to. It is bad enough to lose the dish without that."

"Any one will admit that fretting is of no use," I said. "But you are about the only woman I have ever seen who really lived up to the idea."

"I didn't begin that way," replied Ruth, settling back into her chair with a thoughtful expression on her pleasant face. "I was very much given to fretting over small annoyances when I was a good deal younger. It was that same dear old Aunt Rachel who cured me by vigorous treatment."

"I should like her recipe, if you can give it to me."

"O it is only the same old one you hear or read any day of your life: 'Don't fret; it is thankless, rebellious, and utterly useless, never does a bit of good, and always does harm,' with other such plain truths; I think it must have been the sturdy administration which affected me. When we were first married, Fred and I began housekeeping in our pretty little house with everything nice about it, and were as happy as young people usually are. But my habit of worrying over trifles began putting little blots here and there on the smooth surface of our lives. A broken dish, a stained tablecloth, a poorly ironed article, the flies, the dust, the soot, any petty annoyance, would bring a cloud over me which shut out the brightness all about me. I could see that Fred was hurt and fretted by it.

"Well, real trouble came at last. Our baby was sick for weeks and weeks, and we thought he never

would get well. How I looked back on the days which had been blessed, and wondered how I had ever been able to find trouble in trifles! As I prayed that the shadow of death might not so early darken our home, I believed I should never again allow myself to be moved by small troubles. I did not have an opportunity to test my resolution very soon; for as baby recovered, I became ill myself. For many a day I lay far beyond all resolving for the future; almost, indeed, beyond all hope of any future, so far as this world is concerned. The winter had passed before I won my way back to life, and began to take up its cares again one by one.

"I held well to my good resolution as I rejoiced in being able to oversee the house-cleaning, until I came to the parlor carpet. The room had been shut up for months, and had not been properly aired and swept, and the moths had made fearful ravages all around the edges of the carpet. You will be astonished to hear, Eleanor, that all my equanimity broke down at sight of it."

"No," I said, sympathizingly, "I don't wonder at all. I have known women who would be fairly sick over such a thing."

"It was a beautiful carpet, and I had been very proud of it. I did not find that anything else had suffered from neglect through my illness; but forgot all the other pleasant facts in view of this distressing one. Even when the baby crept over, crowing in delight at the bright flowers, and trying to pick them up with his chubby little hands, I forgot how much I would have given, not so very long ago, to hear a merry note from him. Well, just as I was at the very culmination of my 'pet,' Aunt Rachel's kindly face beamed upon me for a week's visit.

"'Thankful to see thee so well, dear,' was her greeting. 'The Lord has been good to thee. Not that I don't mean that he would have been good if thee had n't got well.'

"'Yes, I 'm very well now, thank you, Aunt Rachel,' I said, after the first inquiries were over. 'Well enough, you see, having got past my great troubles, to settle down to small worries. Look here — is n't this enough to turn the soul of a housekeeper sick?'

"'It is a pity,' she remarked, viewing the mischief.

"'Of course some things had to be neglected while I was sick,' I continued, petulantly; 'but I never dreamed about such a thing as this.'

"She looked at me with her quiet eyes, always so full, I used to think, of the very peace of heaven.

"'Surely, Ruth, thee is n't going to make the matter worse by vexing thy soul over a mishap?'

"'O, its all very well for you to talk that way, Aunt Rachel,' I replied, 'but I can't afford a new carpet just now.'

"'Thee does n't need one. The bad places don't show much.'

"'But I shall always know they are there, and it will take all my peace of mind.'

"The eyes looked straighter into mine as she talked on, something like this: 'Thy peace is worth little to thee or to any one else, if it can be so easily broken. Ruth Harvey, thee is starting out in life; beware that thy disposition to fret thyself about small things does not prove a curse to thee and thine. Every thought of discontent about matters beyond thy control is not only a sin against the God who orders for thee, but a sin against thy own soul, and an added weight to every annoyance. If cherished, such thoughts become a pest of stinging serpents in thy breast. Thee will grow old and wrinkled before thy time. Thee will be peevish, complaining, and fault-finding. Thee will be a terror to thy husband and children.'

"Yes," continued Mrs. Morrison, "she said all that, and more. She said: 'Is one thread of that carpet woven into thy real peace of mind? Can it or any other small thing really concern thy welfare or that of those dear to thee, either for this world or the next?'"

"I never heard it put quite so strongly before," I said thoughtfully, as my friend paused. "And if I had n't seen you, I should have said it was very good talk indeed, but that no woman could live up to it."

"I had a week of it, you see," said Mrs. Morrison. "When Aunt Rachel went away, one of the last things she said to me was: 'I want thee to bear in mind what I said, dear — that every fretful thought thee wastes on small accidents is only so much added to their burden.'

"I think I took it well to heart, for I concluded, Eleanor, that life's burdens are heavy enough without any such addition." — *Sydney Dayre, in the Congregationalist.*

A MICHIGAN fruit-grower stored some apples in barrels lined with newspapers. Upon opening barrels that had been packed for a long time, he found that in those unlined, more or less of the fruit was decayed, while in the paper-lined barrels the apples were sound and in fine condition.

THE APPLE AND SOME OF ITS USES.

THE origin and first home of the apple is unknown. If tradition is to be believed, it was the inauspicious fruit to which may be traced all the miseries of mankind. In pictures of the temptation in the garden of Eden, our mother Eve is generally represented as holding an apple in her hand.

We find the apple mentioned in the mythologies of the Greeks, the Druids, and the Scandinavians. The Thebans offered apples instead of sheep as a sacrifice to Hercules, a custom derived from the following circumstance: —

"At one time, when a sacrifice was necessary, the River Asopus had so inundated the country that it was impossible to take a sheep across it for the purpose, when some youths, recollecting that the Greek word *melon* signified both sheep and an apple, stuck wooden pegs into the fruit to represent legs, and brought this vegetable quadruped as a substitute for the usual offering. After this the apple was considered as especially devoted to Hercules."

In ancient times, Greece produced most excellent apples. They were the favorite dessert of Phillip of Macedon and of Alexander the Great, the latter causing them to be served at all meals. Doubtless they came to be used to excess; for it is recorded of the Athenian lawgiver, Solon, that he made a decree prohibiting a bridegroom from partaking of more than one at his marriage banquet, a law which was zealously kept by the Greeks, and finally adopted by the Persians. In Homer's time the apple was regarded as one of the precious fruits. It was extensively cultivated by the Romans.

Apples were introduced into the United States by the early settlers, and the first trees were planted on an island in Boston Harbor, which still retains the name of Apple Island. The wild crab-tree is the parent of most of the cultivated varieties.

RECIPES.

Apples Stewed Whole. — Take six large red apples, wash carefully, and put in a fruit kettle with just enough boiling water to cover. Cover the kettle, and cook slowly until the apples are soft, with the skins broken and the juice a rich red color. After removing the apples, boil the juice to a sirup, sweeten, and pour over the apples.

Apples with Raisins. — Pare, core, and quarter a dozen or more medium-sized apples. Clean thoroughly one fourth as many raisins as apples, and turn over them a quart of boiling water. Let them steep until well swollen, then add the apples, and cook until tender. Sugar to sweeten may be added if desired, although little will be needed unless the apples are very tart. Dried apples soaked over night may be made much more palatable by stewing with raisins or English currants in the same way.

Apple Jelly without Sugar. — Select juicy, white-fleshed, sub-acid fruit, perfectly sound and mature, but not mellow. The snow apple is one of the best varieties for this purpose. Wash well, slice, and core without removing the skins, and cook as directed in the preceding recipe. Drain off the juice, and if a very clear jelly is desired, filter it through a piece of cheese-cloth previously wrung out of hot water. Boil the juice, — rapidly at first, but more gently as it becomes thickened, — until of the desired consistency. The time required will vary with the quantity of juice, the shallowness of the dish in which it is boiled, and the heat employed. One hour at least will be required for one or two quarts of juice. When the juice has become considerably evaporated, test it frequently by dipping a few drops on a plate to cool; and when it jellies sufficiently, remove at once from the fire. A much larger quantity of juice will be needed for jelly prepared in this manner than when sugar is used, about two quarts of juice being required for one half pint of jelly. Such jelly, however, has a most delicious flavor, and is excellent served with grains. Diluted with water, it forms a most pleasing beverage.

Apple Meringue Dessert. — Pare and core enough tart, easy-cooking apples to make a quart when stewed. Cover closely and cook slowly till perfectly tender, when they should be quite dry. Mash through a colander, add a little sugar and a little grated pineapple or lemon peel. Beat light with a silver fork, turn into a pudding-dish, and brown in a moderate oven ten or fifteen minutes. Then cover with a meringue made with two teaspoonfuls of sugar and the beaten whites of two eggs, and return to the oven for a moment to brown. Serve cold.

Apple Dessert. — Pare some large tart apples, remove the cores, put into the cavities a little quince jelly, lemon-flavored sugar, or grated pineapple and sugar, according to the flavor desired. Have as many squares of bread with the crust taken off as there are apples, and place a filled apple on each piece of bread, on earthen pie-plates; moisten well with a little quince jelly dissolved in water, lemon juice, or pineapple juice, according to the filling used. Cover closely, and bake in a rather quick oven till the apples are tender. Serve with whipped cream and sugar.

E. E. K.

HOW TO PREVENT TUBERCULAR INFECTION.

As previously stated in these articles, the germs which cause tuberculosis are taken into the body in air, food, dust, or drink, and pass into the tissues either through the mucous surfaces of the body, or a wound in the skin exposing a raw, moist surface. From these centers of infection the microbes travel to other parts of the body by way of the blood and lymphatic vessels, the damage which they do being in proportion to the power of the tissue cells to resist and destroy them. Healthy structures are capable of destroying these germs entirely, unless they are received in overwhelming numbers, and even then they may be so held in check that they cannot increase in numbers or harm the structures. Weak and diseased tissues, however, furnish them food and a place to thrive.

Understanding that there must be seed and soil in order to produce this disease crop, and sowing as well, the first preventive measure for avoiding tuberculosis is to keep the body in good physical health. Food easily digested and nutritious, pure water and air, and plenty of exercise out of doors, all tend to protect from the inroads of this disease. The person with perfect digestion and healthy tissues can defy the germs even when exposed to great numbers of them, while the poor dyspeptic may be fatally infected from the entrance of a very few into his body. A large percentage of the great army of consumptives give a history of digestive disorders antedating the disease of the lungs for months or years.

Children whose parents are by no means among the poor of the earth are often starved to death. The child fed on pastry and confectionery will as surely starve as the child who does not get sufficient food to satisfy the pangs of hunger. Parents who have any tendencies toward tuberculosis should take great care to have their little ones well nourished, and spare no pains to provide for them the best and purest of food. As milk and meat are the foods which are most frequently infected, care should be taken to get them both from healthy animals. In the case of children at least, it is usually best to avoid flesh food altogether; and if there is no surety that the milk is free from infection, to sterilize it, though this process does not always prevent harm from being done to those predisposed to tuberculosis. While heating kills the living organisms, it does not destroy the poison they have already formed; and this may exist in such quantities as to increase the intensity of the disease in one already infected.

To make sure by the scales and the appearance of the child that its food is actually nourishing it, is a very important matter. If one kind of food disagrees with the stomach and is rejected, inquiry should be instituted as to the cause of the indigestion,— whether it is an error of kind, or quantity, or quality. Food suitable and digestible for an adult may be totally unfitted for a child's digestion. For the first year of life, nothing will take the place of healthy mother's milk, and every mother should try so to improve her own health as to be able to nourish her offspring. In case the mother is tubercular this is impossible; and it is not always easy to find a good wet-nurse. If the nursing-bottle is used, it and all utensils used in the preparation of the food should be kept scrupulously clean and aseptic, and the food so prepared as to have the same proportion of the nutritive elements as healthy mother's milk. The amount of food given a child should be such as will keep it well nourished, and continually gaining in weight and increasing in stature during the growing period of life. The water which a child drinks should be boiled, unless the source is above suspicion, which can hardly be said of any water supply at the present time.

Next to pure food and water as a preventive of tubercular disease, or even superior to them, is

pure air. Keep the air-passages free from the tubercular microbe, and from all irritating dust and other gritty and foul matter. Any dust or gritty substance which causes congestion of the mucous surfaces of the air-passages, exciting attacks of nasal catarrh or bronchitis, thus inducing thickening and discharge from the surface, prepares a good place for the lodgment and growth of disease germs.

When children have to live in the same house with a consumptive, whether it be a parent or another, the air they breathe is contaminated in two ways: The patient is almost invariably cold, and in many cases is afraid of any ventilation; so he keeps the room up in the eighties as to temperature; and this superheated air soon becomes loaded with exhalations from the body, as well as other foul matter. The air near the floor where the children are is usually the most impure, and this is one prolific cause of so many deaths from consumption in early life. If we add to this the fact that not one consumptive in a hundred, among the many millions suffering from it, is careful about destroying tubercular discharges, it will surprise us, not that so many of the young die of consumption, but that any one escapes who has to live with consumptive patients.

I have seen a consumptive father who allowed his wife and baby to sleep not only in the same room, but in the same bed, with him, and who felt very much injured when his wife, becoming enlightened on the subject of contagion, suggested that a change be made in this respect. Truly, nearness to the grave does not always cure supreme selfishness. I have seen a mother with suppurating, discharging glands on her neck allow her infant to hug and caress her. That mother did not think she was selfish, and when expostulated with, replied, "How can mother get along if she don't let baby dear love her?" Truly, all maternal affection is not disinterested! Because one member of a family is near to death is no reason for his endangering the health of the entire family, when a little sanitary knowledge and a little self-denial and care to keep others from coming in contact with foul discharges from his person would do away with all danger of infection. It is the mother and not the year-old baby who will suffer in feelings for lack of the caress. True affection will lay down not only feelings and sentiments for the loved one, but also life itself, where there is a good reason for the sacrifice.

Whenever any one is told that he has a contagious disease, his first anxiety should be to study how he may live among his fellows without infecting them. The consumptive is in duty bound to destroy all the matter that comes from any tubercular abscess or sore of any kind, whether it proceeds from the lungs or other parts of the body. As long as his strength will permit, he should see to this himself. There are paper cuspidors into which expectorations can be received, and these can be burned when full. They are held in a metal frame with a cover, and the paper receptacle can easily be slipped out when full, and a new one inserted. The frames cost half a dollar apiece, and will last for years. The inside paper linings cost but one dollar a hundred, and one will last a day, except in the last stages of the disease, when there is much destruction of tissue and a very profuse expectoration. A wide-mouthed bottle makes a very good cuspidor, and can be emptied and used again, but it is not so cleanly and handy as the one just described. Little wooden dishes such as are used to put up butter and other articles at the groceries may be utilized for spittoons. They should be filled with sawdust saturated with a five-per-cent. solution of carbolic acid, or a 1–500 bichlorid solution. They should be replaced by fresh dishes and sawdust daily, those that have been used being burned.

The consumptive would better not attempt to use handkerchiefs and have them washed, as there is always danger that others may be infected in the washing of them, or that the dried sputa may saturate his clothing if he attempts to do it himself. When away from home, a flat, flask-shaped pocket cuspidor with a tight lid may be carried in the pocket and used for the sputum, and for the nose, pieces of either cheap cotton cloth or old clean rags, may also be carried in the pocket, and burned at the first opportunity. To prevent soiling the clothing, a pocket of rubber cloth should be made and fastened inside the ordinary pocket by buttons, so that it can be easily removed and disinfected if it becomes soiled. This, being dust-tight, will keep the dried sputum from the clothing. The cloths used should be so folded as to prevent the sputum from touching anything. If handkerchiefs are used at all, they should never be kept in the pocket until dry, nor laid aside and sent with other clothing to the wash, but should be at once put into a boiling hot five-per-cent. carbolic solution.

There is, however, nothing so sure to destroy the bacilli which cause consumption as fire, and the tubercular patient should feel it his duty to see that every germ given off from his body is burned. Those who have discharging tubercular sores should take care to keep them aseptic and the dressings fresh

and clean. They should be changed frequently, and the soiled dressings burned. It is a great comfort for one afflicted with consumption to know how to live in the world without being an injury to others. Every such patient is teaching in his family and community, by precept and example, sound sanitary principles, which will be remembered and practised by others after he is gone, as all mankind are more or less creatures of habit and imitation.

The consumptive should take care not only to avoid spitting on the floor, in the cars or carriage, in the streets, or anywhere else, but to avoid soiling his own clothes and bedding. It is always best, if there is any chance of this occurring, to have these articles disinfected in a hot carbolic solution and thoroughly boiled before they are brought in contact with the washing for the family. It is best for the consumptive to have a bed and a room alone; in fact it would be a good thing if every person were taught to sleep alone from birth until the end of life. It will be a good thing for both the health and the morals of humanity when the wide double bed is a thing of the past. It is said that in London a thousand infants are killed annually by being overlaid. Just how many more die from diseases contracted by sleeping with diseased parents, statistics do not inform us. But it is safe to say that mortality from this cause is much greater than from the simple carelessness which leads to fatal results from smothering.

When parents are aware that tubercular tendencies have been transmitted to their offspring, it is their duty not only to be careful about poisoning the air that the children breathe, but to see that it is not contaminated from other sources. Such children should live largely out of doors, in the fresh air and sunshine, and in the country if possible. Their home should be a good, dry, clean, well-ventilated house, with a southern exposure. The building site should be on dry soil, with drainage away from it in all directions, as a dry gravel knoll. The sunshine should not be shut out by a thicket of trees or barred out with window-shades and vines. A fence should keep out all domestic animals from the door-yard, as they will contaminate the children's play-ground with their foul excretions, which sometimes contain tubercular bacilli, and are usually filled with the ova of intestinal worms. The children should be encouraged to go out and exercise every day, summer and winter, when the weather is at all suitable for any one to be out of doors. They should be dressed warmly and at the same time lightly, in well-fitting garments, and allowed to have a good, free time, no matter if the thermometer is in the region of zero. They are much safer in such a temperature than in a close room, breathing overheated air. If, when they come into the house, they change their damp clothing for dry, there is no danger that they will contract colds.

Children with an inherited tendency to tuberculosis should never be shut up in factories or at any indoor work. The confinement and bad air hinder perfect nutrition, and pave the way for invalidism in after life. In the education of all children, especially those who are delicate, health should be the first consideration. Whenever that begins to fail, a change should be made at once. It is not always that the child is overstudying. The trouble may be on account of a lack of proper physical exercise, or it may be due to indigestion. Children with tubercular tendencies should never have a cold or catarrh neglected, nor any broken surface, either of the skin or mucous surfaces, left unheeded. When the baby begins to snuffle from dried mucus in the nostrils, the nose should be oiled and cleansed at once, and sprayed out with a mild saline solution, composed of a teaspoonful of salt to a pint of warm boiled water. To make the solution more cleansing, add one part of hydrozone to twelve or fifteen of the saline solution. If cold-sores form on the lips, open them and touch with pure hydrozone, and then anoint with vaseline. If this is done when the first blister appears, it will prevent others from forming.

Whenever the first sign of a cavity appears in even a milk-tooth, the dentist should be visited at once. Statistics do not inform us how many cases of consumption have come from bad teeth, but every observing physician knows that enlarged glands often result from this cause, and that the respiratory organs are often infected from the glands of the neck. When a child complains of earache, the inflammation and pain should be stopped at once by a hot ear douche, and the child kept in from the cold for twenty-four hours, or until the pain is relieved. The ears should never be cleansed harshly by diving the towel into them; it is better to spray them out gently with the saline solution. Whenever an ear suppurates, the patient should be taken to the physician at once, and the ear treated under his direction. If it is not convenient to consult a physician, proceed to cleanse the ear with the peroxide of hydrozone solution, one part to eight of water, at least two or three times a day. This should be kept up until the ear is free from pain and discharge.

When there is mouth-breathing, either from enlarged tonsils, nasal catarrh, or any other cause,

treatment should be begun at once to reduce the enlarged tonsils; or, if that is not sufficient, they should be removed. The nasal passages should be kept clean by the spray, and if closed, opened by a surgical operation. It is a much easier and surer way to cure consumption by killing these germs in the ears, nose, mouth, or tonsils, than to wait until they infect the lungs. As whooping-cough, measles, scarlet fever, rickets, bronchitis, and repeated attacks of cold on the lungs, all predispose to consumption, and as these diseases are most fatal and severe in the first ten years of life, especially in the first two years, when the teeth are cutting, all children, and particularly those that are delicate, should be carefully protected from them until after they are ten years old, at least.

If possible, children with a bad heredity should be changed to another locality if the home surroundings are unsanitary. A high altitude, a dry, bracing climate, with plenty of sunshine, is always favorable and beneficial in such cases.

Every young person should understand his special tendencies toward disease, and be taught to use every means to counteract them. Any sort of fashionable dissipation is dangerous to the youth or maiden of tubercular tendencies. Many a young man of great promise has died before thirty who might have seen his threescore years and ten, had he not awakened a latent tendency to tubercular disease by a few foolish years of fast living. Many a beautiful and intelligent girl has gone into a fatal decline, the victim of tight, unhealthful clothing, late suppers, want of sleep, and the nervous strain of fashionable life.

The man or woman who is ill with tubercular disease in ever so light a form should not marry, and the married consumptive should not perpetuate disease and suffering by bringing children into the world. To stamp out this and all other preventable diseases should be the aim of every lover of humanity.

But mankind has not yet wholly outgrown the old hopeless belief of the fatalist, only now it is called "circumstance;" and many a sin, wrong, and evil is allowed to live on because of a blind faith in this modern deity. It is very easy for people to excuse themselves for any sanitary or other sin of omission or commission by blaming their environments and circumstances, as if these were unalterable. Instead of making circumstances bend to fit their needs, physical and otherwise, they go on in evil practises and sins against their own health and that of posterity, feeling that they themselves are guiltless, and free from any responsibility in the matter. As of old, for lack of knowledge the people are destroyed.

THE CARE OF THE BLADDER IN SEVERE CASES OF FEVER.

THE bladder and kidneys are very likely to become more or less diseased in all cases of severe blood-poisoning. Often the urine is not passed for a long time, and the fact is given no attention by the nurse. This complication may be the result of the kidneys' failing to secrete urine, which is a very grave condition, and one likely to prove speedily fatal unless relieved at once; or it may be due to the muscles of the bladder failing to contract and expel the urine at the proper time, thus causing the bladder to bcome very much distended. This condition should never be allowed to occur, as it is very easily prevented by the use of the catheter. When no urine has been passed for eight or ten hours, the nurse should at once try to find out the reason of the stoppage, and remedy it.

Sometimes the application of hot and cold over the bladder will be sufficient to stimulate it to action. This may be applied in the form of an ice-bag or cold compress, if cold is used, and by the hot bag or fomentations, if heat be the means chosen. The alternation of heat and cold will often be more successful than the continuous application of either. If these measures are not successful in the course of an hour, prepare to use the catheter at once. If the one to use this instrument is not experienced, special care should be taken to choose a soft new rubber catheter, and thoroughly sterilize it by boiling, and also to thoroughly cleanse the parts about the urethra. After lubricating the catheter with boiled vaseline, it should be gently inserted into the opening of the urethra. Never use any force until the urine begins to flow. It will be necessary to use the catheter every eight hours until the bladder begins to act again. The greatest danger in its use is that of carrying germs into the bladder, thus setting up an inflammation of its lining membrane called cystitis, or catarrh of the bladder. This, however, can always be avoided by observing proper precautions; viz., using a sterilized catheter, washing and disinfecting the external parts, and having clean, aseptic hands every time the urine is drawn.

GOOD HEALTH
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COW'S MILK A CAUSE OF DISEASE.

It is a curious fact that the use of sweet cow's milk is chiefly confined to English-speaking nations, and many travelers have made the observation that tuberculosis, that great plague of civilization, which is responsible for from one seventh to one fourth of all the deaths which occur in England, America, Canada, and other English-speaking countries, is comparatively rare among nations who do not use cow's milk. The cow, of all domestic animals, is most subject to tuberculosis, and by its association with man there is abundant opportunity for the communication of the disease to the cow from human beings affected by it. The contagious character of consumption is now fully established, together with the fact that the germs which produce it are often found in cow's milk, and even in butter and cheese, existing in the latter for weeks without losing their activity.

General Suspicion of Cow's Milk.— The people of semi-civilized and uncivilized countries, and a few among civilized nations seem to have an idea of the deleterious qualities of cow's milk in its natural state; accordingly, we find that in many countries the milk of goats, sheep, or mares is substituted for that of cows, and with advantage, for the reason that these animals are only slightly subject to tuberculosis, and produce a milk which more closely resembles human milk than does cow's milk. The prevailing custom in the use of milk, however, in nearly all except English-speaking countries, is to avoid taking it in its natural, or sweet state. The German housewife never thinks of placing milk upon the table until it has been naturally fermented, and converted into a soft curd. Taken in this form, milk does not form hard curds in the stomach. The same is true of most of the countries of continental Europe. The same custom prevails in Scandinavian countries, also in Italy and Spain, Turkey, Hungary, and in all Asiatic countries. The Kaffirs of South Africa sour the milk before using it, placing it overnight in a gourd kept for the purpose, and which is never washed. The same custom prevails among the natives of the Congo and other portions of Africa where cow's milk is used. The natives of Iceland, during their short summer, milk their flocks of sheep, and pour the milk into a large hogshead in the back yard, where it quickly curdles, and from which it is used as needed throughout the year.

Milk a Natural Food for Infants, but Not for Adults.— That milk is the natural food for the young of all warm-blooded animals is a physiological fact which no one will undertake to dispute. It is the first nourishment of the young animal, and continues to be the only food adapted to its wants for the first few months of its existence. It must be remembered, however, that each species of animals is provided with digestive organs peculiar to itself, and that the milk of each species is exactly adapted to the digestive organs which are to receive it, and to no other. Every nurse knows the injurious effects of cow's milk when given to an infant as a substitute for mother's milk without some modification, as by the addition of ordinary water, barley water, or some other diluent. Cow's milk differs very materially from mother's milk, containing less sugar, more fat, and four times as much casein as mother's milk. The casein in cow's milk also differs from that in mother's milk, in that it forms large, firm, tough curds, whereas those formed in mother's milk are small, soft, and friable, crumbling easily into small particles under the action of the stomach.

It will thus be seen that the popular notion that, since milk is the natural food of infants, cow's milk must be the most wholesome and easily digested of all foods for adults, is without proper foundation. When pure cow's milk is fed to infants, the child not infrequently vomits fragments of decomposing curds

which, after having remained many hours in the stomach, are still hard, tough, and leathery. Every nurse is also familiar with the fact that the bowel discharges of children fed upon cow's milk often contain large quantities of tough, undigested curds.

Why Milk Disagrees with Adults.— In the stomach of the adult even larger and firmer curds are formed than in the stomach of the child, for the reason that milk is taken by adults as a beverage, and is swallowed rapidly, causing the milk to curdle in large masses. The greater acidity of the gastric juice in adults also has a tendency to harden the casein into firm, resisting masses, which are broken down by the gastric juice with very great difficulty.

Another fact of importance is that the stomach in infants is so formed as to allow its contents to pass readily out through the pylorus; thus normal food does not remain in the stomach of the young child more than one or two hours, at the end of which time it is passed on, and brought in contact with the active digestive fluids of the intestines, where the complete digestion of milk takes place, the work of the stomach being simply to prepare it for the digestive action of the intestines.

In the adult the stomach is somewhat pouched in the left portion, for the purpose of retaining the food for a longer time. In many instances, especially among dyspeptics, there is also a more or less dilated condition of the stomach; and the organ losing its ability promptly to empty itself at the end of the two or three hours of preliminary digestion, the food is not infrequently retained from five to seven hours, and sometimes several days in a dilated stomach. The left, or cardiac portion of the stomach is in some cases of dilatation so enlarged as to form a pocket, in which undigested food is sometimes retained not only for days but for weeks. Several such cases have come under the writer's observation.

The casein of milk is a nitrogenous substance, closely allied to flesh, and readily undergoes decomposition, the same as meat, eggs, and other animal substances. Milk, unless sterilized, always contains putrefactive germs, which readily set up decomposition of the casein in the stomach when the milk is retained for more than two or three hours, or when the gastric juice is not sufficiently strong thoroughly to destroy these germs. Even sterilized milk receives, while passing through the mouth, a sufficient number of germs capable of producing putrefaction to cause the same results under similar conditions, although, of course, the smaller the number of germs, the less likely the occurrence of these undesirable changes.

Milk the Cause of Biliousness.— In these facts we find a ready explanation of the influence of milk in producing the condition commonly termed "biliousness." Indeed, this is a matter of so common observation that, according to the writer's experience, the majority of persons suffering from attacks of bilious headache, sick-headache, or from chronic biliousness, on being questioned respecting the matter, remark that they have found it necessary to discard the use of milk as one of the articles most active in bringing on fresh attacks or aggravating the condition already existing. The observation that milk produces biliousness has given rise to the popular idea that it is bad for the liver. The fact is that milk has no special influence upon the liver directly, but in the manner explained is liable to give rise to a state of putrefaction in the stomach, which of course disturbs the liver secondarily.

The writer has become thoroughly convinced that there are few persons who do not suffer sooner or later from the free and long-continued use of cow's milk. —*J. H. K., in Modern Medicine.*

(To be concluded.)

Effects of Alcohol upon Bees.— We quote the following interesting paragraph from an exchange. It is of value as a forcible illustration of the poisonous and demoralizing effects of alcohol:—

"Some interesting experiments were recently made in order to ascertain the effects of alcohol on working bees. By placing them on a regimen of alcoholized honey, the most astonishing effects were produced. It was proved that they revolted against their queen, and gave themselves entirely over to idleness and to habits of pillaging and pilfering, until they were cast out by their fellows."

Milk Diet in Typhoid Fever.— We are glad to note that so eminent an authority as Professor Da Costa has called attention to the fact that an exclusive milk diet is a source of mischief rather than benefit in typhoid fever. The white of egg, dissolved in water, has been recommended in the place of milk, which often produces disturbance by the formation of curds in the stomach. These do not digest, but undergo decay, and produce ptomains, which, being absorbed, increase the fever and also the coat upon the tongue, as well as tympanites and other bowel symptoms.

SCHOOL SANITATION.

A FEW weeks ago we addressed a circular embodying the following questions to the superintendents of schools in a number of the principal cities of the United States: —

1. What is your opinion of the necessity for the medical supervision of public schools?

2. Should the pupils in public schools have some sort of medical examination on entering the school, and at stated intervals of a few months, or at least once a year, while in the school?

3. Do you consider a bath department or lavatory essential for a public school building? If so, what is a teacher's duty with relation to the matter of cleanliness of pupils?

4. Do you know of any public school which maintains a bath department for the use of its pupils? If so, kindly give the address of same.

5. Do pupils of the schools under your supervision receive regular instruction and training in proper breathing, and proper position or attitude in sitting, standing, or walking?

6. Are systematic gymnastic exercises a regular part of the day's program in your schools? or if in part of the schools, and not in all, in what proportion?

The following are the answers received to the above questions. The reader will be impressed with the unanimity of opinion respecting the necessity for radical reforms respecting the sanitary care of children in the public schools. It is also gratifying to note that in some schools something is already being done in this line.

From Buel T. Davis, superintendent of public schools, Oshkosh, Wis.

1. "There should be such supervision.

2. "Yes.

3. "It would be a good thing, if properly organized.

4. "I know of none.

5. "This is not thoroughly or systematically done.

6. "Such exercises are recommended, but are not as systematically carried out as they should be."

From W. E. Robinson, superintendent of public schools, Detroit, Mich.

1. "It would be a good thing if the proper amount of funds could be secured.

2. "As per No. 1.

3. "It is the teacher's duty to see that pupils are kept clean.

4. "We have had, for eight or nine years, a bath department in connection with our truant school. It should always be a shower bath.

5. "Yes.

6. "Yes."

From A. W. Carley, superintendent of public schools, La Crosse, Wis.

1. "Good, if wisely done.

2. "Yes.

3. "It is desirable." To the last clause he answers, "To see that they are clean."

4. "Yes, some Milwaukee schools,— Milwaukee Normal, West Superior Normal.

5. "Yes.

6. "Yes."

From W. S. Perry, superintendent of public schools, Ann Arbor, Mich.

1. "I would not place medical supervision of public schools among the necessities, but I would have every teacher endeavor to secure the best possible health conditions of his school.

2. "Yes, to this extent, that all pupils should be required to present a certificate of vaccination before entering a public school.

3. "I never have taught in or had charge of a school where I thought it wise to recommend a bath department, neither would I permit uncleanliness in schools. That part of child-care is essential, and exclusively a home duty.

4. "No.

5. "They receive quite regular but not adequate instruction in such matters."

From H. N. Worth, superintendent of public schools, Steubenville, Ohio.

1. "It would doubtless be beneficial, but is hardly to be called a necessity.

2. "This, like the first proposition, would be a good thing, but the public will have to be educated up to it before it will be practicable.

3. "To the first part of this, I would make the same answer as to No. 2. To the second part, I would say, It is the teacher's duty to see that the children come to school neat and clean as to person and dress, and that they be instructed in hygienic principles requiring such cleanliness. But the home environment is too often a factor.

4. "No.

5. "Yes.

6. "Yes."

From H. A. Simons, superintendent of public schools, Steven's Point, Wis.

1. "Very important, if the supervision is made by a competent official.

2. "Yes, if the examiner is competent.

3. "A lavatory is the least facility a school should furnish.

4. "No.

5. "Not regular instruction.

6. "No."

From D. K. Goss, superintendent of public schools, Indianapolis, Ind.

1. "It depends upon circumstances.

2. "If such examination is a real examination, yes.

3. "No.

4. "No.

5. "Yes.

6. "A regular part of instruction throughout."

From F. D. Lyon, superintendent of public schools, Mansfield, Ohio.

1. "Excellent, especially for eyes and ears.

2. "I think it would be well.

3. "Very desirable.

4. "No.

5. "Yes.

6. "We have systematic physical culture exercises; they form a part of the daily program."

From S. C. Price, superintendent of public schools, Mt. Clemens, Mich.

1. "A good thing — perhaps the best.

2. "Yes.

5. "Yes, each day.

6. "In all departments."

From J. B. Estabrook, superintendent of public schools, Racine, Wis.

1. " believe that the introduction of medical supervision into public schools would be a marked step in advance, from an educational and physical standpoint.

2. "It strikes me that a medical examination of the pupils of the public schools, at stated intervals (at least once a year), would be exceedingly beneficial.

3. "A bath department or lavatory, while possibly not essential, would no doubt be a blessing in the great majority of schools. It is the teacher's duty to see that no pupil sits in the schoolroom in an untidy or uncleanly condition. It is not only a bad example but an actual injustice to the other members of the department to allow such a pupil to remain seated among them.

4. "I know of no public school that maintains a bath department.

5. "Pupils in the various grades of our schools receive instruction in proper breathing, proper position in sitting, standing, and walking in connection with their lessons in physiology."

W. P. Hepburn, superintendent of public schools, Clarinda, Iowa, answers all the questions in the affirmative.

From H. G. Woody, superintendent of public schools, Kokomo, Ind.

1. "It would be helpful to provide an expert that is really an expert, not a quack.

2. "Yes, but not essential.

3. "Not an essential, but it would prove a blessing. All our new buildings have wash-basins and mirrors. Teachers should cultivate habits of cleanliness.

4. "No.

5. "Yes.

6. "Yes, in all grades below high school."

From E. C. Warriner, acting superintendent of public schools, Saginaw, East Side, Mich.

1. "Medical supervision and physical training are the greatest needs of our public school system to-day.

2. "Yes.

3. "Not essential, but desirable.

4. "Ishpeming, Mich., high school.

5 and 6. "Yes."

From Y. N. Study, Fort Wayne, Ind.

1. "It would be a good feature in school advancement.

2. "I think so.

3. "A lavatory is an essential in a modern school. As to bathing, I am not so sure.

4. "No.

5. "Yes."

From W. C. Belman, superintendent of public schools, Hammond, Ind.

1. "I think it necessary.

2. "They should.

3. "It is essential, but the practical workings of it are not clear.

4. "I do not.

5. "They do.

6. "We have five-minute exercises each half day, besides the intermission, or recess, of five minutes."

From F. E. Converse, superintendent of city schools, Pontiac, Mich.

1. "It seems to me to be very desirable.

2. "Yes.

3. "The teacher should teach cleanliness by precept and example. A filthy child should not be allowed to remain so.

4. "No.

5. "I try to secure such through the regular teachers.

6. "In three fourths of the schools."

From W. G. Coburn, superintendent of public schools, Battle Creek, Mich.

1. "I think we should have a medical supervisor in our schools.

2. "At the entrance, and at least once during the year.

3. "I believe each school should have a lavatory.

4. "I know of none on a large scale. We all have wash-bowels, towels, combs, brushes, etc., in the Battle Creek public schools.

5. "We expect to have regular instruction this year in the above-mentioned exercises.

6. "A regular part."

From F. R. Hathaway, superintendent of public schools, Flint, Mich.

1. "I don't think it necessary.

2 and 3. "No.

4. "Ishpeming, Mich.

5 and 6. "Yes."

From S. B. Laird, superintendent of public schools, Lansing, Mich.

1. "I believe the necessity for medical supervision of public schools exists, and that it is imperative.

2. "Pupils should be examined on entering school as to health of eyes, ears, and nostrils at least, and perhaps again at the beginning of the second semester.

3. "A bath would be a promoter of health and cleanliness, hence of better morals.

4. "No. The pupils of our schools have a certain measure of instruction along these lines, but it is not systematized upon physiological principles.

6. "The ordinary school gymnastics are practised in the grades every day."

From W. W. Chalmers, superintendent of public schools, Grand Rapids, Mich.

1 and 2. "I have not given sufficient thought to these questions to be able to answer them.

3. "Yes.

4. "Yes, our truant school.

5. "Yes, to the first part.

6. "Yes."

From W. H. Wiley, superintendent of public schools, Terre Haute, Ind.

1. "It would be beneficial in many cases.

2. "Such a plan would enable teachers to better guard the health of pupils.

3. "Our teachers insist upon pupils coming to school in good condition.

4. "To the first part of No. 4, No.

5. "Yes.

6. "We have systematic instruction in gymnastics."

ANSWERS TO CORRESPONDENTS.

COTOSUET.— E. A. S., Mich., wishes to be told the ingredients of cotosuet, which is prepared by a firm in Chicago, Ill.

Ans.— The ingredients of cotosuet, cottolene, and similar preparations are cotton-seed oil and beef-suet.

BATHS — WHIPPED EGGS, ETC.— B. C., Pa., asks the following questions: "1. Will bathing the feet every night in cool or cold water aid in preventing colds? 2. My age is sixty-four. Is one full bath per week enough for health? 3. Can I use anything better than cold water on the scalp to prevent losing the hair? 4. Which contains the most blood-making material, the white or the yolk of an egg? 5. How is a whipped egg prepared? 6. What foods are best to make blood and prepare the system for cold weather?"

Ans.— 1. Yes.

2. One bath will suffice for cleanliness, but two or three sponge baths weekly, followed by vigorous rubbing with a Turkish towel, in addition, will greatly increase vital resistance.

3. No.

4. The yolk is more nutritious than the white.

5. By simply beating with a spoon, fork, or an egg-beater.

6. Foods which contain a considerable amount of fat; nuts are especially valuable for this purpose.

ECZEMA.— J. D. W., Mich., asks for a remedy for eczema of the head, of long standing.

Ans.— In cases of this sort local applications are often insufficient to effect a cure. The disease is not infrequently the result of a disordered stomach. Dilatation of the stomach exists in quite a large proportion of all cases of chronic eczema. The poisonous substances developed in the alimentary canal circulate in the blood, vitiate the tissues, and give rise to this disease. This patient can doubtless be cured, but a careful personal investigation of his case would be necessary in order to ascertain all the causes of the malady; and then such conditions must be secured as will result in the removal of these causes.

DYSPEPSIA.— H. H., Wis., writes: "I am troubled with dyspepsia. Please tell me what to do for it."

Ans.— Procure a copy of "The Stomach; Its Disorders and How to Cure Them," published by the Modern Medicine Publishing Co., Battle Creek, Mich.

CONSOLIDATED FLAVORING POWDERS.— M. P., S. Dak., inquires in relation to the Consolidated Flavoring Powders manufactured at Chicago.

Ans.— We know nothing about these products. If you will send us a specimen, we will investigate it.

PLEURITIC PAINS.— N. L., Vancouver, B. C., writes thus: "About a year ago my wife had pleurisy, and ever since she has pain in either the right or left side, which extends to the arm, and is so bad at times that she can scarcely raise it. The pain is so bad below the left breast that she is scarcely ever able to take a full breath. She is twenty-nine years old, and is very thin. Please advise as to home treatment."

Ans.— The patient should visit the Sanitarium, and have a careful examination and a thorough course of treatment. It may be necessary for her to make a change of climate, although we would not dare to advise it without further knowledge of the case. Fomentations followed by a moist compress or a dry pack to be worn overnight will probably be found helpful.

BURNING SENSATIONS IN STOMACH AND BOWELS— BURNING SPOTS IN BODY— EATING FRUIT, ETC.— S. A. C., Washington, D. C., asks the following questions: "1. What is the cause of burning sensations in the stomach and bowels and also in the feet, the back, and the top of the head? 2. Does the eating of fruit or tomatoes cause it? 3. Ought tomatoes to be eaten at the same time as potatoes? 4. Will glycozone or hydrozone do all they are advertized to do? 5. How should one treat rheumatism and neuralgia? 6. What is the remedy for a burning sensation in the bladder after eating fruit? 7. Our family physician says I have pharyngitis. The palate is elongated, the mucous membrane in very pale and granulated, and on the soft palate there seem to be little white blisters which come and go, and always after singing my throat is in an extremely inflamed condition. Would the antiseptic tablets be of benefit? 8. Would nuttose be a good food for me? I have been afflicted with tumors occasioned by piles for twenty years, but have been entirely free from them since using granose. 9. Would my health probably be better if I were to give up tea and coffee?"

Ans.— 1. Vasomotor disturbance due to irritation of the sympathetic ganglia of the abdomen.

2. Anything which will produce indigestion may give rise to this condition.

3. Fruit and vegetables do not usually agree well together when the digestion is weak, especially in cases of dilatation of the stomach in which the symptoms referred to are present.

4. We cannot vouch for the statements made for them.

5. The treatment should be applied to the patient and not to the disease. Rheumatism and neuralgia generally originate in a disturbance of the stomach; the indigestion must be cured by the application of the proper remedies.

6. Often excessive acidity of the urine.

7. Use the vaporizer. Antiseptic tablets may be necessary if you are suffering from indigestion, which we suspect to be the case from the other questions asked.

8. Probably. We are glad to know that you have been relieved by the use of granose. It is probably due to the fact that the bowels have been made regular by granose, which is a very excellent food-cure for constipation.

9. Most certainly.

RELIEF DEPARTMENT.

[THIS department has been organized in the interest of two classes: —

1. Young orphan children, and
2. The worthy sick poor.

The purposes of this department, as regards these two classes, are as follows: —

1. To obtain intelligence respecting young and friendless orphan children, and to find suitable homes for them.

2. To obtain information respecting persons in indigent or very limited circumstances who are suffering from serious, though curable, maladies, but are unable to obtain the skilled medical attention which their cases may require, and to secure for them an opportunity to obtain relief by visiting the Sanitarium Hospital. The generous policy of the managers of the Medical and Surgical Sanitarium has provided in the Hospital connected with this institution a number of beds, in which suitable cases are treated without charge for the medical services rendered. Hundreds have already enjoyed the advantages of this beneficent work, and it is hoped that many thousands more may participate in these advantages. Cases belonging to either class may be reported in writing to the editor of this journal.

It should be plainly stated and clearly understood that neither orphan children nor sick persons should be sent to the Sanitarium or to Battle Creek with the expectation of being received by us, unless previous arrangement has been made by correspondence or otherwise, as it is not infrequently the case that our accommodations are filled to their utmost capacity, and hence additional cases cannot be received until special provision has been made.

Persons desiring further information concerning cases mentioned in this department, or wishing to present cases for notice in these columns, should address their communications to the editor, Dr. J. H. Kellogg, Battle Creek, Mich.

☞He wishes especially to state that those who apply for children will be expected to accompany their applications by satisfactory letters of introduction or recommendation.]

No. 342 is a young girl sixteen years of age, who is in need of a home. She has blue eyes and light hair, has had good care and training, and has always lived in the country. Her mother has tried to keep the family together, but on account of failing health is not longer able to do so. Good homes have been found for the other children in the family. Is there not a home near one of our schools that will open its doors to this girl, where she can have the opportunity to get an education, and thus prepare herself for future usefulness?

No. 351 is a boy ten years of age living in Pennsylvania. The father died, leaving the mother with five children to care for. Living in a large city, the mother finds it hard to train her boy without a father's guidance. Will not some Christian father and mother living in the country give him the surroundings of a good home? He has blue eyes and light hair, and is in good health.

No. 356 is a little boy seven years old living in Michigan. He has blue eyes and dark hair. He has not been allowed to run the streets, and had good care while his mother lived. His father cannot give him proper care and training, as he is away from home all day. Will not some good home open its doors and receive him, thus giving him the influence of Christian surroundings?

No 366 is a girl ten years of age, with blue eyes and dark hair. She is said to have an amiable disposition, and has had good training. Her father is dead, and the mother having to work away from home all day, the child is thus left alone. The mother is anxious to have her placed in a good Christian home, where she will have proper care and training. She is at present living in Pennsylvania.

No. 380 is an orphan girl ten years of age living in Massachusetts. She has blue eyes and brown hair, and is large and strong for her age. She has a very affectionate disposition, being very fond of children and pets. She has been living with an elderly lady who has cared for her since her mother's death, but she is not able to provide for her longer. No doubt with a kind but firm hand to guide her and the surroundings of a Christian home she will grow up to be a useful woman.

No. 381 is a little girl nearly six years old living in Wisconsin. Her mother is dead and her father has deserted her. Her aunt with whom she has been staying, is not situated so that she can keep her longer, and thus she is in need of an immediate home. She has blue eyes and light hair and is said to be bright and well behaved. Is there not some home that will open its doors and give this poor child a mother's love and care?

No. 382 is a bright little boy five years of age. He, like many others that have come to our notice, has lost his mother, and as his father has to be away from home all day, he has no one to care for him. He has blue eyes and light brown hair, and is a healthy child. Will not some mother open her heart and home and give him the care he so much needs? He is now living in Indiana.

No. 386 is a colored orphan girl twelve years of age, who is greatly in need of a home and Christian surroundings. She is well and strong, and no doubt with proper training would make herself useful about the house, thus paying for her board and clothes. Is there not some family who would be willing to offer her a home with school advantages?

No. 387 is a poor colored boy, thirteen years of age, who has been left without home and friends. He is in good health, and during the past summer has made himself quite useful on a farm. Amid Christian influences and with a kind hand to guide him, he would probably develop into a useful man.

A NUMBER of other colored children, ranging from ten to fourteen years of age, have been brought to our attention, who are just as much in need of homes and Christian training as the cases above described. Any one wishing to do some real missionary work, is here afforded an opportunity, for by taking in one of these poor outcasts the words of the Saviour will surely be verified, "Inasmuch as ye have done it unto one of the least of these . . . ye have done it unto me."

WE would call special attention to the girl advertised as No. 366. Her mother is in very destitute circumstances, and not able to keep the child during the winter. Is there not some one living in one of the Eastern States who will give this child a home, and thus relieve her mother's anxiety?

THE little baby girl reported in the last *Good Health* has been placed in a good home in Michigan. Her new mother thinks she is a very sweet baby, and already loves her as one of her own.

OUR baby boy has also gone to his new home in the East. A kind friend who was going East consented to take the baby to its new home, where a warm welcome was awaiting him.

WE are constantly receiving applications for relief from aged brethren and sisters who have been left without a home and means of support, and on account of age and failing health are not able to care for themselves. Many of these in their earlier life gave freely of their means to advance the cause of God, and certainly provision should be made for them in their declining years. Many of these are able to make themselves quite useful in assisting in the work about a house, but being without home and friends appeal to us for assistance.

Certainly there must be those having comfortable homes who would be willing to share their blessings with those who are less fortunate. Another winter is before us, and some of these who have applied for relief have no other prospect for shelter than the poorhouse. Shall we not hear from many who are willing to cheer and brighten some lonely life in its declining years?

THE State Public School of Coldwater, Mich., is now receiving children under two years of age, and has some fine baby boys for indenture and adoption. Any person wishing to add a baby boy or girl to their household should correspond with the State Public School, or call and see the babies. Address A. J. Murray, Superintendent, Coldwater, Mich.

PERSONS making application for children advertised in this department, are requested to send with their applications the names and addresses of two or more persons as reference. If possible, these should be known, either personally or by reputation, to some member of the Board of Trustees.

VISITING DAYS AT THE HASKELL HOME.— Persons intending to visit the Haskell Home will please note that the visiting days are Sundays and Wednesdays, from 4 to 6 P. M.

CLOTHING FOR THE POOR.

THE call for clothing of all kinds and the numerous offers to supply assistance of this sort, have led us to organize a Clothing Department to receive and properly distribute new or partly worn garments which can be utilized for the relief of the very poor. In connection with this work it is very important that a few points should be kept in mind and carefully observed: —

1. Clothes that are so badly worn that repairs will cost more in money or labor than the garment is worth, will of course be of no service. Garments that are old, though faded, or which may be easily repaired by sewing up seams, or made presentable by a few stitches judiciously taken at some point in which the fabric is nearly worn through, may be utilized to most excellent advantage. But garments so badly worn that they need extensive patching, or clothes which have become much soiled and grimy by long use in some dirty occupation, should find their way to the rag bag instead of the missionary box.

2. Freight must always be prepaid. It costs as much to send 25 pounds or any amount less than 100 pounds as to send the full 100 pounds; consequently it would be well for those who think of sending clothes to be used in this department, to put their contributions together in one shipment, so as to get the benefit of the 100-pound rates. *We are obliged to ask that freight should be prepaid as a means of preventing loss to the work in the payment of freight upon useless packages.*

3. Clothes that have been worn by patients suffering from any contagious disease — such as typhoid fever, erysipelas, consumption, and skin disorders of all sorts, as well as scarlet fever, measles, mumps, diphtheria, and smallpox — should not be sent. Infected clothes may be rendered safe by disinfection, but we cannot trust to the proper disinfection of such garments by those sending them, who, in the majority of cases, are quite inexperienced in such work; neither should those who unpack the clothes be exposed to the risk of contamination while preparing them for disinfection at this end of the line. Such clothes should, as a rule, be destroyed. If they are not destroyed, almost infinite pains is required to render their use perfectly safe.

4. All articles received here are carefully assorted and classified, and are then placed as called for, where they will do the most good.

5. Clothing intended for the Chicago mission should be sent to Medical Missionary College Settlement, 744 47th St., Chicago, Ill.

LITERARY NOTICES.

"How Marcus Whitman Saved Oregon."— By Oliver W. Nixon, M. D., LL. D., for seventeen years president and literary editor of the Chicago *Inter Ocean*. 339 pp., cloth.

This book gives in a most vivid and entertaining style the history of the State of Oregon from its acquisition by the United States in 1803 to its opening up to civilization, or rather so much of it as pertains to the life and labors of Dr. Marcus Whitman and his heroic and patriotic services in the cause of God and to the American nation. In 1836 Dr. Whitman and his young wife were sent out by the American Board as missionaries to the Indians of Oregon, and endured privation, isolation, and almost every imaginable discomfort with cheerfulness, that they might teach Christianity and save souls. Whitman Mission was established in what is now known as one of the most fertile and beautiful sections in the State of Washington. In the fall of 1842, foreseeing that the terms of the treaty by which Oregon was held by the United States would probably expire before the convening of Congress the following March, Dr. Whitman conceived the daring project of making the long journey to the seat of government to try to induce the president and his chief officers to take some action to preserve this beautiful section of country from slipping into the hands of the Hudson Bay Company, the real autocrats of the country at that time, and from thence to the English nation. How this remarkable and fateful journey was accomplished, and what success crowned the undertaking, is told in a way at once to interest, entertain, and hold the reader.

Harper's Book of Facts.— During 1895 there were published in the United States 5101 new books. To make a selection from this number of the best fifty is no small task; 5051 or 99 out of every 100 must be rejected, that one book may be pronounced the best.

We are pleased therefore to call attention to "Harper's Book of Facts" which, of the many reference books of 1895, is one of *only two* that received the majority vote of 139 librarians in New York State, and which appear in their published list of the best fifty books of 1895. It is also included among the best books for a Village Library, in a list of 60 made up by combining the votes of 15 librarians selected as expert judges of books, revised by M. S. Cutler after consultation with J. N. Larned, ex-president of American Library Ass'n, and accepted at the Syracuse meeting of the New York State Library Association, May 30, 1896. These lists have been widely copied into educational journals and library publications, and constitute one of the strongest testimonials "Harper's Book of Facts" could receive.

It is a book of reference, the underlying principle of which is completeness and historical accuracy of information on all subjects, combined with brevity of statement and perfect chronological sequence; and the time saved in six months by the teacher, student, lawyer, librarian, editor; in fact, any one who looks first of all in "Harper's Book of Facts," will prove the assertion that the investment of $8 or $10 in a copy is *one of the best forms of economy*.

Catechism of Little Water Drinkers.— By Julia Colman, New York National Temperance Society and Publication House.

Everything Miss Colman writes is clear, concise, sensible, and helpful. This pamphlet of twenty-two pages is just the thing for a temperance Sunday-school or for instruction of classes of small children in public schools. The titles of a few chapters will serve to give a clear idea of the practical character of this little book: —

The Drinking-House, The House We Live in, A Talk about Cider, The Alcohol in Root Beer, Alcohol by Itself, Water in Fruits, The Story of Daniel.

The book is illustrated, and numerous interesting experiments are described. We heartily commend it as the best temperance book for young children that we have ever seen.

The Wonderful Law.— By H. L. Hastings, Boston, Mass.

For half a century the writer of this admirable treatise has been constantly sending out to the world a supply of most excellent literature,— books, papers, tracts, pamphlets, periodicals, leaflets, all calculated to carry conviction to the hearts of skeptics, and to aid the religiously inclined in reaching a higher spiritual level, and finding a more solid foundation for their faith. There is no other man in the United States who has done more or better work in this direction than the writer of "The Wonderful Law," a little volume of nearly two hundred pages, brimful of facts, arguments, and splendid illustrations of the dealings of divine Providence with men, and the justice, kindness, and universal adaptation and application of the law of God.

This work is an excellent antidote for "The Mistakes of Moses," and other literature of that class.

PUBLISHERS' DEPARTMENT.

WHITELAW REID'S DISCOVERY.— Whitelaw Reid owner and editor of the New York *Tribune*, is spending the winter quietly with his family at Phœnix, Ariz., where he has found the climate unexpectedly agreeable. In a letter to the Philadelphia *Times*, he says: "Eastern folks will have to form new ideas of Arizona. I am keeping house here with great comfort in a well-built brick residence, with hot and cold water, electric light, and telephone, and the climate is really better than that of Cairo." Mr. Reid's health has greatly improved since his visit to the South. Any reader of this paper who wishes to become fully informed regarding the Salt River Valley for health or wealth, should address G. T. Nicholson, G. P. A., Santa Fé Route, Monadnock Building, Chicago.

* *
*

HOME-SEEKERS' EXCURSIONS. — On Nov. 17 and Dec. 1 and 15, 1896, the Chicago, Milwaukee & St. Paul Railway will sell round-trip excursion tickets from Chicago to a great many points in the Western and Southwestern States both on its own line and elsewhere, at greatly reduced rates. Details as to rates, routes, etc., may be obtained on application to any coupon ticket agent, or by addressing Harry Mercer, Michigan Passenger Agent, Detroit, Mich.

* *
*

LETTERS FROM FARMERS in South and North Dakota, relating their own personal experience in those States, have been published in pamphlet form by the Chicago, Milwaukee & St. Paul Railway. These letters are extremely interesting, and the pamphlet is finel illustrated. One copy will be sent to any address, on receipt of a two-cent postage stamp. Apply to Harry Mercer, Michigan Passenger Agent, 7 Fort Street W., Detroit, Mich.

LANDS in Wisconsin are now as desirable as any in the market. These lands, particularly in the northern part of Wisconsin, are being rapidly taken up by actual settlers.

The most salable are the timber and meadow lands, now ranging in price from $6 to $12 per acre. A few months hence their value will be greatly increased.

For a home or for investment no luckier chance in the West has ever been offered. Now is the time to invest. No better farming land exists anywhere. No greater results can be obtained anywhere.

Schools and churches abound everywhere. Near-by markets for all farm products. Wisconsin is one of the banner States of the West.

For further information, address or call upon W. E. Powell, General Immigration Agent, 410 Old Colony Building, Chicago, Ill.

* *
*

TOURISTS who contemplate visiting California during the season of 1896–7 will be glad to know that the sumptuous Sunset Limited service of the Southern Pacific has been resumed. This magnificent train, which is conceded to be the finest and most complete operated upon any transcontinental line, will have several new and attractive features this season. It will leave New Orleans each Monday and Thursday morning, running during the season. Rate of fare same as on the regular trains, Pullman fare added. If you are contemplating a trip to the Pacific Coast, write to W. G. Neimyer, Gen. Western Agent, Southern Pacific Co., 238 Clark St., Chicago, or to S. F. B. Morse, General Passenger Agent, New Orleans, for further particulars about the Sunset Limited.

DIRECTORY OF SANITARIUMS.

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

ST. HELENA SANITARIUM, OR RURAL HEALTH RETREAT,

ST. HELENA, CAL.

W. H. MAXSON, M. D., Superintendent.
IRVING E. KECK, Business Manager.

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

CHICAGO SANITARIUM,

28 COLLEGE PLACE, CHICAGO, ILL.

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

NEBRASKA SANITARIUM,

COLLEGE VIEW (LINCOLN), NEB.

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

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

PORTLAND SANITARIUM,

PORTLAND, ORE.

L. J. BELKNAP, M. D., Superintendent.

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

COLORADO SANITARIUM,

BOULDER, COLO.

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

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

GUADALAJARA SANITARIUM,

STATE OF JALISCO, MEXICO.

D. T. JONES, Superintendent.

ADDIE C. JOHNSON, M. D.,
J. H. NEALL, M. D., } Physicians.

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

INSTITUTE SANITARE,

BASEL, SWITZERLAND.

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

Address, 48 Weiherweg.

"BIG FOUR"

SOLID VESTIBULED TRAINS BETWEEN

Cincinnati, Toledo, Detroit, and Chicago.

Best Route to Battle Creek from Cincinnati, Louisville, Nashville, and all Points South, connecting in Union Depots at CHICAGO and DETROIT for BATTLE CREEK.

Fast Time, Excellent Equipment.

THE SCHEDULE.

9.00 a. m.	9.15 p. m.	Lv....	Cincinnati	Ar.	6.45 a. m.	6.00 p. m.
3.25 p. m.	3.55 a. m.	Ar.....	Toledo.....	Lv.	11.45 p. m.	11.35 a. m.
5.45 p. m.	6.15 a. m.	Ar.....	Detroit.....	Lv.	9.40 p. m.	9.15 a. m.

CHICAGO LINE.

8.10 a. m.	8.10 p. m.	Lv.....	Louisville.....	Ar.	7.40 a. m.	6.50 p. m.
8.30 p. m.	8.30 a. m.	Lv.....	Cincinnati	Ar.	7.30 a. m.	9.05 p. m.
7.30 a. m.	5.30 p. m.	Ar.....	Chicago.....	Lv.	8.30 p. m.	9.00 a. m.

Through Coaches and Wagner Parlor Cars on Day Trains.
Through Coaches and Wagner Sleeping-Cars on Night Trains.

AS GOOD AS OUR NEW YORK LINE.
AS GOOD AS OUR CHICAGO LINE.
AS GOOD AS OUR ST. LOUIS LINE.

Buy your tickets through via "BIG FOUR."
For full information call on agents or address,

E. O. McCORMICK,
Passenger Traffic Manager.
CINCINNATI, O.

D. B. MARTIN,
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American Beauties

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1896

Win Love at First Sight

and hold it captive.
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It's sure to be if you ride a

Windsor, $85 and $100.

For Catalogue, address

SIEG & WALPOLE MFG. CO.,

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Address all Correspondence to Kenosha, Wis.

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AT THE

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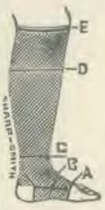
Largest Manufacturers in the United States

Of the most perfect Seamless Heel Elastic Stockings, Knee Caps, Shoulder Caps, Armlets, etc., for



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Abdominal Supporters.

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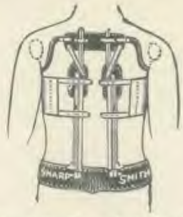

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Chicago, — New York, — Boston,

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The main line is as near perfection in the way of construction, appointments, service, and able management as can be conceived in modern railroading. No skill or expenditure has been spared to make it the modern railroad of the country.—*Official Report of Inspection by Railroad Commissioner of Michigan.*

R. H. L'HOMMEDIEU,
Gen'l Superintendent,
DETROIT.

O. W. RUGGLES,
Gen'l Pass'r and Ticket Agent,
CHICAGO.

GRAND TRUNK RAILWAY SYSTEM

(CHICAGO AND GRAND TRUNK DIVISION.)

Time Table, in Effect Nov. 15, 1896.

GOING EAST. *Read down.*					STATIONS	GOING WEST. *Read up.*				
10 Mail Ex.	4 L'i'd Ex.	6 Atl. Ex.	42 Mixd Tr'n.	2 Pt. H Pass		11 Mail Ex.	1 Day Ex.	3 R'd L'i'd	23 B. C. Pass.	5 P'tic Ex.
a m	p m	p m				p m	p m	p m		a m
9 00	3.02	8.15	a m	.....	.....D.Chicago.A..	6.30	2.00	9.10	....	6.30
11 25	4.50	10.30	6.00	.....	.....Valparaiso.....	4.10	12.05	7 20	....	4.30
p m										
1.10	6.15	12.00	10.05	....	.....South Bend.....	2.35	10.40	5.55	.....	3 07
1.55	6.55	12 45	12.40	....	.....Cassopolis	1.55	10.05	5.20	.....	2.25
2.40	.....	*1.33	3.42	....	.....Schoolcraft.....	1.10	.....	.....	.....	.....
2 50	7.40	1.48	4.30	a m	.....Vicksburg.....	1.00	9.20	.....	p m	1.30
3.35	8.15	2.40	6.20	7.01	.....Battle Creek.....	12.15	8.35	4.00	9.35	12.50
4.42	9.03	3.25	.....	7.47	..... Charlotte.....	11.14	7.53	3.19	8.40	11.55
5.20	9.32	4.00	.....	8.20	.....Lansing.....	10.40	7.25	2.55	8.00	11.25
6.30	10.23	5.03	.....	9.30	.....Durand.....	9.35	6.36	2.10	6.50	10.23
7.30	10.50	5.40	....	10.05	.....Flint.....	8.35	6.10	1.45	5.47	9.40
8.35	11.20	6.15	.....	10.43	.....Lapeer.....	7.49	5.39	1.18	5.10	9.05
8.42	a m	6.35	.....	11.06	.....Imlay City.....	7.28	.....	.....	4.48	8.45
9.40	12.30	7.30	....	12.05	.....Port Huron.....	6.50	4.30	12.15	3.50	7.55
	p m	a m		a m		a m	a m	a m	p m	p m
9.25	.....	7.35	....	11 50	.....Detroit	.....	.....	11.30	4.05	8 00
	a m	p m		p m			p m	a m		p m
.....	8.00	4 55	....	7.35	.....Toronto.....	.....	10.30	7.35	....	1.00
	p m	a m		a m			a m	p m		
.....	6 40	7.15	....	7.15	.....Montreal.....	.....	9.15	8.00	....	.....
	a m	p m		p m			p m	a m		
.....	8 12	7.00	....	7.00	.....Boston.....	.....	7.30	9 00	....	.....
	a m	p m					p m	a m		p m
.....	7.00	4 55	....	....	.....Susp'n Bridge.....	.....	11.10	7.05	....	2.00
	a m	p m					p m	a m		a m
.....	8.25	6.20	....	....	.....Buffalo.....	.....	10 00	6.15	....	11.15
	p m	a m					a m	p m		p m
.....	7.53	8.23	....	....	.....New York.....	.....	8.20	6.10	....	9.00
	p m	a m					a m	p m		p m
.....	7.17	7.48	....	....	.....Philadelphia..	....	9 00	8 00	....	9.45

Trains No 1, 3, 4, 6, run daily; Nos. 10, 11, 2, 23, 42 daily except Sunday.

All meals will be served on through trains in Chicago and Grand Trunk dining cars.

Valparaiso Accommodation daily except Sunday.

Way freights leave Nichols eastward 7.15 a. m.; from Battle Creek westward 7.05 a. m.

† Stop only on signal.

A. R. Mc INTYRE,
Asst. Supt., Battle Creek.

A. S. PARKER,
Pass. Agent, Battle Creek.

MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected Nov. 29, 1896.

EAST.	8 *Night Express.	12 †Detroit Accom.	4 †Mail & Express.	10 *N. Y. & Bos. Spl.	14 *Eastern Express.	22 Accom.	36 *Atl'ntic Express.
Chicago.....	pm 9.40		am 6.50	am 10.30	pm 3.00	pm 4.15	pm 11.30
Michigan City.	11.25		8.48	pm 12.08	4.50	6.20	am 1.19
Niles.....	am 12.38		10.15	1.00	5.55	7.40	2.38
Kalamazoo....	2.10	am 7.20	11.52	2.08	7.16	9.05	4.12
Battle Creek...	2.55	8.10	pm 12.50	2.42	7.55		5.05
Marshall.....	3.25	8.38	1.20	3.09	8.19		5.27
Albion	3.52	9.05	1.45	3.27	8.40		5.49
Jackson.....	4.40	10.00	2.35	4.05	9.20		6.33
Ann Arbor.....	5.45	11.05	3.47	4.58	10.17		7.35
Detroit.....	7.10	pm 12.20	5.30	6.00	11.20		9.00
Falls View.....					am 5.23		pm 4.08
Susp. Bridge ..					5.38		4.23
Niagara Falls..					5.53		4.37
Buffalo.....				am 12.10	6.45		5.30
Rochester.....				3.00	9.55		8.40
Syracuse				5.00	pm 12.15		10.45
Albany				8.50	4.50		am 2.50
New York.....				pm 1.45	8.45		7.00
Springfield ...				12.10	8.34		9.33
Boston				3.00	11.35		10.45

WEST	7 *Night Express.	15 *NY.Bos. & bf.Sp.	3 † Mail & Express.	19 *N.Shore Limited.	23 *Weste'n Express.	13 † Kalam. Accom.	37 *Pacific Express.
Boston		am 10.30		pm 2.00	pm 3.00		pm 7.15
New York.....		pm 1.00		4.30	6.00		9.15
Syracuse		8.30		11 30	am 2.15		am 7.20
Rochester.....		10.37		am 1.20	4.10		9.55
Buffalo.....		11.45		2.20	5.30		pm 3.25
Niagara Falls..					6.13		4.06
Falls View.....					6.45		4.42
Detroit.....	pm 7.50	am 6.30	am 7.15	8.30	pm 12.55	pm 4.45	11.05
Ann Arbor.....	9.10	7.35	8.43	9.25	1.55	5.55	am 12.15
Jackson.....	10.45	8.35	10.48	10.30	2.57	7.35	1.25
Battle Creek...	am 12.00	9.48	pm 12.15	11.40	4.14	9.11	2.55
Kalamazoo	12.50	10.27	1.07	pm 12.17	4.52	10.00	3.40
Niles.....	1.10	11.48	3.10	1 45	6.27		5.03
Michigan City.	4.26	pm 12.50	4.32	2.45	7.25		6.01
Chicago.....	6.30	2.40	6.35	4.30	9.05		7.50

*Daily. †Daily except Sunday.

Train No. 6, Jackson Accommodation, will leave daily at 7.20 p. m., and train No. 5, News Express, will leave daily at 5.05 a. m. for Kalamazoo.

Trains on Battle Creek Division depart at 8.10 a. m. and 4.35 p. m., and arrive at 12.25 p. m. and 6.35 p. m. daily except Sunday.

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

GEO. J. SADLER,
Ticket Agent, Battle Creek.

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Three Routes to California.

The "Sunset Route." The renowned and popular Winter Route via New Orleans to San Francisco and the route of the famous SUNSET LIMITED.

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Round-Trip Tickets to principal Pacific Coast points that read going via any of the Southern Pacific Company's three routes, SUNSET, OGDEN, or SHASTA, and returning via the same or either of the others, are on sale at all important railway stations.

The famous SUNSET LIMITED, the finest train extant, leaves New Orleans every Monday and Thursday; direct connections from the North and East; running solid through to Los Angles and San Francisco.

For tickets, sleeping-car accommodations and information regarding rates and routes to the Pacific Coast, call at Company's Office, 233 Clark St., Chicago, or address,

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ILLINOIS CENTRAL

CENTRAL I.C. R.R. ROUTE.

Solid, Fast, Elegantly Equipped Vestibule Trains

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DAYLIGHT SPECIAL—DAY TRAIN
Free Reclining Chair Cars.
Pullman Buffet Parlor Cars.

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Free Reclining Chair Cars.
Pullman Buffet Open and Compartment Sleeping Cars.

See that your ticket between Chicago and St. Louis reads via the Illinois Central.
It can be obtained of your Local Ticket Agent.

A. H. HANSON, Gen'l Pass'r Agent, Chicago.

C. C. McCARTY, Div. Pass'r Agent, St. Louis.

SUPPLEMENT TO DECEMBER NUMBER.

GOOD HEALTH

EDITED BY J. H. KELLOGG, M. D.

VOLUME XXXI

GOOD HEALTH PUBLISHING COMPANY
LONDON, ENGLAND; NEW YORK CITY; BATTLE CREEK, MICH.
1896

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GENERAL HYGIENE.

HOME GYMNASIUM.

HOME CULTURE.

HOME TRAINING-SCHOOL.

EDITORIAL.

CHATS.

ANSWERS TO CORRESPONDENTS.

RELIEF DEPARTMENT.

LITERARY NOTICES.

Something New

...IN...

Canned Goods.

The Battle Creek Sanitarium Health Food Co. has recently added to its large plant a complete canning establishment equipped with the most modern machinery, and is producing a grade of goods in this line

Positively Above Competition.

The system adopted is such that the crops grown on the immense farms of the Sanitarium are secured at just the moment when in the finest condition, brought to the cannery and preserved while yet fresh, thus retaining the natural flavor of the products. Only the **choicest varieties** are planted. No stale goods used. The stock includes

Choice Sweet Wrinkled Peas, a Choice Variety of Tomatoes, String Beans, and Squash.

These goods, as well as the other Health Foods manufactured by this Company, are produced with special reference to healthful properties, and can be relied upon as **STRICTLY PURE.** Send for price list.

Battle Creek Sanitarium Health Food Co.,

BATTLE CREEK, MICHIGAN.

J. FEHR'S . . . .

"COMPOUND TALCUM"

"Baby Powder,"

The "Hygienic Dermal Powder" for Infants and Adults.

Originally investigated and its therapeutic properties discovered in the year 1868 by Dr. Fehr and introduced to the Medical and the Pharmaceutical Professions in the year 1875.

Composition.—Silicate of Magnesia with Carbolic and Salicylic Acid.
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USEFUL AS A GENERAL SPRINKLING POWDER, WITH POSITIVE HYGIENIC, PROPHYLACTIC, AND THERAPEUTIC PROPERTIES.

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