The Young Mother's Number

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GOOD HEALTH

A Journal of Hygiene

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HEREDITY

BY J. H. KELLOGG, M. D.

THE facts of heredity are well established. Children resemble their parents and ancestors, and very close likenesses may be sometimes traced through several generations. The phenomena of heredity are familiar to all, but how are we to explain the principle or the method by which individual characteristics are transmitted from one generation to another?

How is it possible that the microscopic speck of life, which constitutes the earliest beginning of a human being, can contain all the potentialities of a king or a philosopher? Using an illustration suggested by the late Oliver Wendell Holmes, every individual human being is simply "the summing up of a long column of figures reaching back to Adam." How is it possible that so great a sum can be contained in so small a speck? Practically cut loose from the parent stock, only absorbing nutriment from it, this minute speck grows, develops, unfolds, until born into the world, a helpless little bundle of tender flesh and bones, apparently little different from millions of other human buds. And yet in actual fact it is as widely distinct from any other living thing as when it shall have attained mature development!

The answer must be found in the law of continuity. The divine mind is ever consistent in all its processes. Wheat always produces wheat; tobacco seed grows tobacco, thistle seed, thistles. A twig from an apple tree, grafted into a thorn bush, bears apples; a rose branch engrafted upon an apple tree bears roses still; a willow twig cut off from the parent tree and thrust into the ground, grows up a willow, and not an oak. And why? Because infinite consistency will not permit confusion. God's laws are not arbitrary enactments, but simply his habit of doing things. The rosebud grafted on the thorn bush is still a part of the original stock, simply growing in a different place. The child is a bud, an extension of the parents; not of the parents' life only, but of their bodies and their personalities.

The whole human race is simply an extension of the first pair. For the child to be unlike his ancestors would be as inconsistent and unreasonable as for the leaves or fruit of a young tree to be unlike those of the parent stock; for the child is simply a branch, a developing bud. The divine creative power which observes the law of consistency by building each branch and twig and leaf of each particular tree in absolutely consistent harmony with the conditions under which the individual tree and all its predecessors have grown, and are growing, works in the unfolding human bud, and builds it up to manhood or womanhood, in harmony with this same principle of consistency.

In no other way could the law of sowing and reaping be fulfilled. Parents

sow; great grandchildren reap. When David said, "In thy book were all my members written," he was simply expressing a truth which applies to every human being, a principle which concerns the whole race and embodies this great law of the extension of life and individuality from one generation to another. Heredity is God's method of book-keeping.

TO LITTLE "SUGARLUMP"

SHE is his crown, his blessing,
His joy the whole day long.
She's the wonder that keeps him guessing
Why the grace of God's so strong
As to let him, a common mortal,
Be the father of pure sunshine;
And he says, with a reverent gesture,
"She personifies God's love and mine."
By permission. — *Eisenmann.*

WHAT MOTHERS SHOULD KNOW ABOUT THE HYGIENE OF INFANCY

BY KATE LINDSAY, M. D.

HYGIENE is the science which treats of the causes of disease and the best methods for removing these causes, the means of preserving health, thereby prolonging human life and decreasing sickness.

The first years of life are the period of greatest sickness and highest death-rate. The death-rate between birth and one year, in the city in summer, is often as high as eighty per cent, and in most cases this high death-rate is due to avoidable causes. One ceases to wonder at this slaughter of the innocents when he considers that most young mothers find themselves with their first baby in their arms with about as much knowledge of how it ought to be cared for as the little girl when she plays with her kitten or first doll, and the poor helpless mite of humanity often receives as hard usage as a kitty carried by the tail, or a dolly deluged under the faucet,— loved or abused and beaten according to the ignorant impulses of the little embryo mother.

The best hygienic condition which falls to the lot of an infant is to have a healthy, happy, sensible mother, who welcomes its arrival and gives up her life and her all, for the time being, to motherhood; who knows what are the conditions upon which infantile health and life depend, and can use this knowledge practically for its welfare. As a mother, her duty and relation to her infant and its education is nearest and most important during the nine months of pre-natal life; for every atom of material entering into its structure is modified by the state of her health, and all her habits of life — eating, drinking, sleeping, and exercise — as well as impulses and emotions, as fear, anger, envy, and every unchristian emotion or passion.

The Bible contains one lesson of Heaven-given instruction in regard to

how the unborn child should be educated. The instruction is all given to the mother and is emphasized by being repeated. "Now therefore beware, I pray thee, and drink not wine nor strong drink, nor eat any unclean thing." (Judges 13:4–14.) When Manoah, not satisfied with his wife's version of the angel's instruction, entreated for another interview, the same instruction was repeated, — indulge in no strong drink and eat no unclean thing. In other words, take into the body no food or drink that will injure mind or body. This means the exercise of self-mastery, especially of the appetite, by the mother, and, for the child, an education in self-regulation before its birth, educating its appetite for simple foods and drink. This instruction given by inspiration thousands of years ago to the Hebrew woman, is just as binding on the mothers of to-day. What the prospective mother needs to do is to "eat no unclean thing," avoid poisons in food and drink; eat, drink, sleep, work, think and act just as she would wish her child to live every day; keep appetite, passions and emotions under complete control; be happy, hopeful, cheerful, giving herself up to her motherhood. She has to eat, drink, oxidize, build up tissue and eliminate for another body beside her own.

LITTLE "SUGARLUMP," A FOOD REFORM BABY.

The mother, young or old, should make the best of her lot, whatever it may be. Should it be possible, she should live where she can be out of doors a part of each day, among trees, flowers and green grass; and even in cities, parks and lawns can be made to do duty as educators of the unborn in Nature's wonders and beauty, and Nature's wondrous, loving Creator. The country mother always has the blue skies, clouds, and ever-varied beauty of landscape, summer or winter.

A day's program for a prospective mother should begin with a cool bath, as a sponge, mitten friction, or, if nothing better, a light, brisk dry-rub in the fresh air in her room. It will take but five minutes, and cleanse and tone up all the organs of the skin and enable her to begin the day aright.

In the matter of food, usually for the first three months but little can be taken and retained. At this time the demands of the fetus are small, and Nature is giving the digestive organs a partial rest to prepare them for more vigorous work later on. Care should be taken to keep the bowels regular, and to eat only the kind of food relished, and that of simple composition, taking the chief meal at the time in the day when there is least tendency to nausea. After eating, being out of doors and away from all

odors of cooking foods will help to retain the meal; and, as often the nausea is due to mental impressions, good results will often come from having cheerful company after eating, or taking a walk or ride. The regulation of the diet, which should consist principally of fruits, grains and vegetables, must be modified by the condition of the patient's digestive organs. If there are any digestive disorders, as catarrh of the stomach, often a lavage will do good by freeing that organ of catarrhal and other unhealthy exudates.

Sleep should be taken at least seven or eight hours a day, if possible. Go early to bed and take a midday nap.

Exercise by walking in the open air several times a day.

The dress should be light, and all suspended from the shoulders. Usually three garments are enough,—a union suit of material suitable to the season, a skirt of some light material, cut princess style, and a tea gown, or a dress-skirt arranged on a sleeveless dress form, and over it one of the many full-fronted loose blouses or dressing-saques of the day. When on the street, some loose-fitting light coat should be worn; broad-soled, low-heeled, well-fitted shoes, and warm stockings, either fleece-lined cotton, or woolen, as best suits the wearer. Dress as lightly as the season will permit.

Do housework, garden work, or have such occupation as gives light exercise to all muscles of the body, avoiding jars, strains, heavy lifting, running sewing machines, and all sedentary occupations, as typewriting, sewing, bookkeeping, etc. The baby will need clothes, but the simplest style is best, — a few plain slips, soft gauze shirts, and plain princess skirts with long sleeves. The making need take but a few hours, or they may be bought at the store ready made.

A tepid sitz bath at night (temperature 96° F.) for ten minutes will promote sleep.

The best thing for the mother to make ready for her child is the ability to feed him proper food, which is mother's milk, give him proper air and water, keep him clean, dry and quiet, and protect him from being imposed upon by others.

At her confinement a mother should be attended by both a good physician and a well-trained, sensible nurse who will prepare everything, including her room, aseptically; who will wash, dress, handle and feed the infant properly, also take good care of the mother.

Baby's basket should contain shirt, skirt, slip, night-dress, knitted bands, diapers, a roll of clean muslin or linen rags, clean tape or cord, scissors, powder, soap, vaseline, and a clean old blanket, for baby's first wrap.

For the first few weeks of its life the baby is educated wholly by touch or contact. Whatever touches it normally, makes it feel quiet and restful. Whatever touches it so as to give it discomfort, makes it nervous and disturbs all its bodily functions.

The average normal infant weighs from seven to ten pounds at birth and loses about a half pound the first three days. After that it should gain an ounce a day for six or eight weeks; and after that five ounces a week. The weight is a very good evidence as to whether baby is doing well or ill.

At birth its stomach capacity is from six to eight teaspoonfuls.

Eighteen to twenty hours' sleep are required daily. The infant's bowels should move from two to six times a day, and the bladder may act every hour or two during the first month.

When the child is free from discomfort, either from bad diet, pins pricking, rough clothing irritating the skin, wet or soiled napkins chafing, being too hot or too cold, insect bites and the like, it will be so quiet that it will hardly be known that it is in the house, for the first two months of life.

Never allow the child to be excited or handled roughly. Never allow it to lie in wet clothing, night or day, or to be chafed or given anything but Nature's food at regular intervals, and water between meals. When fretful, find out what ails it, and remove the cause of its discomfort. A little painstaking at this time means rest for both mother and child, and will insure a healthy, happy future life for the little one.

AN EXPERIMENT

BY KATHLEEN L. GREIG

SEVERAL years ago, three travelers who were crossing the Brunig Pass, in the heart of the Bernese Oberland of Switzerland, were discussing the subject that lay nearest the heart of each—their chronic ill health. They passed the first part of their journey exchanging views on the many different remedies tried by each without success, and reciting their woes with such eloquence that tears of self-pity often blotted out the landscape that lay below them like a bit of paradise, upon which they, like the peri, might only look through "closed gates," for walking, climbing, and the like, was not for such as they.

They represented three different nations. The French woman, who was pitifully emaciated, told the others that the air of the Alps was her last hope. Food could not build her up—this she knew, for she had tried the most nourishing diet, consisting of a large piece of rare beefsteak and a cup of warm cream for breakfast, rich soup and an abundance of meat for luncheon, and a full course dinner at night.

The German listened with polite interest, but was forced to admit that mere loss of vitality would seem like bliss to her, who had borne for years the tortures of a deranged liver. What could be worse than seeing one's beauty spoilt by a sallow complexion, and feeling that constant, hopeless depression and eternal weariness.

"There is something worse still," interrupted the American pie-eater; "it is to know that every morsel your hunger prompts you to eat is going to cause you an agony as exquisite as any ever produced by the implements of torture we saw exhibited in the Tower of London."

Then a silence fell upon them. The train had come to a sudden stop at a lonely Alpine station, and the three martyrs, gazing out of the car window with gloomy eyes, looked straight into the shining brown health-illumined orbs of a mountain goat who was munching her frugal meal of wilting grass in serene content, never dreaming of the unconscious envy that shone in the eyes of the three watchers.

"What perfect health that happy creature has," said one, and sighed softly.

"And never took the least bit of care of it," said another.

At that moment a plan was born in the brain of the third. A long discussion began, and the outcome of it was

THE CAUSE OF THE EXPERIMENT

that the next day the three were not installed in the fashionable hotel to which their baggage had been directed, but in a humble little Alpine hut that could not boast of a single luxury, save perfect cleanliness. And then began the new life of these three, who, at the beginning, kept on with the experiment only because pride forbade each from being the first to give up.

The owner of the Alpine hut — a sturdy, health-radiating peasant — supplied them with well-baked, wholesome bread, and the milk and butter of a healthy cow who lived out her happy life knee-deep in Alpine grass and flowers.

The little garden furnished them with crisp vegetables, while a few fruits and berries were bought in the valley. This constituted their entire bill of fare.

At first each in her heart regretted having tried the experiment. There were moments when the lady of France wondered if it were possible to sustain life on such a meager diet, when the most bountiful supply of food had barely sufficed. She of Germany often sighed for the flesh-pots of Egypt; while the American was filled with a nameless longing for just one good big mince pie, and a dozen or so of doughnuts. But as the days went by, overpampered nature got a chance to readjust itself, and the world took on a different tone.

One day the German, whose complexion was now like alabaster and roses, waved aloft a bunch of the fragrant vegetables that had been an important part of our diet so long, crying, "These should be the subject of song; look at me now!" and the lady of the land of chivalry, who was just returning from a five-mile tramp, laughed joyously. The American pondered a moment; "I am thinking," she said, "of a story I once read of a little boy who, when asked by his father's dyspeptic friend, 'Have you ever had dys-

pepsia?' asked, 'What is dyspepsia, Pa?' I, too, feel as if I did not know the meaning of the word, it is so long since I have felt its pangs."

That autumn, when the cold mists began to creep down from the hills, three joyous, healthy, life-loving wanderers traveled back over the Brunig Pass. How different the world seemed! The miracle of happiness was wrought in them by simple living, exercise, and fresh air. And one of them has lost all craving for unnatural food; in fact, I would not eat the best mince pie ever made, if it stood before me at this moment.

SHORT COATING THE BABY

BY MRS. E. E. KELLOGG

LONG garments, always more or less an impediment to the free use of the limbs, are a constant hindrance to the physical development of the healthy, vigorous young child. There is no especial reason, save the conventional one of custom, why short garments should not be worn from the first, if the feet and limbs are otherwise properly protected for warmth. Some busy mothers, who have little time for sewing, have adopted this plan and use short clothes after the first month, up to which time only night gowns are needed, since most of the babe's time is spent in sleeping.

During its prenatal life, the upper portion of the infant's body is better nourished than the lower, so that at birth the arm muscles are comparatively better developed than those of the lower extremities. Nature, however, endeavors to make up for this lack by giving the infant the inclination and energy to exercise its legs and feet by vigorous kicking during the earlier months of life. Long skirts greatly interfere with this necessary, normal exercise, and should be discarded, at least by the time the healthy child is five or six months of age, if not sooner. The time must be somewhat dependent upon the season, as it is not advisable to make the change in the winter, particularly if the environments are such as to make it probable that the little one would take cold thereby.

The short clothes should conform to all hygienic requirements, should equably protect every portion of the little body and nowhere constrict it. The mother would be considered culpably cruel who would pinch the baby's tender flesh with her fingers.

EQUABLY CLAD FROM THE FOUNDATION

Is it any less cruel to pinch the soft growing body with tight garments?

Soft rib-woven shirts, long-sleeved and high-necked, should form the foundation garment. There are several excellent varieties to be had in either cotton, wool, or silk, but for some reasons, that called the "Ruben's shirt" is especially desirable. It fastens without buttons, and affords a double thickness for protection over the chest and abdomen. Meeting the shirt and fastened to it at points sufficiently numerous to prevent any open spaces between the garments, we have next, the diaper. Safety pins may be used for fasteners, provided squares of strong cloth are sewed to the shirt where the pins are to be used, to prevent them from tearing holes. Warm stockings, of a thickness varying with the season, and covering the entire limbs, should reach to the diaper. These may for a time be fastened to it, but when the baby begins to creep and walk, a separate waist with stocking supporters is preferable. This waist should be elastic in character. There are several such obtainable at a nominal price, the Nazareth and the Minneapolis knitted waists being among the number. Children grow so rapidly that it is unwise to fit them to waists which allow for no expansiveness. If one cannot obtain

DIAPER FOLDED LIKE DRAWERS

DRAWERS

the knitted waists, the best plan is to provide some of soft material made with several tucks running lengthwise under the arms, which may be let out from time to time to accommodate the growing form. Mothers should carefully guard against the little one's garments becoming too tight, from being outgrown, or shrunken. It is the wisest plan to take careful measurements of every part of the little body from time to time with a tape measure, and then of the clothing; compare the measurements and adjust the garments so that at all times they will be larger than the growing form they cover.

The diaper as usually doubled and pinned, serves as a hamper to freedom of movement when the little one begins to creep and walk. If such is still needed, it is an excellent plan to double it straight and put it on like drawers, lapping the edges at each side to fit, and fastening securely with safety pins. This plan affords the little one ample freedom to exercise its limbs, and is so much more convenient in the training to tidy habits that a trial brings it at once into favor.

Drawers may be made to wear over the diaper and buttoned on the sides as shown in the illustration, or sewed together for use after the diaper is dispensed with. In either case, they should be buttoned to the knitted waist.

In cold weather, additional warmth for the limbs must be supplied by leggins, leglet drawers or tights.

Underskirts, whether one or more be needed, as determined by the weather, are preferably made after the simple princess model. A skirt sewed to a waist is not objectionable when care is taken, through the making fre-

THE PRINCESS UNDER-SKIRT

UNDER-SKIRT WITH WAIST

A Serviceable Dress

The Creeping Apron

quent changes, that the waist never becomes tight. Whether or not the skirt demands sleeves, depends upon the season and the other garments worn. It should be borne in mind that the arms require to be as warmly clad as other portions of the body. The admiring mother should not yield to the temptation to leave either the baby's plump arms or legs bare in ordinary weather. Chilling is far more apt to occur when only a portion is uncovered than when the whole body is exposed.

To complete the foot covering, shoes of soft kid are required. Their shape should be that of the child's foot with soles sufficiently broad not to cramp or misshape the little member, the tissues of which are so soft that deforming the foot by improper shoes is a very easy matter.

So many pretty and suitable designs for the outer dress are in vogue that there is ample room for choice. The little bishop slips are especially simple and convenient to launder. Round, square and pointed yokes with full skirts gathered thereon make very dainty garments for the first short dress. When the little one begins to walk and climb about, the fulness of the skirt is, however, likely to be in its way. For this period a simple and very serviceable little dress may be made as illustrated in the accompanying cut. Such dresses, cut from an ordinary saque apron pattern, are easily made, easily washed and ironed, and may be given

The Toilet Complete

a variety of effects by differently trimmed and shaped collars.

Another very serviceable article for the baby's wardrobe is a creeping apron, so made as to confine all the other clothing. Openings for the legs with bands to fasten just below the knee, give the necessary freedom of movement.

The wise mother will choose more durable materials for the short dress of the creeping, climbing, rollicking baby than was needed for its first tiny garments. Only such fabrics as can be washed are suited to the purpose. If the washing is a matter of consideration, as it is with many mothers, then it is wisdom to choose materials of soft colors for every-day use rather than white, which, although so fitting and beautiful, necessitates too great an amount of time and labor to keep the little one freshly and cleanly clothed. Besides, the baby garbed in white, is likely to be prohibited the free use of its powers from fear of soiling its clothes.

From ten to twelve dresses are none too many to provide for the little one's probable needs. Inexpensive materials such as soft ginghams, seersuckers and cambrics are well suited for common use. The baby's dress, like the frame of a lovely picture, should serve merely as a setting for the real gem. Let, therefore, healthfulness, suitability and simplicity characterize all the little one's garments.

THE BABY'S BATH

BY MRS. JESSIE R. MORTENSEN

GIVING the baby its bath is something in which every young mother takes great delight, and which very few babies do not enjoy. To be free from all clothing and allowed to kick and splash in the water is one of the baby's happiest experiences. Whether it shall be a sponge bath or a tub bath for the first few weeks or months is a question for each mother to settle, as both kinds are recommended on good authority.

Before the bath is begun, everything should be gotten in readiness — all the bath appliances, hot and cold water, and the fresh garments in which the baby is to be clothed. The room must be warm, with all doors and windows closed so that there shall not be the slightest draft.

When the clothes are removed, the baby should be wrapped in a warm, soft old flannel blanket, in order to avoid chilling. If given a sponge bath, only a portion of the body should be taken at a time, soaped, rinsed, and thoroughly dried, then covered up again to keep warm, before proceeding to another portion. If the tub bath is given, the temperature of the first baths should be 98° F., tried by a thermometer and not the hand. If it is impossible to obtain a thermometer, the bared elbow is a more reliable test than the hand. When the child is five or six months old, a cooler bath should be given, at a temperature of from 90° to 95°, and in the summertime still cooler, from 80° to 85°. The little body should first be rolled in a warm blanket and soaped with a soft washcloth, and then put into the bath, the back and neck being supported by the left arm and wrist, the left shoulder grasped with the hand. If the baby seems to enjoy the bath he can remain in it two or three minutes; and later, when he can sit alone, it is nice to let him have a rubber doll, or some such toy, in the water to play with, and remain for a longer time. For a child

from six to nine months old, or older, the bath should be cooled down from 80° to 75° just at the close.

Great care should be taken to avoid frightening the child in the bath by plunging him roughly into the water or in any other way, and never allow the head to become submerged.

If the little one is afraid of water, sometimes allowing him to use the dry tub to play in during the day will render him fearless of a tub bath. When the child cries and appears not to like his bath the matter should be carefully investigated to find out the occasion for the dislike, and remove it, if possible. It will usually be found that familiarity with the tub or the water in other relations will greatly aid him in learning to enjoy his morning ablution.

At conclusion of the bath the body should be thoroughly dried. Partially worn, soft diaper cloth makes an excellent towel for a tiny baby; it should be laid inside a blanket and the child rolled up in it and gently rubbed dry. Later, an old Turkish towel may be used. After the body is well dried with the towel, rub it with the hands, and make sure that under the arms, back of the knees, around the neck, and every little crease is dry. The using of powder is a disputed question, so the mother must use her own judgment about the matter. A pure powder is harmless, and helps to dry the little body should any dampness remain; but it is better to dry it so thoroughly with the towel that the powder is unnecessary.

A good, pure soap which is not irritating should be used. A transparent glycerine soap is good, but castile is probably the best. Some soap should be used on the body every day, and the hair, also, should be washed with soap every day until the child is six months old, after which, twice a week is enough for the soap, both for the body and hair, using the plain water on other days.

The bath should be given at a regular hour each day, not sooner than an hour after a meal. A nice time for the bath is in the morning before breakfast, but it is for each mother to decide for herself when is the most convenient time. The daily bath, properly given, is one of the most important hygienic measures in the care of the child. By its use the skin is kept clean and stimulated to activity, and it prevents the occurrence of the skin diseases common among children that are not properly bathed. It is necessary not only that the skin should be kept clean, but that the clothing also is clean and free from all irritating substances.

The short cool application at the close of the bath tends to stimulate the cutaneous circulation, and thus acts as a preventive against colds and catarrh.

MATERNITY

Sorrow Turned to Joy

BY E. E. ADAMS

WHAT has the earth to vie with this
In depth of woe, in height of bliss—
The travail pangs, the mother's kiss?

The anguish comes to mind no more
When after all the travail sore
The mother clasps the child she bore.

And yet each unremembered throe
Still moves her, changed to joy from woe,
The anguish turned to love's sweet glow.

Through passion, and through bitter pain,
Through cross, and sweat like bloody rain,
Lost human souls are born again.

Sweetest to God will ever be
His earth-born children — therein he
The travail of his soul shall see.

TRADING GOOD BEHAVIOR

BY MARY MARTIN MORSE

"I'M going to town." Queenie's eyes shone with an unmistakable light. There was an air of finality; the entire face wore a beyond-controversy expression.

Mama.—"Not this time. You can stay with grandma."

Queenie.—"You told me I could go to town ve next time you and papa went, and this is ve next time." (She had been told that promises when made *must be kept.*)

Mama.—"I thought you liked to stay with grandma."

Queenie.—"I haven't been to town wungst (once) for a long time. I'm going to town."

Mama.—"If you'll be good, and stay at home, I'll get you some candy."

Queenie.—"Umph, papa gets me candy *every time* he goes to town."

Mama.—"Well, I'll give you the black chicken." (A much-coveted possession.)

Queenie.—"What else?"

Papa.—"You shall have the biggest duck." (The dearest duck of all.)

Queenie.—(Softly) "Goody." (Taking advantage of her royal prerogative): "If I stay at home I'll have something more." (Not a whine, not a whimper from the Dictator. No speculator on Wall Street ever watched the market with more nonchalance.)

Papa and Mama.—"What shall it be?"

Queenie.—"The big calf."

Papa.—"Very well; you shall have the big calf."

Queenie.—"All right: I'll stay."

Sometimes injury and insult are combined, and the "black chicken," the "biggest duck," and the "big calf" are disposed of without consulting the owner.

Did you ever wonder, when reading of the astounding frauds, bribery, etc., that are draining the life-blood of the nation, if the primary class in which the lessons were taken was not held within the precincts of the home?

How often the future good of the child is sacrificed to relieve the parent from present unpleasantness or inconvenience. How many a child has a lifelong warfare to wage with pre-natal and post-natal characteristics for which parents are either directly or indirectly responsible. The wisest and bravest, when they reach years of discretion, do not excuse themselves for hereditary tendencies, but try to understand them, and shape their life efforts accordingly, as they would take account of business assets if about to embark in some financial enterprise.

What artist at work on a painting where the dark shadows already predominated would think of using only black, simply because he had inherited several tons of black paint? Yet that is practically the treatment many a life canvas is receiving.

How lamentable to make the beds in which we must lie, of nettles and thistles, when better material is equally accessible.

JAPANESE COAL HEAVERS

BY E. E. ADAMS

AT the present time there is much interest in things Japanese. There is also considerable agitation over the question of a vegetarian dietary, and many are watching with interest for the results of the diet experiment of Professor Chittenden with the soldiers at Yale College, wondering if it be possible to exist without the use of flesh foods.

A glance at the Japanese wrestlers of Tokio, whose size and strength have been developed without the use of flesh food; or at the joyful little rice-eating coalers of Nagasaki, would solve this problem in a moment.

The coaling at Nagasaki is a most interesting proceeding to a visitor. This Japanese seaport is filled with dockyards and repair shops, and is visited by ships of all nations, for repairs and coal supplies. As soon as a steamer arrives, broad planks are arranged up each side of the ship by the nimble Japs, and on these they stand in line while a stream of baskets filled with coal, passes from hand to hand, from the coolies in the lighter shovelling the coal into the baskets, to the last man, who empties it over the bunkers' mouths. Women and boys assist in the work, which is carried on with zeal and unflagging energy and enlivened with chatting and chanting.

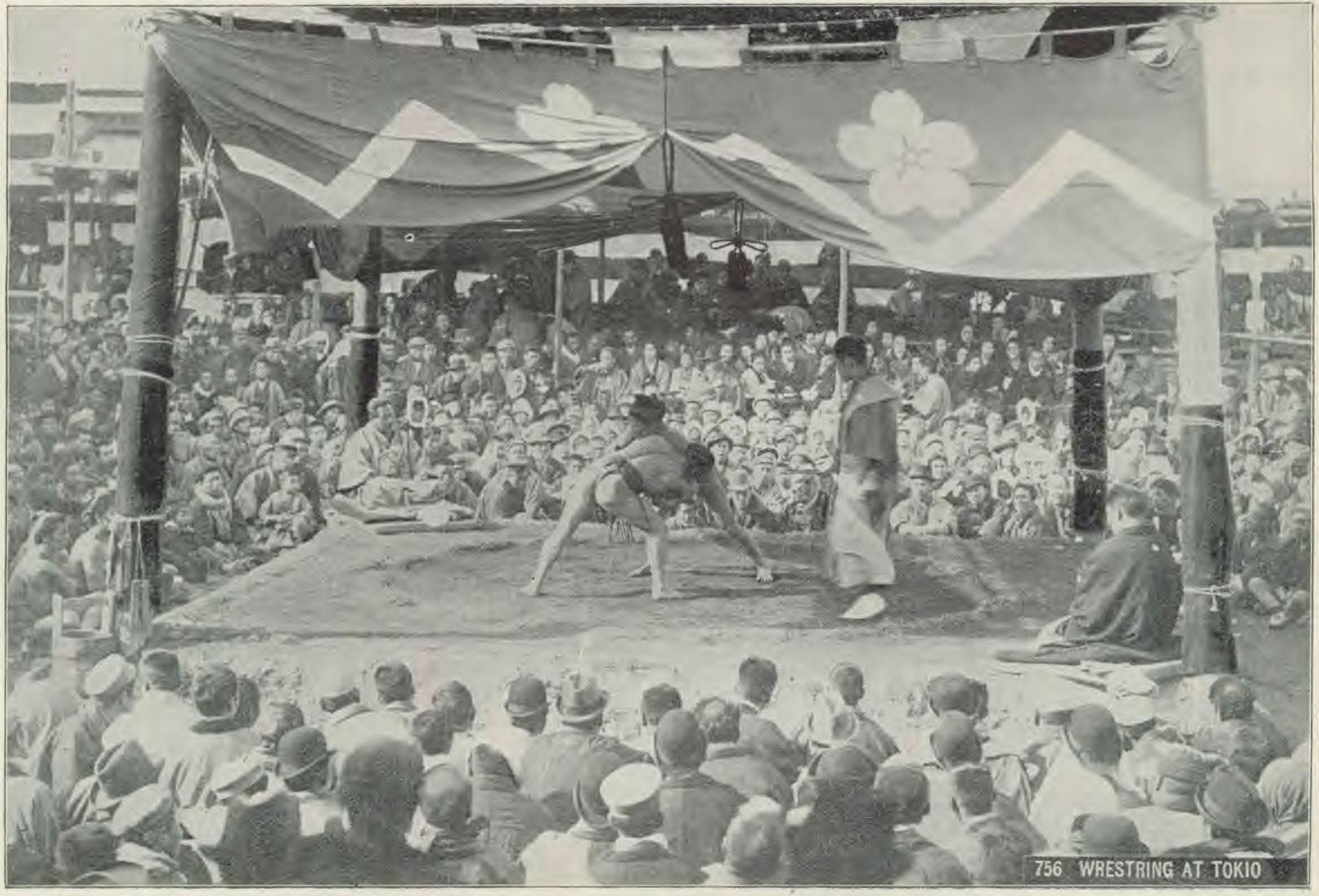
The incredible speed with which they work, enables the Japanese coolies, working by hand in this way, to coal vessels much more rapidly than it has ever been done by steam power, overhead machinery, and elevated tracks for coal cars. A visitor to Nagasaki writes:

"Three years ago, after an eleven days' detention in quarantine here, my ship was brought into the harbor at 7 in the evening. In half an hour the work had begun, and, notwithstanding a deluge of rain at 10 o'clock, coaling never flagged until 1 o'clock in the morning. In that time 1,550 tons had been put aboard, and the lighters swung away with all crews cheering joyfully, for the coal company had promised them forty-eight hours' holiday, free baths and saki, if they would get the quarantine steamer away quickly.

"Since then 1,210 tons have been put aboard ship in three and a half hours. This rate of 372 tons an hour was the marvel of the initiated until this spring, when 420 tons an hour went to the credit of the cheerful, joyful little Nagasaki coal passers. At this last record-breaking performance, 2,100 tons were put aboard in five and a half hours, during which time each gang had a half-hour's rest for their mid-day meal."

The diet of these indefatigable and cheerful workers consists almost exclusively of rice. Among country folk this is supplemented by beans, peas, millet and barley. Pickled and salted relishes are used with the rice to give it flavor, and salt fish is also used for seasoning; but the staple article of dietary is the Japanese rice, more solid and glutinous than the Chinese variety, which is much cheaper. For a lighter meal, the coolie classes make use of soba, a macaroni made of buckwheat.

All day long, and often at night also, the Nagasaki harbor rings with the chant and laughter of these healthy, capable workers, who have been designated as "probably the happiest and most contented poor that one may find in the world."



JAPANESE WRESTLERS

BATTLE CREEK SANITARIUM NURSES: FOOD REFORMERS AND FLETCHERIZERS

THE EXPERIMENT SQUAD

SOME time ago the government selected a number of soldiers to be put under the care of Professor Chittenden at Yale College for the purpose of conducting a series of diet experiments. The result of these experiments is being watched with interest by thousands who are interested in rational dietetics. Notwithstanding some ridiculous newspaper reports to the contrary, we are informed by those who are thoroughly familiar with the facts and who have seen the soldiers, that they are in fine condition, and improving under the simple and natural regimen to which Professor Chittenden is subjecting them. The ration with which these soldiers are being fed, contains little or no meat, as it is desired to ascertain the effects of a cereal diet; and the results of the experiments will doubtless be to show the non-utility of a flesh diet, as Professor Chittenden has clearly demonstrated in his personal experience within the last year.

Whatever the results of this experiment may be, the bearing upon practical dietetics will be very small, for experiments extending over a much longer period of time, and hence much more decisive in the results obtained, have been conducted many times. Prominent among these may be mentioned the experience of the Battle Creek Sanitarium, the managers and employees of which, numbering constantly from six hundred and fifty to one thousand, during a period of forty years have strictly abstained from the use of flesh foods. Nowhere can a healthier, stronger, and more enduring class of people be found than in this institution. This fact may be inferred from the accompanying cut, which presents the members of a class of nurses recently graduated in this institution after having been for several years subjected to a strictly natural regimen, meat in any form never entering into the bill of fare in this institution.

That meat and a flesh diet is as unnatural for man as for a horse is clearly shown by man's physical structure. Whether we examine the tissue, stomach, or any other portion of the alimentary canal, the story told is the same. Cuvier, the great naturalist, Huxley, and other competent naturalists, all testify that man is by nature an eater of fruits and nuts, like the chimpanzee, the orang-outang, and other anthropoids. That he is able to tolerate the use of flesh is due to the remarkable power of the body to adapt itself to new and even unnatural conditions. While it is possible for man to live on a mixed diet in which meat enters more or less largely, he pays a severe penalty for his violation of the laws of nature, in the form of rheumatism, gout, neurasthenia, cancer, Bright's disease, and other maladies more or less particularly attributed to uric acid, from which meat-eating patients suffer more and more in proportion to their use of flesh as food.

Know, whate'er
Beyond its natural fervor hurries on
The sanguine tide; whether the frequent bowl,
High-seasoned fare, or exercise to toil
Protracted; spurs to its last stage tired life,
And sows the temples with untimely snow.—*John Armstrong.*

THE DAILY REGIMEN

BY MRS. NEWTON EVANS

THE newly born of all animals and of all classes of the human race are to a greater or less degree dependent upon the mother for sustenance, guidance and protection. The more capable the animal, the more dependent the offspring, and the longer the period of infancy. Among the lower animals the offspring rapidly develop, and soon all connection between the mother and her young is forgotten. In the human family, the higher the degree of civilization the more closely do family ties bind those of the same blood, and the greater influence does the mother have upon the child, and the greater responsibility must she take upon herself in his care.

Birth is only an incident in the development of the child, and those make a great mistake who suppose that nothing can be done for its health and happiness before the date of its birth. The mother usually spends much time and thought in the preparation of the soft, dainty garments, that they may be in readiness for her child. This is as it should be, provided she does not tax her strength, worry her mind, and keep herself from a healthy life in the fresh air. The child's health as well as her own depends upon an active, happy life for the mother during the months of pre-natal development, as the infant's life is then in the most intimate way dependent upon the mother, receiving its blood-supply entirely from her.

Primarily, the child's life from the day of its birth should be methodical and well regulated. This will not only very materially lighten the mother's burdens, but will teach the child habits of life which will stay with him. The mother who has not tried, cannot believe how readily her child will acquire the habit of regularity. The feeding, the sleep, the bath, the outing, must all be given regularly. When this is done, the baby's fretful hours will be very materially lessened. We do not mean that the child will not cry. All normal children will cry sometimes. It is a natural and healthful exercise, but one of which the baby is quite apt to take enough without the encouragement of aches and pains.

Fortunately, the infant's health and happiness depend upon things which God has bestowed freely, and which should be denied to none — good food provided naturally by the mother, fresh air and sunshine, fresh water, warm and comfortable but by no means necessarily expensive clothing, and refreshing sleep. No undue stimulation of the mind in the way of entertainment is required, since the little brain has a large task before it in mastering the simplest things of life, and must be carefully guarded by a quiet, serene, but cheerful atmosphere.

There is a science as well as an art in the *handling* of a child. To some extent this comes naturally to a mother, but a few suggestions may not be out of place. Rocking, jolting and trotting, which children often receive in a vigorous way, are not only needless but really harmful. Such a habit need not be formed, and if already established, can be easily broken. Gentle handling, giving free use of muscles and enough restraint to keep from danger or from falling, is all that is necessary. In this way the baby will learn to be independent and to entertain itself. It is not best that someone shall spend all the time during its waking hours in " amus-

ing the baby." Let it be as free as possible and learn to be original and amuse itself. This will lead to a contented mind in later years.

Let the clothing be as simple, light, and warm and as easily adjusted as possible, with no extras in the way of trimmings and ruffles to get in the way and annoy the little one.

A baby should be out of doors as much as possible. Let it sleep, carefully covered and protected from the wind, in the open air when conditions will permit, and the naps will be longer. The child who has a properly administered daily bath and plenty of out-door air will seldom, if ever, have a cold, the disease which is the parent of so many human ills.

The following brief outline of a baby's day may be more or less closely followed according to existing conditions: The baby should sleep well during the night in a bed of its own by the side of the mother's bed, giving its mother the opportunity also for the refreshing sleep which she so much needs. After the night's sleep, the child is, of course, hungry and should be fed. He is then ready to amuse himself and digest his breakfast. If he is fed once in three hours, which is the usual interval after the first few months, the meal should be given two hours' time to digest, when the daily bath should be given.

After the bath and second feeding the baby will be ready for a good long sleep, out of doors if possible. This sleep may last till the next feeding time, after which the child will be ready to kick and play. In the afternoon let it be taken out for an airing. Early in the evening remove all clothing in a warm room and give the little one a chance to rest. Let this be a time of real freedom and pleasure to the child. After a good stretching and rubbing and rest, put on the nightclothes, feed the baby and put it to bed, where it should sleep with not more than one feeding during the night. The baby may be early taught to go to bed at a regular and early hour.

LITTLE FLO'S LETTER

A LITTLE baby brother had come to live with Flo,
And she wanted it brought to the table that it might eat and grow.
"You must wait a while," said mother in answer to her plea;
"For a little thing that hasn't teeth can't eat like you and me."

"Why, hasn't it got teeth, mother?" asked Flo in great surprise;
"Oh, my! but isn't it funny? no teeth, but nose and eyes.
"I guess," after thinking gravely, "they must have been forgot.
Can't we buy him some like Grandma's? I should like to know why not."

That afternoon to the corner, with paper, pen, and ink,
Went Flo, saying gravely, "Don't talk to me, or else you'll 'sturb my think,
I'm writing a letter, mother, to send away to-night,
And 'cause its very 'portant I want to get it right."

And this is the letter written by little Flo:
"Dear God, the baby you sent us is awfully nice and sweet,
But because you've forgotten his toofies, the poor little thing can't eat.
That's why I'm writing this letter, on purpose to let you know.
Please come and finish baby; that's all, from little Flo." —*Selected.*

THE NURSERY

BY MARY HEATH

THE nursery is one of the most important rooms in the house, and should be selected and furnished with great care. If unlimited means permit, this room of Baby's may be supplied with every comfort and convenience, yet if economy must play a part in the selection of fittings for it, it can still be made hygienic, pleasant, comfortable for its little occupant. But thought, time, and work must be spent on its arrangement.

Select a sunny room, to begin with, for every growing thing needs sun. Sunlight is a wonderful disinfectant, as well as Nature's stimulant and tonic for all ages. Don't save that large south room with three windows for a "guest chamber," and consider the tiny hall bedroom big enough for Baby. He ought to have the biggest, sunniest, pleasantest room you can give him, to grow and develop in. You will be well repaid for any sacrifice you may have to make when you see how happy and well he keeps.

Having, then, chosen a room where the sun can enter, do not shut out one ray of it with heavy curtains. Do not "trim" a window,— have green roller shades which can be drawn down while Baby sleeps, but spare him all dirt-collecting hangings or lace curtains.

Remember, too, that the windows serve to let in fresh air as well as light. Keep them open wide in summer, and in winter take the baby from the room at least twice a day and air it thoroughly. The nursery must be well ventilated. If possible, there should be a ventilator near the ceiling; but if this is not built into the room, open one window slightly at the top to let the impure air escape. Of course the windows will have to be closed while baby is creeping about the floor, but he can be taken up occasionally, and then the fresh air can be allowed to enter. On very windy or unpleasant winter days when he cannot go out of doors it is a very good plan to put on his wraps, open all the nursery windows wide, and carry or wheel him about the room for a time. Always remember that the baby needs plenty of fresh air.

The best floor covering for a nursery is that which can be most easily cleaned. A painted or hard wood floor, with a soft rug large enough to make a good-sized playing spot for his little Highness, yet not too large to be taken out and beaten frequently, is ideal. Of course, the floor must not be waxed, as this would make it dangerous for the little feet. It should be dusted thoroughly every day, and once a week wiped with a damp cloth wrung out of water containing a few drops of some safe disinfectant.

There should be no plumbing in the nursery, though running water near by is a great convenience. If there are any closets in the room they must be aired daily and kept scrupulously clean.

As to furniture, the simpler it is, the better. A dainty brass or iron crib, with white sheets, blankets and cover, which can all be washed frequently; a chest of drawers for Baby's wardrobe, some *little* chairs and one highchair for him, and a large rocker for nurse (wicker-ware is very good for this room), and a wooden box for the little toys, are all that is necessary. Window seats are "comfy" and serve as excellent places for Baby to take a sun bath, and a medium-sized kitchen table, enameled white, is a great convenience. On it Baby can be laid to bathe and dress

him or change his diaper, and nurse's back will not be tired leaning over a bed or chair. Of course some soft blanket should be put under the little body when it is placed on this table.

There are many other conveniences which may be added in furnishing the room. There are many conveniences designed "to help mother" which can be added as desired— baby jumpers, wheeling chairs, swinging chairs, etc. But these are unnecessary— some of them even more than that.

The walls of the room should be painted, rather than papered. Paper cannot be washed as paint can, and some colors in cheap papers are quite poisonous. Then Baby will be pleased and amused with some bright pictures, hung low enough for him to see them, but just out of reach of his fingers. But let them be good representations, genuine works of art. I know of one nursery which was made very bright and pleasant for its tiny occupants with very little expense. It took some time and thought on the part of a mother, and was a great success. She cut out of the magazines, advertisements, etc., all pictures which would be likely to interest children— pictures of dogs, horses, "chu-chu cars," boys and girls, etc., and when she had enough she made a dado of them across one wall of the nursery. She fastened them up (with the little glass thumb-tacks which come for the purpose), about five feet from the floor. They proved a constant source of amusement for the babies. Frequently she takes them down and replaces them with fresh, clean pictures. Trouble? Of course it is, but what of that? We cannot have anything right in this world without taking trouble about it, and no one so well repays one's trouble as Baby—bless him!

THE CHILDREN'S CORNER

THE ELECTRIC-LIGHT BATH

BY JAMES T. CASE

EVER since the discovery of the electric light, many observers have devoted much time and study to experiments for the purpose of determining the effects of the electric light upon plant and animal life. Siemens, in 1880, after exhaustive experiments with this artificial sunlight, concluded that the action of the electric light compared favorably with the powerful influence exerted upon plant life by the sun's rays. He found that an electric center of light equal to 1,400 candles, placed at a distance of seven feet from growing plants, appeared to be equal in nutritional effect to average daylight in March, while greater effects could be obtained by using light of greater intensity. He also found that plants exposed to ordinary daylight and six hours of electric light in addition were far superior to the others in color and vigor, and that strawberries and other fruits were fully equal to those raised under ordinary conditions, grapes better flavored than usual, melons of remarkable size, and bananas of unsurpassed flavor. These observations were in large part repeated and confirmed by experiments conducted at the Cornell University Agricultural Station in 1889 and 1890 which showed that the electric light acts as a tonic to plants and as a true vital stimulus.

The electric light was first used for curative purposes at the Battle Creek Sanitarium, where extensive experiments were made for the purpose of determining its value and the best methods of utilizing this new agent. The first device for utilizing the electric light as a remedial agent consisted of a cone of brightly polished metal in the apex of which was fitted an incandescent lamp. A number of intermediate products followed until perfection seems to have been attained in the cabinet electric-light bath, consisting of a cabinet, or small room, large enough to accommodate one person, lined with mirrors, containing fifty or sixty incandescent lights.

This form of electric light bath has been used very extensively during the last decade, especially in its home, the Battle Creek Sanitarium and its numerous branches, the great hydriatic institute of Winternitz in Vienna, and in hundreds of other health institutions throughout the world. The German firm which supplies the European demand for the "Lichtbad," as it is called, state that they sold over a thousand of these baths in three years.

The electric-light bath has become especially popular in Germany and England. Recently dispatches have been published in American newspapers and medical journals, announcing that the secret of King Edward's ability to go through with so much work with unimpaired vigor, lies in his Majesty's frequent use of the electric-light bath, which he has had installed both at Windsor and at Buckingham. King Edward became acquainted with the electric-light bath, and was convinced of its virtue, while under treatment at Homburg, Germany, where he had been directed by his physicians to take electric-light baths for gout. Following King Edward's example, Emperor William, King Christian, and many other members of the royal families of Europe have begun the use of the electric-light bath.

The electric-light bath has the advantage over other heating procedures in

that it produces vigorous perspiration without subjecting the bather to a hot atmosphere. Sweating usually begins at a temperature of about 90° F., and though the quantity of perspiration is more profuse, it appears in about half the time required to produce perspiration in other sweating baths.

THE HORIZONTAL CABINET ELECTRIC-LIGHT BATH

It is the radiant heat of the electric-light bath which is the important factor in the production of sweating, and not the temperature of the air in the cabinet. In the water baths, the Turkish bath, the steam bath, and hot air baths, heat is communicated to the interior of the body by conduction; but in the electric-light bath the effect is not dependent upon the heat of the air surrounding the bather, which is at the ordinary temperature, but upon the energy which is radiated from the incandescent lights into the body without heating the air. In other words the heat from the electric light penetrates the tissues of the human body in just the same manner as heat penetrates any other substance which is transparent, or nearly so. The skin and other structures of the body readily transmit the radiant energy of the electric light, which becomes transformed into heat by the resistance which it meets in the body, thus producing heat in the deeper tissues. This accounts for the early production of sweating in this bath.

Light as well as heat is endowed with curative properties. It is not only a matter of common observation, but it has been amply demonstrated by many scientific authorities, that light exercises a very powerful influence upon all the higher manifestations of animal and vegetable life. Light penetrates the skin, is germicidal, and affects the blood in such a way as to favor the production of new tissue. Winternitz, who first introduced the electric-light bath into Europe, states

that without any doubt radiant heat penetrates the tissues much better than conducted heat, and that the vitality of the tissues is influenced to a marked degree.

The cabinet electric-light bath is used in two forms, the horizontal and the upright. In the horizontal bath, the bather, lying upon a movable couch, is wheeled into the bath so that the whole body except the head is inside of the cabinet. This movable couch is provided with a glass top, beneath which are placed a number of lights, so that the under as well as the upper side of the body is equally exposed to the influence of the light. This form of the bath is very elegantly constructed and is a model of beautiful workmanship. In the upright cabinet, which is equally elegant, the bather sits erect, with the head left entirely free, as in the horizontal bath, thus insuring a continuous supply of fresh air for respiration.

THE UPRIGHT CABINET ELECTRIC-LIGHT BATH

Other special devices permit the local application of the incandescent light bath to the spine, the abdomen, and other parts of the body. One form of the local light bath is shown in the accompanying cut. It consists of a hopper-shaped casing in which eight or ten incandescent lamps, all provided with guard frames, are arranged. Over the case is placed any suitable cover. This is a very convenient form of light-cure apparatus, and can be made generally useful in a great many local applications of radiant heat.

Portable apparatus for local radiant heat applications have also been constructed. The simplest of these, the photophore, manufactured by the Electric Light Bath Co., of Battle Creek, Mich., consists of an electric lamp placed in the center of a metallic reflector whereby the rays of light are centered upon any surface to which the application may be made. Other methods of applying heat locally, as by means of the fomentation, hot-water bags, heated air, etc., affect only the surface, but the rays of radiant energy from the incandescent films, as has already been pointed out, are capable of penetrating the tissues to a considerable distance. The photophore is an inexpensive device which is needed in every home where the electric current is available, as it is made ready for immediate use by simply screwing the plug into the ordinary electric lamp socket, and turning the button.

For the general electric-light bath, the bather removes his clothing just as he enters the bath, taking care that the feet are warm and that the head, face, and neck are cooled in preparation for the bath. By a suitable arrangement in the wiring of the lights, it is possible to increase or diminish at will the number of lights, thus varying the intensity

of the bath; and in some forms of this bath, by a turn of the switch lever, a red, white, or blue light bath may be produced, desirable in some cases in view of the varying effects of the different rays of which light is composed.

A Portable Electric-Light Bath

The duration of the bath depends entirely upon the effect to be obtained. For simple tonic, stimulating effects, the duration of the bath will be short, from three to ten minutes. If it is desired to produce eliminative effects, the bather should remain in the bath from fifteen to forty-five minutes, until vigorous perspiration has been continued for some time. In such a case, it is important that a towel, wrung out of cold water, should be wrapped about the head and neck, the application being renewed as often as the towel becomes warm. An ice-bag should also be placed over the heart, and the bather should drink water very copiously. It is well in individuals whose eyes are sensitive to light, to protect the eyes by a napkin laid across the face or by colored glasses.

The general electric-light bath, especially when profuse sweating has been produced, should always be followed by a cooling bath, this after-treatment being practically the same as after a Turkish or steam bath. When a local application has been made, as by the photophore, cold in some form should be applied to the parts to which the application has been made. Care must be taken in cases in which the local application has caused general perspiration, to follow the treatment with a general cold application, as a plunge or spray, or a cold friction.

Aside from its great superiority as a general tonic, the electric-light bath is especially beneficial in the treatment of rheumatism, gout, and neurasthenia, or nervous prostration, in burning up the waste matters and eliminating the toxins. This bath is also exceedingly useful in diabetes and obesity, sciatica, neuralgia, vague neuralgic pains, self-poisoning from the retention of accumulated waste matters within the body, in inflammation of the kidney, tuberculosis, and particularly in maladies due to deficiency in the quantity or quality of the blood.

The local electric-light bath, especially when applied by means of the photophore, is very helpful in sciatica, neuralgia, pain in the back, rheumatic affections of the joints, chronic pleurisy, ulcerations, especially chronic leg ulcers, chronic cough, inactive liver, stomach, or kidneys, and in all local inflammations.

The Photophore

The value of the electric-light bath as a hygienic measure, especially in cities, can hardly be overestimated. To the

man or woman whose lagging gait, bent shoulders, and careworn countenance tell the story of days, and perhaps nights, of ceaseless, enervating toil, the recuperation of energy and the corresponding "boost" in spirits afforded by a short exposure to the vitalizing influence of the electric ray is more than sufficient remuneration for the time and money spent in taking the bath.

GIVING THE RIGHT TREND IN PHYSICAL DEVELOPMENT

BY ELIZABETH REITH STEWART

"TRAIN up a child in the way he should go, and when he is old he will not depart from it," is as true to-day as when it was written, as true of the physical as of the moral welfare of the child.

But, unfortunately for the human race, we have become such creatures of limitation that it is impossible to grasp in their entirety the few simple laws of life, and the result is a degeneracy that to-day is very apparent.

The process of symmetrical development begins in the cradle, when, after the first few weeks of almost constant sleeping and eating, the bundle of activity begins by reaching and grasping for any object near at hand, crowing to exercise the lungs, and twisting and kicking if opportunity is afforded.

If interfered with, the result will be a lusty wail for which the babe will be rocked, trotted, or tossed until he becomes quiet from exhaustion; or perhaps a quieting dose of some nostrum will be administered. How much of this might be avoided if the mother would only loosen some of those "bands of wickedness" surrounding the little body, remove the burdens of long skirts and dresses, and allow the oppressed little members to go free.

The first thing a babe does when ushered into this world is to exercise his lungs; then the little fist goes to the mouth, flexing the arm, and his gymnastic life is begun.

Notice also the stretch upon awakening. How complete and perfect the movement,— the little toes stretched as far apart as possible and extended to the very utmost. What a pity that fashion has decreed that the mother must at the earliest opportunity encase them in the smallest, cutest boots obtainable. From this sowing to her vanity the child must inevitably reap all too soon a harvest of corns, in-growing toe-nails, or bunions. We speak truthfully when we say that many of the little boots are just "too dear."

FIG. 1. REACHING FOR THE BALL

Even more pernicious is the custom of reserving one pair of boots for special occasions, upon which they must be worn even after outgrown by the little feet. This ought to be considered by every intelligent mother a step in the direction of the Chinese custom of foot-binding, and forever abandoned. No shoe should be worn so tight that the child cannot easily wiggle his toes.

It is not our purpose to contend that every child must be taught gymnastics in order to be perfectly healthy. If uninterfered with, Nature will prompt the normal child to that activity needed for growth and development. That vigor and health demand exercise, we may learn from observation of Nature's methods. As soon as the little shoot of the tiny acorn appears above the ground, it must meet the storm and weather the gale by sending its roots down deeper, ever gaining a firmer foundation upon which the giant oak will finally stand defying the stormiest blast. Even so in life; it is not the tenderly reared child, whose daily program is to lie or sit still, that comes forth with one of the finest equipments for a successful life — a sound constitution.

One of the leading advocates of physical development in this country made the remark that "if you should look through the calendars of the many educational institutions, you would find that if physical culture is mentioned at all it will be down at the very bottom, and probably in letters so small that you might imagine an effort to apologize for appearing at all. But more by good luck than good management it had been given its proper place down at the very bottom, the surest, firmest foundation upon which all the others could safely stand."

No one will dispute the fact that many parents pay more attention to the shrubs

FIG. 2. CHEST LIFTING

in the garden than they do to the round shoulders, pigeon or hollow chests of their children, seeming to have little comprehension that such are deformities that could be overcome if they were not content to settle down with the comforting (?) thought that they had been handed down as a sort of legacy from the father's or mother's family.

Mothers sometimes complain that their children show no disposition to exercise, but are content to sit still by the hour. This is unnatural and betokens some ill which should receive the attention of a skilled physician.

The normal child is a born gymnast; that he does not continue so, is the fault of his training or environment. He learns most readily by imitation; therefore, be what you desire your child to be in physical as well as moral rectitude. In infancy, especially, great care

must be taken not to overtax the strength, not to use any jerking movements, to avoid high tossing, even though the child may appear to scream from delight, as this has a tendency to over-excite the delicate nervous system.

The "mother's hour" with the baby may be made fruitful for good by making his diversions of such character as will serve to give the right trend to activity even from an early age. The following is a brief outline of exercises used with a child of six months.

The room is well ventilated, then thoroughly warmed so that the clothing may be removed, and he is allowed to kick and twist, turning from side to side so that all the muscles are brought into action. This is followed by the swimming movement, which, if given by count, proves highly amusing. On counting one, stretch the limbs; two, separating the knees, flex well upon the body; three, kick out and bring together

FIG. 3. BALANCE MOVEMENT

FIG. 4. TRUNK EXERCISE

quickly. These movements, combined with gentle rubbing, often prove very beneficial in cases of constipation. Before the baby begins to tire, allow him to grasp your forefingers and raise himself, gently falling back upon a pillow; he will soon raise his weight. Do not pull a child up by the arms; always, in lifting, place your hands under his arms, and raise the body.

While sitting, hold a ball, toy, or electric light overhead, and have him reach for it as in Fig. 1. Thus, the head is thrown back and the arms upward extended, increasing the lung capacity and straightening the dorsal region of the spine. Chest lifting, as in Fig. 2, is also valuable. Seat the child high enough to bring his back to your chest, turn your body slightly to the right, placing the left foot forward; then, as you slowly rotate the arms forward, upward, and backward, make gentle pressure between the shoulder blades with your left chest. Follow this with a balance movement. First teach the child to sit alone, then supporting him at the hips, and with his back against a wall, slowly raise him overhead. As he grows stronger, gradually lower the hands as in Fig. 3. If this movement is given properly, the child will not feel the least fear. Another very simple

balance movement is the old-fashioned horse-back ride, teaching him to balance on your foot. For a trunk exercise, let the child grasp some bar or firm support, then gradually move the feet farther and farther back until he can bear his weight as in Fig. 4.

The number of times each exercise should be given depends entirely upon the child, and must be left to the judgment of the attendant; but a very good motto is, "Make haste slowly." The object is not to stimulate, but to direct. A very convenient time is just before the morning bath and just before retiring. The atmosphere must be that of a jolly play hour, all thought of hard work abandoned. Never exercise just before or after eating, and be as regular as in the rest of the baby's program.

As the child grows older and can live out-of-doors, the ingenious mother will find plenty in Nature's store from which to draw,—watching the rapidly moving clouds, the shape of the new moon, the early stars, the peaceful swaying of the trees, corn or grain, the climbing of the squirrel, the leaping of the frog. The child instinctively wishes to try to do anything he sees done, so with such a panorama of activity all about him, probably the only care will be to see that he does not over-do in some favorite sport, but rather to direct the up-building of a beautiful, symmetrical whole.

As a very simple definition for gymnastics is, "any exercise that tends to promote strength and agility," we must all agree that it is not the use but the abuse of gymnastics that is objectionable.

THE MATERNITY GOWN

BY MRS. G. S. SMITH

HOW to dress hygienically at all times is a problem with many, and we are glad to give to our readers something each month that we know will be of practical benefit to at least some.

Years ago a reform in dress was advo-

FIG. 1. FREEDOM WAIST

FIG. 2. FREEDOM WAIST WITH EYELETS AND LACES

cated, and a few, among whom were Dr. J. H. Kellogg and Mary A. Livermore, met at Boston and discussed ways and means. It was early found that women's dress had much to do with the present-day ailments; indeed, some physicians affirm that two-thirds of the diseases of women are due to improper dress. Should not this fact alone arouse every thinking mother to see that her own body, as well as that of her daughter, is harmlessly clad?

THE EMPIRE GOWN

Thousands of dress-makers to-day, instead of fitting the natural God-given body, are making people *fit their models*. And ofttimes we are led to stop and ponder over the terrible results, and wonder how they can go on, knowing there will be a reckoning day. Are we not living in an enlightened age? And shall we go back to the days of barbarism and submit to cruelty we would think too bad to read about, could we actually see the internal results?

Our first illustration this month shows the gown form or waist lining with the freedom front on which we build all our dresses and waists. For the maternity gown we leave open the dart and place eyelets and laces so that it may be loosened as required (See Fig. 2). On this foundation we have built the empire gown with a Bolero and Bertha finish, which gives a trim look at sides and back. This is a becoming gown for every woman.

THE SPRING PAGEANT

HAVE patience still;
Spring yet shall all her joyful tasks fulfill.
She tarries long,
But all is ready; each bird knows his song,
Each flower has got by heart
Its fair or fragrant part;
And given the word,
Each bud and bird
Will proudly bring the lovely pageant on.
Have patience; sweeter, sweeter far
Long-hoped-for treasures are
Than any we may have without such waiting won.

—*Ella Fuller Maitland.*

Chautauqua School of Health

THE DIGESTION OF FOOD IN THE STOMACH

BY J. H. KELLOGG, M. D.

THE digestive work especially characteristic of the stomach, is that of albumins through the action of the gastric juice. About seventy ounces of this fluid are formed daily by the glands of the stomach. Unlike any of the other bodily secretions, the gastric juice is intensely acid. It is believed by chemists that the acidity is due to the presence of hydrochloric acid. The acid of the gastric juice probably differs from the mineral acid, which, however, it very closely resembles in many respects.

The gastric juice contains, in addition to acids, a quantity of pepsin, which, acting with the acid, dissolves all sorts of proteids or albuminous substances; and rennet, a digestive principle which coagulates milk. This digestion of albumins is accomplished by their conversion into peptone, an exceedingly soluble substance which passes readily into the blood.

The gastric juice not only dissolves albumin, but acts as an antiseptic, preserving the stomach contents from putrefaction during the digestive process. The stomach is, in fact, a sort of disinfecting chamber in which germs are destroyed by the gastric juice, thus preventing fermentation and putrefaction and also protecting the body from such diseases as typhoid fever, cholera, and other maladies due to germs which develop in the alimentary canal.

The pepsin, as well as the acid of the gastric juice, is capable of destroying germs. The stomach mucus also protects the stomach against the action of germs and germ poisons. Both the acid and the pepsin protect the stomach against germ poison and other toxic substances by neutralizing or destroying them. The mucous membrane of the stomach eliminates certain poisons from the blood. It is a most remarkable and interesting fact that the gastric juice, although so essential to life, is itself a poison. When introduced into the blood of an animal, it produces insensibility and death.

The secretion of the gastric juice is required both in quantity and quality to suit the character of the food eaten. Substances containing a large amount of albumin and proteids call forth an abundant flow of gastric juice, whereas starchy and fatty substances do not excite the peptic glands to activity.

Another remarkable circumstance connected with the gastric digestion is the fact that the stomach itself, while able to digest flesh identical with its own substance, is nevertheless in some mysterious manner protected from the corrosive action of its own secretion. No physiologist has as yet given a satisfactory explanation of this phenomenon. It must be looked upon as a certain evidence of the constant presence of a beneficent Intelligence.

The secretion of gastric juice is called forth by certain elements of food known as peptogens. These peptogens either exist already formed in the food, and are dissolved by the saliva, or are produced by it in its action upon the food. The digestive activity of the stomach has been found to be increased as much as twenty-five times by the addition of these peptogens, which constitute a sort of stomach food, or natural stimulus to the stomach, by which its energy is called forth. A peptogen is probably more than a stimulant. It not only excites the stomach, but provides it with the material necessary to enable it to prepare the marvelously active substances by which the albumins of the food are dissolved and converted into peptone, and thus prepared for absorption. Pure albumin taken into the stomach is found to provoke little or no digestive activity. By the addition of the peptogens, largely found in fruits and properly prepared cereals, an abundance of active gastric juice is formed.

The existence of peptogens in the food, and especially their production by the action of the saliva upon the food elements, is one of the most interesting of all the numerous remarkable facts connected with the process of digestion, and shows us how the different digestive processes are linked together in such a way that the perfect performance of each one depends upon the thorough completion of the preceding ones.

The action of the gastric juice is facilitated by muscular movements, which are chiefly due to the contraction of the stomach walls and to the action of the diaphragm. These various movements combined, constitute a sort of churning process, by which the food substances in the stomach are thoroughly manipulated and mingled, and, so far as possible, reduced to a fluid state. At the end of three hours, the acidity of the stomach contents is at its maximum, also the muscular activity of its walls. The contraction finally becomes so vigorous that the fluid portions of the food are forced through the pylorus, which is always well contracted, into the intestines, where the bile and the pancreatic juice begin their work.

PROPER INFANT FEEDING AND NORMAL INFANT FOODS

BY K. LINDSAY, M. D.

If all infants had healthy, normal mothers who could furnish them with Nature's ready-made infant food, the question of infant feeding would be a very simple one. This natural infant food, as made by the Creator, has several very special characteristics. One of the most important is that it is a clean food, practically germ-free. The normal baby is also clean and sterile when born. Its digestive organs are not yet mature enough to sterilize an unclean, infected food. Its natural food is a fluid food of specific combination: 86 to 87 parts water and 12 to 14 parts solids. These solids contain average proportions of fats 4 parts, sugar of milk 7 parts, proteids 1 to 2 parts, and of salt .15 of a part. This food is alkaline in reaction and the curds are soft and small, easily gotten at by the gastric juice of the infant's stomach; not large, hard and solid like the curd of the milk of cows, goats, and other animals, which is suited for the digestive organs of calves, kids, etc., but not for

babies' more delicate digestive apparatus. In fact, cows' milk and other artificial infant foods are wanting in the particular characteristics found in healthy mothers' milk.

All animal milks are very unclean foods as they are usually manipulated. A healthy animal has no germs in its milk glands, but a steady stream of infected dirt flows into the milk as soon as milking begins, from the cow's body, milker's hands, and vessels. Wind brings dust, and flies and other insects infect it with all forms of disease germs and ferments. It is acid instead of alkaline in reaction, no matter how fresh, and contains only about half enough sugar of milk, and from two to four times too much casein, which, in the infant's stomach, forms large, solid lumps of curd, that, being infected, do not digest, but spoil, often in warm weather causing cholera infantum or acute milk poisoning. This dread disease often destroys, in city tenements, from fifty to eighty per cent of children under a year old who are bottle fed. It rarely attacks infants who are fed on healthy mother's milk.

The infant foods on the market are more faulty than animal milk, and no infant nourished on them can be expected to be well. In fact, from the artificial feeding of infants the world over, under all conditions, only sixteen in a hundred are well nourished, while those fed on mothers' milk, under good and bad conditions, show sixty well nourished out of every hundred. In Norway, where breast feeding is almost universal, especially in the country, only nine per cent die in the first year as against fifty to eighty per cent in the cities of the United States of America, in the warm seasons of the year. And the number of little ones killed outright by bad food is only one side of this tale of wrong done to these innocents. Who can tell the number of lives ruined by malnutrition from artificial feeding during early life? Since it was said by the Master that "it were better to have a millstone tied to the neck and be cast into the sea, than to offend one" child even, what must be the record against those who do the wholesale offending of killing and maiming thousands yearly by improper feeding and neglect?

If this truth were only fully understood by parents, especially mothers, and a part of the money and time spent in preparing baby foods and soothing syrups devoted to the study of the hygiene of women, the duties and responsibilities of parents and the proper care of growing girls and boys, and the study and practical application of the principles of health upon which normal motherhood depends, also what infant humanity needs for its proper growth and development, no one can estimate what would be the reduction of the death and disease rates, the diminution of crime and pauperism, and the lessening of human sin and suffering. In this responsibility to the human race, woman more or less possesses the ability to bring death and the loss of Eden's blessings to humanity.

This brings us to the important question of what can be done to bring about a proper relation between mother and child. How can girls be reared and women educated so as to be able to perform the duties of motherhood aright?

The foundation is sound physical health. This means proper air, water, food, work, rest, clothing, and mental and moral education for the girls. They must be taught proper self-control, to think and act right under all circumstances, to respect their bodies more than fashions or customs, and never to

knowingly injure the body, nor by wrong thought or action blemish the intellect or blunt the morals. The mother, to properly nourish her baby, must in every way take good care of her own health by eating aseptic, easily-digested food, such as good, well-baked bread and grains dextrinized by heat, good fresh fruits, good fresh milk, cream and nuts, with well-cooked vegetables, as they agree with her. If there is a scant supply of milk, she should drink more water and increase the fluid foods, as gruels and milk. If there is an oversupply, use a dry diet, such as granose biscuits and flakes, zwieback and the like.

Dr. Kotch and others who have investigated by analysis the changes in mother's milk due to diet and habits of life, state of mind, sleep, work, exercise, etc., have given some general principles to guide mothers when nursing infants:—

1. To increase quantity of milk, increase the liquids in the diet.
2. To decrease quantity, decrease fluids.
3. To increase total solids, shorten intervals of nursing and decrease exercise and fluid foods.
4. To decrease solids, lengthen nursing intervals, take more exercise, and increase fluid diet.
5. To increase fat, increase proteids and fats.
6. To decrease fats, decrease the proportion of proteids eaten.
7. To increase proteids, decrease exercise.
8. To decrease proteids, exercise vigorously in the open air.

The proteid or albuminoid foods and fats are the elements in mother's milk most liable to vary. In poor milk there is usually a decrease of fats and a surplus of proteids. Sedentary life often causes this condition, and the decrease of food, especially fats, with out-of-door exercise, will usually correct it. Overrich milk may be due to nursing too often or overeating and lack of exercise in the mother. This milk will cause colic, diarrhea and nervous disturbances. Too little fat with too much proteid will cause constipation, loss of weight and fretfulness. Too much will cause looseness of bowels and green, bad-smelling stools. An emotional woman who frets and gets angry, or has her feelings easily hurt, will not make a good mother unless she can make up her mind to exercise self-control. The writer knew a case where an outburst of anger on the part of a nursing mother caused the death of a healthy child of six months in a few hours after nursing.

The writer has also observed that the most critical time for the nursing mother and infant is the first two or three months after birth,— the period of colic which old ladies will tell you every infant must pass through. In the writer's experience it has often proved to be the most tranquil time in the little one's life. In Scripture times, Hebrew mothers were given forty days' rest after confinement, or the time it takes for the changes and repairs needed to restore the mother physically and re-establish a normal condition after the strain of labor. If during this time the mother is fretted, worried, loses sleep, works too hard and is badly fed, either with too much or too little food, and oxidation of wastes hindered by too much or too little exercise, both patients will be injured. For the first six weeks or two months after childbirth, the eliminative organs in the mother have to dispose of a great deal of extra waste material, and this means the need of more oxygen, and also the need of saving the energies of the body by rest, to enable the eliminative organs to dispose of this waste and also perform the extra work of furnishing milk for the infant. If the functions of elimination and oxidation are imperfect the milk will contain wastes and be poor in

quality from surplus or lack of some important element.

For a mother to be a good nurse means for her to have a chance to take rest and exercise, leisure to be out of doors in the sunlight, with freedom from care, plenty of sleep and a feeling of rejoicing over her baby's existence. The inspiration that comes from the thought of having an important work which she is doing well will help to keep her tranquil, quiet the baby, and do more to prevent and cure colic than all the soothing syrups ever invented.

THE COLD TOWEL RUB

BY THE EDITOR

In this very useful method of treatment, a towel wrung out of cold water is laid over the surface to be treated, and held in place while an assistant rubs the surface *over the towel*, not *with* the towel. The rubbing movements should be in a downward direction, alternating rubbing with percussion movements. In rubbing, the attendant, making long strokes, brings the flat surface of the hand in contact with the towel with considerable force, a sort of slapping of the surface.

In order that the desired therapeutic effect may be obtained, the initial temperature of the water must be maintained. This may be accomplished by employing a number of towels, so that no towel is used twice in the same application, or by the following plan: Two pails of water are prepared, one of which is ten degrees lower than the temperature at which the application is to be made. The usual temperature will be 60° or 50°. The face, neck, and head are cooled with the cooler water. After a towel has been applied to a surface and rubbed until warm, it is dropped into the cooler water, where it remains while the part is being dried and rubbed. In preparing the towel for a new application, it is gathered and squeezed, then dipped into the other pail and wrung out.

In cold towel rubbing, the towel is first applied to the chest; the face, head, and neck having previously been cooled and protected by a wet towel. The patient grasps the upper end of the towel, one corner in each hand, and draws the wet towel well up under the chin, covering the points of the shoulders. The

COLD TOWEL RUB TO ARM

attendant makes long strokes the whole length of the trunk. The rubbing is continued until the towel is warm. It is then replaced by a dry towel which is held and rubbed in just the same way. The parts are finally rubbed with the dry hand until red and warm.

Cold Towel Rub to Back

The towel is then applied to the arm, the patient grasping one end of the towel with the opposite hand, holding it over the shoulder close to the neck. The attendant quickly wraps the towel about the arms, and makes long, rubbing strokes from the shoulder to the wrist, alternating with percussion until the towel is warm, then drying and rubbing as before.

After the front of the body and the legs have been treated, the patient turns over, and the towel is applied to the back, then to the back side of each leg, and finally to the feet. The towel is applied to the feet by slipping the center under the feet and turning one end over each foot. The back of the foot is rubbed, the bottom being percussed, as rubbing the sole of the foot is disagreeable to most persons.

When the surface is cold, or if the patient has a sense of chilliness, a fomentation should be applied over the abdomen or the back as a heating measure. Or, the patient may be rubbed until warm. A cold application should never be made to a patient who is cold or chilly.

The cold towel rub is useful in all cases in which it is desirable to increase nerve tone, to encourage blood-building, to improve appetite and digestion, and to encourage the surface circulation. This is a more vigorous tonic measure than the sponge bath, the wet hand rub, or the cold mitten friction, and should generally succeed these measures after the first two or three weeks, when they are employed at the beginning of a course of tonic treatment.

A well-known artist thus comments on the rush and hurry of our modern life :—"Man's business requires haste. The average business and professional man eats in a hurry and gets dyspepsia. He walks in a hurry, and gets apoplexy. He talks in a hurry, and gets the lie. He does business in a hurry, and becomes a bankrupt. He reads in a hurry, and is superficial. He votes in a hurry, and produces corruption. He marries in a hurry, and gets a divorce. He trains his children in a hurry, and develops spendthrifts, and criminals. He gets religion in a hurry, and forgets it in a great hurry. He makes his will in a hurry, and leaves a legal contest. He dies in a hurry, and goes to the devil."

PHYSICAL CULTURE FOR BABIES

BY MARY WOOD-ALLEN, M. D.

PHYSICAL CULTURE is getting to be a universal hobby. We have physical culture for the old and for the young, for the fat and for the lean, for the dyspeptic and for the rheumatic, for men and for women, for boys and for girls, and now we are beginning to talk of physical culture for babies.

I am a believer in physical culture, but at this point I wish to sound a note of warning. We know that through exercise blood is carried to a part, and this means nutrition for that part; but at the same time, by the exercise tissue is destroyed, and unless the waste is made good the result will be a breakdown, rather than a building up. Dr. J. H. Kellogg says, "The most delicate contraction of the muscles is accompanied by a definite amount of destruction of tissue. The greater the amount of intensity of muscular effort, the greater the amount of waste. Only a certain degree of destruction of tissue by action is possible. After the muscular tissues have been wasted to a certain degree, they refuse to respond to demands of the nerves. A violent effort of the will may secure a slight additional amount of work, but even the most powerful exercise of will can not excite to action the muscular system which has been exhausted by prolonged activity. The sense of weariness, inability, or incapacity for action, following violent or prolonged exertion, is called fatigue. The sense of fatigue is a demand of nature for rest, for time to repair the wasted tissues, to eliminate the poison resulting from work. This provision nature has wisely made to oblige us to stop the vital machinery before it has become so much damaged that repairs can not be made."

The baby naturally delights in physical activity, and when this activity is self-directed, it will not be carried to excess; but destruction of muscular tissues can result even through manipulation by another. How are we to judge of what we are doing, by our attempts to incite the child to activities which are not spontaneous, or even through our massage of his delicate body?

In considering the welfare of the child we must always remember that he is not a finished organism, but one in process of formation. Through his muscular activity he is developing embryonic brain-structure, and through the use of this brain-structure he is, on the other hand, exciting the muscular activity, and so building up muscular structure. If we stimulate the infant to undue exertion, we are not only creating an excessive waste of muscular tissue but we are also exhausting brain and nerve power, so that, instead of building up health, we are actually weakening and breaking down. The untaught mother may do her child harm, while she fondly imagines that she is doing him good.

The normal child is spontaneously active, and our first effort at physical culture should be to give him ample opportunity for voluntary physical exertion; for this reason his clothing should be light in weight, short enough not to impede the action of his limbs, and loose enough to give full room for activity of the lungs. Breathing is a most important exercise, and through crying the child obtains better lung power. Therefore, if the child is comfortably dressed, carefully fed, his circulation kept equalized, with all external causes for discomfort removed, a little crying will be beneficial rather

than otherwise; but he should never be allowed to cry until he has learned the use of crying, as a method of coercion. Very gentle massage may be given to the infant both morning and evening, but this should be done with the idea of soothing rather than of exercising. When his clothing is removed, the child instinctively stretches and yawns and exercises himself to expand his lungs and gain muscular power. The effect of gentle rubbing is to equalize circulation and give a sense of rest.

The very young baby needs to be left almost entirely to the self-direction of his activities. As he grows, the mother, keeping close watch of his development, may perceive that he is developing unsymmetrically and therefore may need a little encouragement along the defective line; but even this should be given with great judgment and moderation. A little assistance may be given to the child's activities by giving him something to kick against, as a pillow or the hand. The sense of resistance which he feels stimulates him to further exercise his muscles. Gentle exercise may be encouraged by allowing him to grasp the fingers of his mother and pull himself up, then gently letting him fall back upon his pillow, and repeating the process; but the play should be suspended as soon as he shows the least sign of fatigue, or even before he begins to manifest undue amount of excitement. With our American children the necessity seems to be toward the cultivation of repose rather than stimulation to activity.

The need of the baby in regard to physical culture is opportunity, rather than extraneous stimulus. Give him all the essentials of a healthy, vigorous life, then stand back and see him give himself physical culture. A normal child will use his powers as fast as they develop and in accordance with their strength, and do himself no injury. It is better that he should develop more slowly than the parent's ambition would indicate, rather than that he should be injured by over-exercise, or by that not suited to his nascent ability. A good motto for the parent to bear in mind, not only in regard to stimulation of the mental powers but of the body as well, is to give the baby "a little wholesome neglect."

THE CARE OF CONVALESCENT CHILDREN

BY LENNA F. COOPER

THE convalescence of a child is a period freighted with responsibilities to the nurse. It is a time when the greatest care and judgment must be exercised. Three things should be carefully guarded against; viz., overeating, and over-exercise both mental and physical.

In a long continued illness there is a waste of tissues similar to a period of starvation. Hence nature keeps notifying the patient through the appetite that the body needs food with which to rebuild the "waste places." It is imperative that only the most nourishing food should be supplied, and that the quantity be increased as the patient is able to assimilate; but it must be remembered that the body is still ill and cannot assimilate all that it calls for. All of the needs cannot be supplied at once. Many a relapse has occurred because some indulgent parent has listened to the pleadings of the little one

for food while the body was still unable to care for it.

After a wasting disease, as typhoid or scarlet fever, pneumonia or appendicitis, it is better to feed often and in small quantities. Every two and a half to three hours is not too often to partake of food, provided it is something very easily digested. Of course, it must be a liquid, or a dextrinized food chewed until it becomes liquid.

The exercise of a child must be carefully guarded. It is important that the little one should exercise as much as it is able, for exercise stimulates repair. But it must be equally borne in mind that fatigue, which is very easily produced at such a time, has the opposite effect, and indeed, may cause very serious results. The heart is often very weak after a severe illness, and many a case of organic heart disease has had its inception in over-exercise during a period of convalescence. At first only passive exercise should be indulged in, as sitting up in bed a few minutes a day, or gentle rubbing of the limbs by the nurse. Gradually these exercises may be increased until the child is able to sit in an easy chair or to be carried to the carriage for a short drive.

The symptoms of fatigue which appear after exercise, are pallor, drowsiness, dark circles about the eyes, and perspiration. These are warnings that less exercise must be taken next time.

As soon as convalescent, the little one ought to be placed on a cot in some quiet, sunny spot on the veranda and allowed to lie out of doors most of the time; for there is no place where Nature pours forth her healing balm so lavishly as in the open air and sunshine.

A little jacket of eiderdown or flannel, with high neck, and sleeves gathered in at the wrist, and loose enough to be perfectly free and comfortable, should be provided for the child to slip on when it sits up or to keep on during the day if it is inclined to want to have its arms free. This is for the purpose of preventing exposure to cold.

AMUSEMENT WITH SPOOLS

As great or even greater care should be taken concerning the mental exercise as the physical. This should never be urged upon the child. Many times the anxious parents are so desirous of seeing some signs of improvement that they laugh and talk with the child, endeavoring to get the little one to "brighten up," feeling that if this is accomplished the child is certainly better; but many times, were the temperature taken immediately afterward, it would show a rise. The child will

"brighten up" of its own accord as it is able.

If the symptoms and facial expression are carefully watched, there is no need of annoying the patient by the questions, "How do you feel?" or, "Are you better this morning?" Indeed, these are safer guides than the child's own opinion of its case, as it is not likely to remember just how it felt a few hours previous.

While the child should be kept as quiet as possible, it should not be led to nervousness and self-consciousness, which is the foundation of a selfish spirit, by being continually asked "If this or that noise hurts her head," or "If she would like to have mama do this or that for her." Watch the facial expression and you will be able to determine these things for yourself. Go quietly and unostentatiously about what you see needs to be done, but do not keep the child thinking about itself. Rather lead it to cheerful thoughts by suggesting, "What a nice time Rover is having making such a noise," etc.

THE SAND PAN

As the child continues to improve, it will need to be amused. Especially so if it is in quarantine, cut off from association with the rest of the family for a while, as after scarlet fever, diphtheria, etc.

A bedside table is the most convenient arrangement for the playthings. Upon it the little patient may have the spools which mama has been saving for such occasions or rainy days, and may build towers, castles, fortresses, and many other things.

A pan of sand or corn meal will afford amusement for a long time. Out of this the child will make a farm, with hills and valleys, rivers and lakes, and with the addition of some evergreen twigs for trees, some toothpicks with which to build fences, some paper with which to make houses, barns, etc., and perhaps some animals from "Noah's Ark," an endless variety of things may be made.

Many children enjoy cutting out pictures from old magazines, or vegetable and floral catalogues; but sometimes they will need suggestions as to how to use them afterward, for children do not like to do things needlessly, even for amusement. Let them be used to decorate the wall. What matter if the walls be covered with pictures? Some of them may be pasted on sheets of brown wrapping paper, with a certain definite plan. A village may be made by pasting thereon a number of houses. Streets may be made by drawing two parallel pencil lines. On the streets and near some of the houses, paper dolls, cut from fashion plates, animals, trees, flowers, etc., may be pasted. Much interest may be added to this by providing the child with a cheap set of water colors and letting it color the different pictures, and paint green grass about the houses upon the foundation brown paper.

Little girls will enjoy making a doll-house of a pasteboard box. Provide them with an extra piece of cardboard with which to make partitions and floors, some stiff white paper folded and then re-opened to form stairs, and magazines from which to cut furniture,

dolls, etc. A two- or three-story house may be made very easily. Pretty dishes, baskets, etc., may be made from tea lead which may be obtained very cheaply from the grocer.

Little boys will find much amusement in making sleds, water-pails, boats, fish, turtles, etc., from paper, and dipping them in melted paraffin, which makes them stronger and stiffer, and impervious, so that the boats, pails, fishes, etc., may be floated, if they wish.

Such simple amusements are much better than games which require much thought and ofttimes mental fatigue. It should be remembered that the little one's mind is often the most tardy in regaining its strength. Under no circumstances should the child be allowed to go to school until it is well and strong again.

ONE WAY TO DRESS THE WEE BABE

BY CAROLYN GEISEL, M. D.

THE common practice of devoting the first hours of human life to the making of a toilet, has for many years seemed to us a practice to be condemned. This wee bundle of physical life has suddenly much to which to adjust itself, and the task of adjustment may tax the small power of resistance to its full limit without the worry of bath and gowning.

It has therefore long been our habit to oint the little body thoroughly with good olive oil, using the oil so freely that it may even be left dripping from a part, and then fold the tiny new being snugly from crown to toe in a soft baby blanket or quilt and let him rest for twelve or twenty-four hours (depending upon the amount of vigor displayed) before further attempts at toilet-making are thrust upon him.

This blanket is best, made of two yard squares of fine cheese cloth (that have first been washed and boiled), with soft cotton between, and lightly tied after the fashion of "comforters." This is soft and warm and can easily be taken apart and washed after it has served its purpose.

The first clothing, to be at once harmless and useful, must be warm, loose, and made of material that will not irritate the skin, and must be so arranged that it can be put on without prolonged effort.

Keeping in mind the delicate, not yet fully developed skin, the cartilaginous condition of bones that can be easily compressed and deformed, the rapidity with which the little body grows, we long ago fixed upon the following plan for babies' first clothes.

1. The band, which is only for the first five or eight days of life, is made of soft wool knitted in up-and-down seams, so as to make it sufficiently yielding and elastic.

2. A carefully selected napkin, soft, absorbent and not too thick.

3. The gown and skirts. These garments, for there are three, are all made after the plan of princess slips with sleeves, are all large in the armholes, and with neck and wrists gathered by ribbon so as to be enlarged as the passing days see the tiny wearer of them growing larger.

The first one, or the one worn next the body, is made of wash silk (silk muslin), and is about thirty-two inches long, gathered rather full in the neck to permit of expansion with growth.

The next garment, or the one worn over the silk slip, is also a princess of about the same length, with sleeves, but is made of flannel. For this one we like best to put the needed fulness in by means of a large double pleat, both front and back; because of the thickness of the flannel, this is to be preferred to gathers, which do so well for the silk slip. Lastly, or over all, the dress. Since this dress is chiefly to please the eye of baby's admirers, it often happens that baby is forgotten in the effort to beautify the little gown, and a red mark around the tiny throat or wrists shows where the lace and ribbon have been fretting the soft flesh all that long while that you and I spent "fixing something" for the little dear to take to stop its crying. Be careful here, lest all the comfortableness attained by the so far careful arrangements, be sacrificed to decoration in this garment that is of least importance.

Now the bath is over; the band which can hardly be tight, because so elastic, is put in place; the napkin adjusted; and the three slips which have been put one inside the other, are put on *together* and with just one turning over (in place of the old-time thirteen times) the little man is dressed.

This plan of dressing, being for the first days and weeks of life, is arranged with reference to the fact that baby does not care to move about, and should not be much moved, but should be allowed to lie quietly by mother's side, or in his own little crib, and sleep, as is his natural inclination. When, perforce, he must be lifted or taken up, it is a common practice, and a good one, to fold about him an extra baby blanket, which well envelops him.

When with accumulated vigor, gained in the passing days, he begins to kick his tiny feet free from the enveloping folds of his skirt, the pinning blanket should be added. How can the pinning blanket be added without a band? Very easily indeed; just put up-and-down buttonholes, about an inch long, in the upper edge of the oblong piece of flannel that is selected for the blanket, and also through the silk and flannel slips (put button-holes in when garment is made, of course), at a point just above the baby hips, and so arranged that for blanket and slips, they come in perfect apposition. Now run in and out through these buttonholes a narrow strip of silk, so uniting the pinning blanket to the undergarments that it is held well in place, without that pernicious band, or uncomfortable buttons. The blanket may be added when the baby is but a few days old, or may not be put on the quiet, feeble babe for weeks.

As this precious little budget of bothers continues to grow, he lustily demands more and more handling, and larger activities. Now still other garments must be added to make sure of warmth. The little vest of wool must be put on, if the time be winter weather, because the slips, being loose, will imprison too much cold air under them as the little one is lifted or moved about. And, both for winter and for summer, socks must now be added, to be sure the tiny active feet are always covered.

For about fifteen years we have followed the above plan for dressing the numerous babies that have come into our care. Many mothers have expressed their gratification with the design, while the babies have all been more than usually silent upon the subject of toilet-making, which we have somehow taken to be an indication of their approval.

THE PNEUMONIA PLANT

BY F. J. OTIS, M. D.

WHILE mankind has suffered from pneumonia for centuries, and while physicians have diagnosed and treated the disease, yet the real cause was not known until 1885. At that time when Dr. Fraenkel discovered the *Micrococcus lanceolatus*, the knowledge of germs was widening, for between 1880 and 1885, most of the now best known germs that cause disease were discovered.

Microscopists had noticed that there was constantly a little micro-organism in the rusty sputum that appears in the early stages of pneumonia. A careful study of the germ proved that it would produce pneumonia. After the scientists had learned the characteristics of the germ, they discovered that it was identical with the germ that Dr. Sternberg found existing in his own saliva. A further search for the germ proved that it existed in the saliva of a large number of healthy individuals, growing there as a simple saprophyte.

The *Micrococcus lanceolatus*, the germ of pneumonia, is one of the simplest of plants. It consists of a single cell that is often round, but usually spindle-shaped. When this single cell is full grown, it divides in the median line, forming two plants of the same kind. When we speak of a plant, we usually have a conception of flowers or trees with their stalks, leaves, petals, stamens, fruit and seeds. Such plants require a large number of different kinds of cells, to compose so many kinds of structures. But this little plant is so simple that there is but one kind of cell, and these cells are seldom found in groups of more than two. Occasionally there may be a group of four or five cells in a row. When the plant is growing in the body, a capsule is formed about it. This capsule, which is made by a thickening of the outer portion of the cell wall, is observed about quite a number of micro-organisms that may grow in the body.

The germ does not grow very well in the laboratory, but it thrives most readily in the saliva and secretions about the nose and mouth. Unlike many germs, it does not grow very readily elsewhere. Some of the common nonpathogenic germs cause milk to sour and various other foods to ferment. Fortunately this germ does not grow readily in milk or other foods. It develops so slowly, that there is not much probability of its growing about a kitchen, yet it may linger there in the dust. The plant prefers to grow where there is oxygen, although it may grow in its absence. Consequently the lungs furnish the most favorable conditions for growth.

The question naturally arises: How does this little plant get down to the lowest portions of the lung? for that is where it usually starts to grow in producing pneumonia. Our first thought might be that it falls down the trachea and slips into the lowest portion of the lung. But the trachea is lined with myriads of little hairs called cilia which are constantly undergoing a waving motion, so direct that if an object of any kind is brought in contact with them, a piece of cork, for instance, we can see it travel along the membrane toward the larynx. So should one of the germs fall down in the trachea, it would strike the hair patches at least by the time it reached the dividing of the trachea into the bronchi. There it would lodge and be carried back by these little cilia.

It is quite impossible for the germs to leave the surface of the mouth and pass into the trachea unless there is a very marked inspiration, when a little particle might be aspirated into the lungs; but this would meet the same fate as any other particle. It would simply be carried back by the ciliated cells. It is therefore quite impossible for the germs of the air to reach the lower portions of the lungs where the disease begins, but there is a point where the germs may enter the system, a point that should not be forgotten. It is the tonsil. The tonsils are evidently intended to destroy germs. This they ordinarily do without any difficulty at all. But when a person exposes himself unduly, the body resistance is destroyed so that the tonsils can not do their work. The entire system is unprepared for duty. Then the germs may pass into the tonsils either directly, or by aid of the little white cells that gather up germs and particles and take them into the tonsil to complete their destruction. Because of the weakened condition of the body, these little soldiers can no longer do their work; they die, permitting the germs to go free in the lymph or blood streams. In this way they are carried to the heart and then to the entire system. They grow preferably in the lungs, simply because that is the place where they can get the most oxygen, which is quite essential for their growth.

This germ is not a fiendish organism. It does not intend to do harm. It simply recognizes that in the lungs there is soil for its growth. It has been developing in the saliva. When a person exposes himself, the lungs become congested, and there is an oozing of serum into the little air sacs and tubules. As the germ floats by in the blood stream, it is permitted to pass through the walls of the blood-vessels into this material that is in the air cells. The body intends that it shall eventually be transferred back to the mouth. But instead, it finds a condition quite similar to its home in the saliva and so it begins to grow. Could this fluid be fully evacuated with the germs, they would still do no harm, but as they develop they produce materials that are poisonous. These poisons enter the circulation and excite a fever. The fever is an effort on the part of the body to protect itself. The germ cannot produce a poison when above a certain temperature; so when the fever is high, the germs are slower in their action. During this time, the body awakens to the danger that is at hand and produces an antidote which destroys the poison produced by the germs. Usually about the ninth day the anti-toxine produced by the body is sufficient to destroy all the poisons produced by the germ, and at the same time make it inconvenient for the germ to develop further. The patient then steadily recovers. Much serum is poured into the air sacs to wash out the germs, but unfortunately it clots. During recovery, the body dissolves this material in the air sacs so that it becomes semi-fluid. It may then be removed from the lungs partly by the cilia and partly by the contracting of the lungs.

The course of the disease is thus ended, but at this time there is great danger. The material that is expectorated contains large numbers of the germs, not executed, but banished. They are simply unable to do anything or thrive in their former territory. However in a new locality it is possible for them to grow. They have become acclimated so that should they get into

the lungs of another person, they would be apt to thrive more vigorously. After passing this round a few times they become too active to be destroyed by the natural body protectors. Instead, they invade the perfectly healthy tonsil.

They are destroyed very readily when unprotected. A few hours of direct sunlight and a day of diffuse sunlight will destroy them. But when they are in the sputum, they are surrounded by an albuminous material which protects them to a remarkable degree. It has been proved that the germs are active and virulent months after the sputum has lain in a dark corner. The germs have also withstood diffuse sunlight for weeks when protected in this way. It is, therefore, very important to scrub and disinfect a room thoroughly after a case of pneumonia, lest others get the disease. The expectorations are well disposed of when received in wood ashes, or a paper cuspidor may be used, and burned with the contents. If an ordinary cuspidor is used, a one-fourth part of perchloride of lime, or an equal part of five per cent carbolic acid will prove effectual.

Unlike the typhoid fever germ, the pneumonia germ can not grow well in water, neither can it swim. It is heavier than water so it settles and dies. The disease is consequently seldom transferred through drinking water, but is readily passed from one to another through the dust of the room or of the streets.

When this germ produces pneumonia successfully for a number of times, it becomes so active that it can produce pneumonia in a practically healthy individual. So if one is caring for a case of pneumonia where a large number of such cases have preceded it, there is great danger of taking the disease, and the utmost care must be taken to maintain one's vitality at the highest possible point.

The possibilities in treating pneumonia are not the same as in diphtheria. Fortunately in diphtheria we may obtain an anti-toxin that will destroy the anti-toxin of the germ, but no equivalent remedy has been produced that is efficacious in pneumonia. Happily, however, the body itself produces an anti-toxin that is very effectual. Unfortunately, though, all individuals can not produce sufficient of this material at the proper time, consequently all cases of pneumonia do not recover. For this reason the germ does not molest the young and the vigorous so much as it does the aged. It is termed, "the old man's disease" simply because the aged are so susceptible to it. Their vitality is waning already and the exposure breaks down the protective powers and opens the way for the disease which lays a great burden on the heart. In the old, the heart is already weakened because of its years of work, so that when they get the disease, the heart may not be strong enough to carry them successfully beyond the crisis.

Pneumonia is more prevalent in winter than in summer simply because the liability for catching cold through exposure is so much greater at this season. It is needless, then, to say that precautions are necessary to prevent this micro-organism from gaining access to the body; for when we know the above facts, we can readily see that protection is an important safeguard; that we must, if possible, keep away from the virulent germs and destroy them when we know where they are; that the resistance of the body must be maintained by working within moderate limits and avoiding worry; and that we should daily train the body to react by taking cold morning baths.

IN YELLOW AND WHITE

AN APRIL DINNER

BY MRS. LULU T. BURDEN

Grape Fruit

Bouillon Cream Sticks

Protose Dressing

Baked Potatoes Gravy

Parker House Rolls

Golden Salad Nut Cheese Straws

Lemon Pie

Easter Lily Cake Browned Almonds

RECIPES.

Grape Fruit.— Chill the fruit; then cut it crosswise, providing a half for each person. Loosen the sections from the skin and remove the center white membrane. Fill the cavities with sugar, and serve with a couple of white cherries on top of each half.

Vegetable Bouillon.— To one and one-half pints of bran (pressed down), add two and one-half quarts of boiling water. Allow this to simmer for two hours or more; strain, add one pint of strained tomato, one stalk of chopped celery, one large onion and one-half teaspoonful of powdered mint in a muslin bag. Let this simmer together for from half an hour to an hour. Add water to make two and one-half quarts of soup. Strain, add one teaspoonful of salt, or more if desired, and reheat for serving.

On each bread-and-butter plate put a pat of cocoanut butter, two nut cheese straws, and a couple of bread or cream sticks tied together with yellow and white ribbon.

Protose Dressing.— Cut the contents of one pound can of protose into halves; heat thoroughly in a pan in the oven. (A double baker is preferable, thus covering the protose and steaming it for at least one-half hour). Meanwhile prepare a brown cream sauce and some dressing made as for turkey dressing. When the protose is ready, break it into irregular pieces the size of an egg, and pour over part of the brown cream sauce. Scatter the dressing evenly between the

pieces of protose and then pour the remaining sauce over the whole. Reheat in the oven before serving. Garnish with celery tips.

Golden Salad.— Prepare eggs by hard boiling them. Cut when done, into two parts; remove the yolks without breaking the whites, mash them and mix with enough mayonnaise or boiled salad dressing to bind them. Fill the egg-white shells with the prepared yolks, and stick the two half whites together, thus forming whole eggs. Cut one end flat, and stand an egg on a lettuce leaf on each salad plate. Around each egg put a circle of mayonnaise.

Cheese Straws.— Roll scraps of puff paste thin, and sprinkle with nut cheese, grated; fold, roll out, and sprinkle again, and repeat the process. Then place on ice to harden. When cold, roll in rectangular shape one-eighth of an inch thick; place it on a baking-pan, and with a pastry cutter dipped in hot water, cut into strips four or five inches long, and less than a quarter of an inch wide. Bake in a moderate oven.

Easter Lily Cake.— Bake sunshine cake in layer tins not more than one inch thick when done; also bake angel food in the same way. With a fancy pastry cutter of a lily design cut the white cake into small cakes. Cut the sunshine cake in the same way, and put one of the yellow flowers on top of the white, with a white filling between. Cover the top of the sunshine layer

with white icing, or if the white flower comes on top, cover the white with a yellow tinted icing.

The cakes might be served separately with the lily formed from icing put on the top, using white for the petals and yellow for the centers.

Nut Cheese.— Take one cup of raw peanut butter, one-half cup of cornstarch, one cup of tomato juice, and one teaspoonful of salt. Dissolve the nut butter and cornstarch in the tomato juice; add salt, and beat for five minutes. Pour into a granite bowl and cover and steam for four or five hours. Dry off in the oven, and when cool, slip from the bowl.

SCHOOL OF HEALTH SEARCH QUESTIONS

DIGESTION OF FOOD IN THE STOMACH

1. What class of foods are digested in the stomach, and by what means ?
2. What is the amount of gastric juice formed daily by the stomach glands?
3. To what is the acidity of this juice due ?
4. Name two other constituents of the gastric juice and describe their functions.
5. What is the effect of the stomach fluid upon germs ?
6. How is the secretion of the gastric juice regulated ?
7. What substances call forth an abundant flow ?
8. What food elements increase the activity of the stomach ?
9. Of what is the protection of the stomach from the corrosive action of its own fluid an evidence ?

NORMAL INFANT FOODS

1. What are the constituents of the normal infant food and the proportions in which they are found ?
2. Describe the difference between the curds of mother's milk, and those of animals.
3. What causes combine to render the milk of animals very unclean food?
4. Of what disease in infants is infected milk often the cause ?
5. How does the nutrition of infants fed on their natural food compare with that of bottle-fed babies ? Give percentage of those well-nourished of each class.
6. What is the best diet for a nursing mother ?
7. How may the quantity of the milk be regulated ?
8. What will cause a lack of fats and surplus of proteids in the milk supply, and how may this condition be remedied ?

COLD TOWEL RUB

1. Describe the method of procedure in giving this treatment.
2. In what direction should all the rubbing movements be made, and with what should they alternate ?
3. What is the usual temperature of the water and how may it be maintained ?
4. To what part of the body should the application first be made ?
5. Describe the order in which the body should be treated.
6. What follows the wet towel rub ?
7. What should be done if the patient shows signs of chilliness ?
8. In what cases is this form of treatment useful ?

CARE OF CONVALESCENT CHILDREN

1. Mention three things to be guarded against in the convalescence of a child.
2. With regard to feeding, what is a good rule to follow, after a wasting disease?
3. What condition makes it necessary to regulate the exercise very carefully ?
4. What symptoms are indicative of fatigue ?
5. Describe five different ways in which a convalescent child may amuse itself without much effort.

ONE WAY TO DRESS THE BABY

1. To what should the first day of the new-born infant's life be devoted ?
2. How may he best be prepared for rest ?
3. What may be used for the wrapping blanket ?
4. Name the essential articles for the first clothing.
5. Tell how these may be arranged so that the child may be dressed without being more than once turned.
6. When the pinning blanket becomes necessary how may it be adjusted without band or buttons ?

THE PNEUMONIA PLANT

1. Where does the pneumonia germ most readily thrive ?
2. Why are the lungs more favorable for its growth than are other parts of the body ?
3. By what means does nature protect the lungs from foreign substances entering through the trachea ?
4. How, then, does the pneumonia germ reach the lungs ?
5. What provision is made in the body to destroy the poison produced by the germ ?
6. When is there the greatest danger of infection from a pneumonia case ?
7. What means of protection and disinfection should be used ?

Hundred Year Club

A VEGETARIAN CENTENARIAN

MICHIGAN'S oldest citizen, William Gifford of Memphis, who last September celebrated his 105th birthday, passed away three months later at the home of his daughter, Mrs A. E. Gurney.

Born in 1798, Mr. Gifford had lived in three centuries. The members of his family attribute his remarkable longevity to his strict adherence to a healthful diet, and to his active outdoor life.

His uncompromising temperament, which made the expression, "No half masts for me," a familiar phrase with him, constituted him a strong temperance man. He never used tobacco in any form, nor tasted intoxicating liquor of any kind. He became a member of the first temperance society organized in the United States.

Mr. Gifford was accustomed to adopt immediately and hold to steadfastly any principle of healthful living that was brought to his attention. Though he never used tea, he was in his youth accustomed to the use of coffee, for breakfast. But being assured by his physician that this was the cause of a nervous disorder which troubled him, he abandoned it at once, and would not afterward allow it in his house.

For the last forty years of his life he abstained from the use of meat, and lived mainly upon grains and fruits. Before that time he was laid up one winter with rheumatism, but the banishing of flesh foods from his table freed him from the tendency to this disease.

The centenarian, until within a short time before his death, enjoyed excellent health, and was remarkably vigorous and active for one of his years. He occupied himself with light gardening work, and, having good eyesight, spent much time in reading.

He was six feet in height, and well proportioned. The accompanying photograph, taken on his 104th birthday, shows him to have been a fine specimen of the results of healthful living.

.. By the Editor ..

THE NEW PLAGUE

ACCORDING to recent statistics four per cent, that is, four in every one hundred, of the people of every city community suffer annually from pneumonia. At least twenty per cent, or one-third, die. From some epidemics mortality is much greater than this, although the mortality may be lessened at least three-fourths if the patient can be placed in the hands of a thoroughly trained nurse acquainted with physiological methods, from the very beginning of the disease. Pneumonia is now recognized as the most deadly of all diseases which prey upon the human race. For a century or more, that dread disease, pulmonary consumption, or tuberculosis, has stood at the head of the list of life destroyers; but pneumonia has in recent years with rapid strides arisen to the ascendancy, and now kills more than tuberculosis, although "the great white plague" still continues its fatal ravages as actively as ever.

A peculiarity with reference to pneumonia, which at first sight is not easy to understand, is that its victims are chosen among those who are apparently in ordinary health. The robust old man seems to be the favorite mark for this disease. While consumption chooses rather the feeble, the emaciated, the dyspeptic, pneumonia lays its hand upon those who are actively engaged in the duties of life and who are apparently in usual health.

The chief predisposition to acute disease is lowered vital resistance. One might think that the plump, rosy-cheeked butcher who is suddenly brought down by pneumonia and goes to his grave in a week or less is a man of high resistance, and would consequently be led to wonder if he is not an exception to the rule. The appearance is deceptive. This robust-looking man has abundance of blood, but it is poor blood,—blood swarming with impurities. The white blood cells, or phagocytes, which in the healthy man stand ready to seize and destroy the germs of disease as rapidly as they enter the body, and are constantly occupied in this way, thus protecting the vital domain, are stupefied and rendered inactive by the enormous quantities of waste and poisonous substances thrown into the blood as the result of over-eating, especially the large consumption of flesh meats. The butcher is of all men the worst possible subject for the surgeon. His florid countenance gives the appearance of health, but his tissues are swarming with disease and readily succumb to death-dealing agencies.

The increasing virulence and growing prevalence of acute disease is a matter which deserves the attention of all intelligent and thinking men and women. There is only one course of safety, only one door of escape. This lies in living above disease, keeping one's blood so clean by right habits of eating, abundance of exercise in the open air, and general attention to matters conducive to health, that germs of disease will not be able to live in the body; so that if infection happens to occur, an army of vigorous, hungry, white cells will immediately surround the microbic enemies of life and destroy them. By correct habits of living, the body may be made so resistant that disease can get no foot-hold in the vital domain.

HOW TO FLETCHERIZE

If it can not be quite said that Mr. Horace Fletcher discovered chewing, it is certain that he has revived an art which has become well-nigh extinct among civilized people. Mr. Fletcher has the good fortune to possess the happy faculty with which few reformers are blessed,—the ability to present his ideas in such a manner as to secure ready recognition and acquiescence. The leading newspapers, both in this country and in England, especially the latter country, are aiding greatly in the propagation of the new ideas, and thousands of people are giving attention to the careful mastication of their food who, until Mr. Fletcher came forward with his convincing experiments and his interesting personal experience, bolted their dinners like cat-fish, and afterwards swallowed nauseous doses of pepsin, bitters, after-dinner pills, etc., in the effort to compel the stomach to do the grinding which belongs to the mouth.

In his admirable new books, "The New Glutton," and "The A. B.-Z of Our Own Nutrition," Mr. Fletcher tells in a very interesting way the physiology of buccal digestion and explains how to do it. These books, as well as his older work, "Menticulture," unfold basic truths which are of immense importance to all who are seeking the true road to health and happiness of mind and body.

In a recent personal letter to the editor, Mr. Fletcher makes a few suggestions in reference to the practise of chewing which are so exceedingly valuable we take the liberty to publish them without waiting for that permission, knowing that the hundreds of our readers who are learning to chew will be glad for the suggestions.

"I think the statement that I recommend chewing food 'four or five times longer than usual' is perhaps rather discouraging to would-be beginners. As a matter of fact, but slightly more mastication is required for thoroughness than most people give, but the special benefit is derived from masticating all food sufficiently and not neglecting a single morsel. In ordinary chewing half of the food may be sufficiently masticated and the other half may yet cause strain and trouble. There should be neglect of no morsel to get the best economic results, and this is what should be inculcated. It is also a fact, that if the food is naturally handled according to the full requirements of buccal digestion in response to a real appetite the best psychic appreciation is enjoyed and there is consequently, undoubtedly, a generous gastric flow. Too much *effort* in chewing and the forced holding of food forward in the mouth often acts as an inhibition to the normal digestive functions and does harm when it should only do good.

"I have known frequent cases where persons have started in to pay attention to mouth-treatment of food and have overdone the thing. I have also observed that some nervous persons watch themselves very closely when they start in on any new method and any newly-observed symptom of discomfort is immediately attributed to chewing when it may be from causes induced some time before and not yet remedied by better digestion. Beginners should be warned of such possibilities and should be assured that nothing but good can result from giving the mouth as much of digestion to do as it can do and that it can not do too much. In ordinarily-well persons the involuntary, impulsive swallowing inclination will suck up the chymified food when it is ready and many of the well-cooked and otherwise suitable foods are easily prepared in the mouth and do not require tedious treatment. There is such variety of fitness, such as comparative strength and copiousness of saliva, that no rule can apply to all, and each beginner should understand that there is considerable scope of variability and that nervous inhibition is to be avoided as much as careless eating."

JAPANESE WRESTLERS

A TWO-HUNDRED pound policeman undertook to arrest a little Jap in New York the other day, but, according to report, found himself floundering upon the sidewalk three or four times within less than the number of minutes. It took him some time to recover from his surprise.

The Japanese have for ages been rice-eaters. A meat diet was practically unknown in Japan before the advent of missionaries and the commercial representatives of civilization who followed them. Even at the present time the eating of flesh is almost wholly confined to cities, and but a very small proportion of the population eat meat to any extent. The Japanese are remarkably agile, enduring, and stronger in proportion to size, than almost any other people. The Japanese wrestlers are almost gigantic in size. They are a race by themselves. Their great size may be attributed to the influence of heredity, as they have through inter-marriage developed a distinct caste.

Some years ago an American surgeon who was well acquainted with the Japanese, having served the Japanese government as Minister of Agriculture for several years, stated to the writer that he had often met these Japanese wrestlers on the streets of Tokio and other Japanese cities and that they could be recognized as far as they could be seen. He was especially interested in the fact that these men have subsisted for ages upon a non-flesh dietary and have developed their enormous size and strength without the use of flesh foods.

The writer in a recent number of the *London Chronicle* who attributes the great size and strength of the Japanese wrestlers to meat eating, has apparently not taken the pains to investigate this question. It is not necessary that a man should eat strong animals in order that he himself should be strong. The strength of the ox and the elephant are derived not from flesh-eating but from original food stuffs. All energy is derived from the sun. Sunlight has captured and stored up products of the vegetable world. These are the only source of energy to animals. Vegetables store energy; animals spend it. The man is a mechanism for using energy. There is always in every animal body a certain amount of energy stored which has never been utilized; hence, it is possible to make use of flesh as food, but such food is necessarily inferior, as the original energy contained in the food from which the flesh is formed has been in part dissipated and that which remains is contaminated with poisons.

THE NO-BATH THEORY

THE editor is receiving frequent letters from persons who have read the statement recently published in the newspapers on the authority of a homeopathic physician to the effect that bathing the body is not only not necessary for health but actually injurious; that even dry rubbing of the skin is harmful because it removes the outer or false skin. Our opinion is asked respecting this theory. We do not hesitate to say that we consider it absolutely without foundation. While it is probable that a healthy man living in a wild and natural state might not require a daily bath to keep himself in health, the situation is entirely different with the civilized man. The native man, living in a tropical climate, without clothing, would, by his constant contact with the air, and by objects coming in contact with the skin, be able to keep his skin in a reasonably healthy condition. But the civilized man covers his skin with clothing, by means of which the secretions which emanate from the skin are retained, and the skin is deprived of the advantage which is gained by the polishing action of the grass, twigs, and other objects with which the

wild man comes in contact in his search for food through forests and thickets; and is also deprived of the stimulating and disinfectant influence of the sunlight and the air.

The wearing of clothes is unhealthy and promotes an unclean condition of the skin. It is only by frequent changing of the clothing and by the daily bath that the skin can be kept clean. Further than this, the vessels of the skin, by overheating of the clothing, become relaxed, and lose their normal tone. The consequence is exposure of the body to chill, and the series of evils which result from the lowering of the temperature of the blood and congestion of the internal organs. By the daily cold bath the blood-vessels of the skin are trained to contract so that when the conditions which induce chill are encountered they are able to protect the body from excessive loss of heat and thus from the danger of chilling.

The cold bath is gymnastics for the skin, while the blood-vessels of the skin are trained and rendered capable of vigorous and sustained contraction. A warm bath two or three times a week is necessary to remove the accumulated excrement which is thrown off by the skin and is retained by the clothing—the artificial skin which modesty requires at all seasons, and which is made necessary by the low temperature at certain seasons of the year.

THE ARISTOCRACY OF HEALTH

THIS is a new book, devoted to "The Study of Physical Culture, our Favorite Poisons, and a National and International League for the Advancement of Physical Culture," by Mary Foote Henderson. It is not often that a woman of wealth and leisure and a very high social position thinks it worth while to devote her time, energies, and wealth to the promotion of unpopular reforms. Mrs. Henderson has been well known for many years as the very queen of entertainers in Washington. With her husband, Senator Henderson, for many years prominent in national politics, she lives in a veritable palace, Boundary Castle, on a commanding eminence overlooking the whole city of Washington, surrounded with every comfort and luxury that art and money can supply. The spacious rooms are connected by broad, folding doors so that the great crowds of eminent people from all over the world, especially foreign ministers and embassies who are frequently entertained here, may move about without inconvenience, enjoying the marvelous collections of bric-a-brac, rare specimens of ancient and modern art which decorate the walls in every apartment.

After having reigned as a society queen for half a century or more, Mrs. Henderson's attention was providentially called to the great evils which those engaged in promoting the important health movement were endeavoring to combat. She at once began a thorough-going investigation of all these matters in her own way, with the assistance afforded by the great Congressional Library at Washington and the exceptional opportunities for observation and the collection of information afforded by daily contact with the most eminent people from all parts of the world. The advantage of broad culture, a life devoted to scholarly pursuits, and an intimate familiarity with several modern languages, has enabled Mrs. Henderson to probe more deeply, perhaps, into this whole question of health culture than has been done by any other woman of our times. The result of all this study and research, covering a period of several years and pursued with most astonishing diligence and thoroughness, Mrs. Henderson has embodied in this remarkable work which is termed "The Aristocracy of Health." A hasty glance at the table of contents and a rapid run over the pages

of this volume, will be sufficient to convince any one that it is a veritable mine of information, touching the most vital points of all questions pertaining to health and temperance reform.

A large portion of the volume is devoted to the discussion of "Our Favorite Poisons," and the physical, mental, and moral injury which they inflict upon the individual and the race. Something over one hundred pages of the work, are devoted to the "Study of Diet," in which are presented the views of Haig, and other eminent scientists who have been bringing out within the last few years such remarkable and important facts in relation to diet reform.

Mrs. Henderson has in this neat little volume produced a sort of "health Bible" which will serve as a text book for the members of the health aristocracy which she proposes to organize. Mrs. Henderson's object is to initiate a movement in behalf of hygienic and temperance reform among those classes of society which are not reached by any of the methods promoting those reformatory principles which are now in operation. It is to be hoped that this effort will be successful. Herself a recognized member of "aristocracy," Mrs. Henderson's influence will reach those who could not be reached in any other way, and every friend of reform will feel grateful that a kind Providence has put it into the heart of this great and good woman to do this noble work, and will pray that the effort may be a grand and glorious success.

Good Health Cigars.

A certain firm of tobacco manufacturers have desecrated the name of this journal by attaching it to a brand of cigars with which they are seeking to delude the public. They claim to have extracted from these cigars the nicotine which all tobacco contains, so they are perfectly wholesome, possessing all the other properties of tobacco with the exception of the nicotine. Doubtless thousands will be deceived by this wicked misrepresentation, since the public are not generally aware of the fact that tobacco is a veritable Pandora's box of poisons.

Dr. Richardson called attention many years ago to the fact that tobacco smoke contains all the poisons which are found in coal tar, and besides, considerable quantities of other deadly poisons, some of which are even more destructive to life than nicotine, among which are picoline, lutadine, collidine, coridine, paroline, viridine, and last and most deadly of all, prussic acid. It is apparent that nicotine may be wholly removed from tobacco and yet it may retain these most deadly properties. This explains the fact that certain so-called "mild" tobaccos, like Havana and oriental tobaccos, have been observed to produce even worse effects than those strictly nicotine, although they may not contain more than one or two per cent nicotine, while better tobaccos contain four or five times as much. Analyses which have been made of the Havana and Eastern tobaccos, show that they contain more prussic acid, the most deadly poison known, than do better tobaccos. Medical men and all others who have been informed on this subject should make a most thorough effort to inform the public of the danger which lies in tobacco, not only through nicotine but through prussic acid, collidine, and other poisons which are even more deadly than nicotine.

A New Way to Fight Mosquitoes.

It has come to be universally known that the mosquito is the chief source of malarial infection. Certain species of mosquito constantly carry with them in their bodies the malarial parasites, and in inflicting their bite they inject some of these parasites into the blood. The parasites multiply, producing poisonous matters, and at the same time destroying multitudes of the red blood cells. It is in this way that the well-known symptoms

of malarial infection are induced by them.

Dr. Schoo has observed that when mosquitoes have access to acid fruits their bite becomes less poisonous, or wholly innocuous. And Professor Celli has observed that in portions of Italy where tomatoes are largely cultivated, the people are practically free from malarial infection, although the region is naturally very malarious. The juices of the plant constitute the natural food of the mosquito. It would seem, then, that the wide cultivation of acid fruits, such as tomatoes, strawberries, and other succulent fruits, may be made an important factor in ridding the world of this very troublesome pest. How the use of acid fruits destroys the virulence of the mosquito bite has not yet been determined. It seems probable, however, that the vegetable acids may destroy the malarial parasite.

Harvard Students Becoming Vegetarians.

According to the *Boston Advertiser*, there has recently been a great boom at the Harvard Commons. The number of students taking their meals at the commons is now thirteen hundred, which is several hundred more than last year. The reason for this great increase of students is a change in the method of paying for meals. The regular price for table board per week has heretofore been $4.20, or sixty cents a day. In recent years many Harvard students have been studying the subject of diet, and have discarded meat. These have objected to paying for the meat dishes which they did not eat, and many have in consequence been led to take their meals elsewhere, where a non-flesh regimen could be secured. The present plan permits those who abstain from meat to pay $2.60 a week, or thirty-seven cents a day, for the vegetarian courses. Flesh eaters must pay $1.60 per week more.

This plan is sensible and just. It permits those who do not care to fill their bodies up with uric acid and who do not want to pay for the privilege of seeing others abuse themselves in the same way, to obtain good, wholesome food, the sort which nature designed for human beings, at a reasonable price. It is to be hoped that the popularity of this plan will induce other colleges to adopt it.

We are glad to note this new forward step in the interests of food reform.

A Cruise on Granose Biscuit.

The Christ Church (New Zealand) *Press* reports the thrilling experience of a Mr. Sowden who sailed alone in a 2½-ton yacht in the South Pacific for eighteen days, during which he traveled over several thousand miles and subsisted the whole time on granose biscuit, honey, and lime juice. During this time Mr. Sowden was continually at the tiller, and if he slept at all it was only in occasional snatches of a few minutes. He encountered storms and many hardships, but arrived in port in good condition.

This experience clearly demonstrates the sustaining power of cereal foods. It is interesting to note that Mr. Sowden provided himself with granose biscuit as the food best adapted for the long and perilous journey. He started out planning to make the trip to London around Cape Horn. His friend, the captain of the boat, was killed by an accident, which compelled him to return. The granose biscuits are manufactured by the food company connected with the sanitarium at Sydney, N. S. W., Australia.

Buttons of Milk.

An inventor has perfected a process by which durable buttons may be made of milk. The same material may be used for knife handles, and any other purpose for which ebony is employed, equaling ebony in hardness and polish.

. . . Question Box . . .

10,039. Hemorrhoids.—L. W. B., Iowa.: "I am a man of fifty-five years of age; my strength is good, but stomach and bowels weak. For about a year I have suffered with hemorrhoids. Is there any remedy without an operation?"

Ans.—Yes. Most cases of hemorrhoids may be cured by prolonged cold sitz baths. The water should be about three or four inches deep in the tub, with the temperature sixty degrees. The duration of the bath should be from twenty to thirty minutes. The feet should be placed in hot water at the same time, and a woolen blanket should be wrapped about the body to prevent chilling. Prevent constipation by proper diet, kneading the bowels daily, and abundant exercise.

10,040. Quaker Oil.—F. P. R., S. C.: "What do you know of 'Quaker oil' for catarrh?"

Ans.—Nothing.

10,041. Salt Rubbing—Pain in Side.—C. S. G., Kansas: "1. How often should salt rubs be taken? 2. Should they be given to one suffering from any kind of fever? 3. Would they be beneficial for pain in side? 4. A year ago I had an attack of pleurisy in left side, and ever since have suffered more or less with severe pain in that side. Is this affection a disease of the lung? 5. What remedy would you suggest?"

Ans.—1. There is no specific virtue in a salt rub. Salt has no curative value. Rubbing the skin with a towel dipped in cold water, or a friction mitt moistened in cold water, is in every way as advantageous as rubbing with salt. Such an application can be made daily with advantage. Robust persons in good health require a more vigorous application.

2. No.

3. A fomentation, followed by a heating compress, is better.

4. Possibly. You should consult a competent physician.

5. A hot fomentation taken at bed-time, followed by a heating compress worn at night. A heating compress consists of a towel wrung dry out of cold water applied about the part, then covered, first with mackintosh, then with flannel to a sufficient thickness to produce quick warming and retention of heat.

10,042. Food Combinations.—W. E. B., Okla.: "1. Is it well to eat bread and grains with fruit? 2. Should starchy foods be eaten at the beginning of the meal and fruit at the close? 3. May toasted bread and grains be eaten with acid fruit? 4. May sweet fruits, such as raisins, dates, and figs, be eaten with starch foods?"

Ans.—1. Yes, taking pains to masticate very thoroughly.

2. Yes, it is a good plan.

3. Yes.

4. Yes.

10,043. Enlarged Tonsil.—T. H., Pa: "Kindly suggest remedy for enlarged tonsil (right) in one whose food and habits are in accord with your teachings."

Ans.—Removal.

10,044. How to Reduce Fat.—D. A. M., S. D., has by thorough mastication of food, and exercise, reduced his weight in one year from 220 to 175 pounds. He is troubled with a large bunch of flabby fat over the abdomen, which he is unable to reduce. Give remedy.

Ans.—Massage and fomentation, followed with heating compress, should be applied twice daily. The heating compress should be worn constantly night and day, except while fomentations are being applied. Massage should be applied for one-half hour twice daily. The abdominal muscles should be thoroughly exercised daily. An excellent exercise is to lie upon the back and raise both legs as high as possible, repeating thirty or forty times. Do this several times daily.

10,045. Biliousness.—C. B. H., Mo., would like advice for biliousness and indigestion.

Ans.—Avoid meats, sugar, milk, tea, coffee, pastry, greasy foods, rich gravies, and all indigestibles. Masticate the food very thoroughly—at least four or five times as long as usual. Eat fruit very largely, taking pains to chew it well. Use fruit juices freely. Apple juice is particularly beneficial. Take two or three pints daily. Apply fomentation over the stomach at night, followed by heating compress to be worn during the night. Take a cold bath every morning. Live out-of-doors as much as possible. Sleep near an open window.

10,046. Underclothing.—R. H. S., St. Paul: "1. Can Dr. Lahmann's cotton underclothing be obtained in this country? 2. Do you know of any other good make?"

Ans.—1. We do not know.

2. Any sort of cotton or cotton-flannel underwear is wholesome.

10,047. Swelling of Thyroid Gland.—C. T. D., Conn.: "1. What is the cause of swelling of the left thyroid gland, of about ten years' growth, in lady forty-five years of age? 2. Is it the same as goiter? 3. Can it be reduced by natural means, avoiding an operation?"

Ans.—1. Nobody knows.

2. It is probably a variety of goiter.

3. Possibly.

10,048. Constipation.—Mrs. F. S., Cal., wants to know the best remedy for constipation for a woman in maternity.

Ans.—There is no remedy which fits all cases. The following are suggestions which have proved serviceable in different cases. A hot enema (100° to 102°) followed by a cool enema (76° to 80°). Moist abdominal bandage worn at night. The injection of four to six ounces of linseed oil at night to be retained overnight. A small, cool enema administered at night to be retained overnight. A small, cool enema before breakfast. The free use of fruits. Substitute granose flakes or granose biscuit for other breadstuffs. Use malt honey freely. Take a pint and a half or two pints of apple juice daily. Take an equal amount of orange juice. Take exercise to develop the abdominal muscles, such as raising the legs thirty or forty times while lying on the back. Repeat two or three times daily.

10,049. Laxative Foods.—W. H. S., N. Y.: "Kindly give a list of cereals, fruits, etc., that are laxative."

Ans.—Granose biscuit, granose flakes, granuto, toasted wheat flakes, corn flakes, granola, malt honey, malted nuts, all acid fruits, and acid fruit juices. Mushy cereals and soups should be avoided.

10,050. Bitter Taste in the Mouth.—W. P., Tenn.: "1. For some years I have suffered from 'apepsia,' and am troubled with a bitter taste in the mouth that at times is almost unbearable. Please give cause of trouble. 2. State remedy, if any."

Ans.—1. Low resistance; possibly dilatation or catarrh of the stomach.

2. Would recommend the free use of apple juice and other fruit juices—a pint and a half or two pints daily. Taken before meals, it is a disinfectant for the stomach and bowels. Masticate the food very thoroughly. Avoid the use of meats, and especially avoid fats. Use malt honey freely, granose flakes, corn flakes, and the cereal preparations of the Sanitarium Food Co., Battle Creek, Mich. Baked potatoes are excellent. Mushes and soups should be avoided.

10,051. Chocolate.—C. B. F., Ore.: "What is the effect of chocolate upon the human system?"

Ans.—The same as tea and coffee. It encourages the accumulation of uric acid on account of the theobromin which it contains. You can obtain from the Sanitarium Food Co., Battle Creek, Mich., health cocoa or chocolate which is free from theobromin.

10,052. Infant Feeding.—G. W. N., Iowa: "1. What do you think of 'Eating and Drinking,' by Hay, as a book of hygiene? 2. How long is it safe to allow a bottle-fed infant to live on cow's milk alone, especially if solid food does not agree with it?"

Ans.—1. I am not familiar with this work.

2. If the cow's milk agrees with the infant, it is doubtless getting along all right. But cow's milk is a dangerous food for babies, and one likely to make mischief sooner or later. Purée of potato with the addition of white of an egg, or better, the whole egg, cream diluted with water to the consistency of milk, malted nuts, and twenty per cent gluten (Sanitarium Food Co.) are the best foods for infants.

10,053. Good Health Bath Cabinet—Its Use in Fever Cases—Flesh-forming Foods.—J. E. Y.: "1. How often should the Good Health Cabinet be used in cases of fever? 2. Should baths be taken during high fever? 3. Is there any objection to using a bucket of boiling water in cabinet, instead of the alcohol stove? 4. What should I use in order to gain flesh? 5. I have pain in the head and occasionally fever, and am troubled with constipation. Please advise."

Ans.—1. It is not to be recommended in a case of fever, except at the very beginning while the patient is still vigorous; then the application should be very short—not more than four or five minutes—and not more than one bath should be taken.

2. Never.

3. No.

4. Eat simple, natural food and chew well. Malt honey, cream, butter, granuto, granose, and potatoes are all fat-making foods.

5. See answer No. 10,048 in relation to constipation. If suffering from fever, take a neutral bath at a temperature of 92° for twenty minutes, or a wet-sheet pack. Stay in bed. Take a large enema. Apply a moist abdominal bandage. Drink freely of water or apple juice, and take no food but fruit or fruit juices for a day or two.

10,054.—Cold Sponge Bath.—T. B., Utah: "Can one in good health take a cold sponge bath in a room without a fire during the winter months, without injury?"

Ans.—Yes, if the bath be taken very quickly. It should not occupy more than twenty or thirty seconds, and it would be well to return to bed again after the bath, until the body is thoroughly dry and warm.

10,055. Colds—Sore Throat.—E. J., Cal.: "What treatment would you recommend for a cold and sore throat?"

Ans.—If the treatment is applied immediately after the cold is contracted, it may consist of a general hot bath carried to the point of sweating, followed by a short cold bath; then go to bed. Three or four glasses of water should be swallowed before, or during and after the bath. Put around the throat a napkin wrung dry out of cold water; cover this with mackintosh, then with flannel enough to keep it warm during the night. Repeat this treatment every night for a few days until the cold disappears. Live out-of-doors as much as possible. Sleep near an open window. Protect the head very thoroughly so as to avoid chilling. The important thing is to be able to breathe cold air as constantly as possible. Eat no meat or other stimulating or clogging foods. Live chiefly on fruit for a few days, and take pains to masticate the food very thoroughly.

10,056. Milk and Fruit—Amount of Sleep Necessary—Boils and Pimples—Pain in Side—Appendicitis—Chronic Constipation—Sprained Arm—Bicycle Riding—Nervous Sensations in Back and Limbs.—L. B., Cal.: "1. Should milk and fruit be eaten at the same meal? 2. Is ten hours too much sleep for a healthy adult? 3. Should not one sleep as long as one is sleepy? 4. What causes boils and pimples on persons who eat no meat and try to live hygienically? 5. What causes a dull constant pain in the right side, a little above and in front of the hip? 6. Is it from the liver? 7. Give remedy. 8. What causes appendicitis? 9. How may it be avoided? 10. What will cure chronic constipation? 11. What will relieve an arm that was sprained six months ago from overuse? It can be used, but tires quickly. 12. A healthy woman (aged 39) rides a bicycle seven miles in the morning and seven miles at night on three consecutive days in the week. Works through the day at light sitting occupation. Feels very tired at night but appears to suffer no bad effects. Is there any danger from over-exertion? 13. An old lady suffers from nervous feeling in the lower part of the back, extending into the limbs, mostly in the evening and at night. Cold applications sometimes give relief. Can you suggest any other treatment?"

Ans.—1. There is no necessary antagonism if both milk and fruit are thoroughly chewed. If eaten raw, the fruit should be thoroughly ripe. Extreme care must be taken to avoid swallowing any portion which is not reduced to a liquid state.

2. Eight hours is generally sufficient. Some temperaments require more, a few less.

3. There are some conditions of the body in which drowsiness is a prominent symptom. After a proper amount of sleep has been obtained it is better to arouse the system by a cold bath and vigorous exercise in the cold air. Drowsiness which appears after eating should be resolutely resisted. It is due to the withdrawal of a considerable amount of blood from the brain, the result of the stimulation of the food. By exercise the heart's action is increased, and the brain will be supplied with blood sufficient to maintain its activity. Activity of the brain is conducive to digestion, whereas the inactivity of sleep invites indi-

gestion. The only exception to this rule occurs in cases of hyperpepsia, in which activity of the brain or body increases gastric activity, hence increasing the amount of acid formed and the discomfort arising therefrom.

4. Low vital resistance, impoverished state of the blood, and inactive and unhealthy skin.

5. Possibly a movable kidney.

6. Probably not.

7. Apply at night a fomentation, followed by a heating compress to be worn during the night.

8. Overeating, hasty eating, insufficient mastication of food, indigestible food, flesh eating, use of alcoholic beverages, tea, coffee, tobacco, and everything which induces indigestion. Special causes: constipation, sedentary habits, general lowering of vital resistance from any cause whatever, and blows or other injuries in the region of the appendix, the use of condiments, mustard, pepper, pepper sauce, also the frequent use of blue-pills, blue-mass, saline laxatives, and laxative mineral waters.

9. Avoid the causes.

10. See answer No. 10,048

11. Apply fomentation morning and night, and wear heating compress covered with mackintosh and flannel during the interval.

12. No, not unless too great exertion is made in rapid riding or riding up-hill.

13. There is nothing better than the cold application. Rubbing with cold water followed by a heating compress, are the best methods. A short fomentation followed by a heating compress or cold rubbing, and alternate hot and cold compresses, or alternate sponging, are also to be recommended.

10,057. Injured Muscle.— C. R. E., Ind.: "What treatment would you advise for an old man whose right biceps muscle was injured by vibratory exercise about a year ago? It has lost much of its power and can not be moved rapidly without pain."

Ans.— This case is probably one of organic disease of the spine. It is scarcely possible that vibration should produce such an effect. Rubbing of the spine and of the arm with cold water, with the intelligent administration of massage, and possibly electricity, might prove helpful.

LITERARY NOTES

SINCE President Roosevelt wrote, soon after leaving college, his history of the naval war of 1812, no complete narrative of that event has been attempted until Captain A. T. Mahan's remarkable history which has just begun in **Scribner's.** Captain Mahan will follow the operations on land as well as on sea, and his work, as everything that he produces, will become authoritative.

McClure's for March adds still further to its well-established reputation in the magazine world. In this number light is shed on several of the nation's dark places, greatly to the interest of the public. Of especial significance and timely interest is the first of a series of papers on "The Negro: The Southerner's Problem," by Thomas Nelson Page, in which he discusses "Slavery and the Old Relation Between the Southern Whites and Blacks." Mr. Page has happily the view-point of both North and South, and writes on this pressing subject with an authority born of personal knowledge. Life in New York's great polyglot East side has no more sympathetic interpreter than Myra Kelley. Her little stories of the children of the struggling poor among these strangers in a strange land are simply exquisite bits of character drawing. "When a Man's Widowed," is her latest contribution, and it is a gem.

IMPORTANT changes appear in the **Homiletic Review** for March. There is a thorough readjustment and reclassification of contents, the evident design being to simplify the arrangement, and to do away with many subdivisions. The first department that now appears is "Editorial Comment," which is a brilliant review of recent developments. The article of Professor James Orr, D. D., of Glasgow, on "Voltaire's Boast in the Light of Present Facts," is of timely interest in view of the recent appearance of a new life of Voltaire. "The Pathos of God's Love" is the title of a sermon of remarkable beauty and strength by Dr. Newell Dwight Hillis on Hellen Keller's story of her life as a theme.

The **New England Magazine** shows no falling off, in its March issue, from the high standard it has set itself. Variety, strength, literary quality — all these are to be found in its table of contents, enhanced by profuse and beautiful illustrations. The cover page, in white and red, is especially artistic, and typical of the month — a slender, classic figure, with wind-blown hair and draperies, stands in relief against a conventional design. Among the more serious papers is a thoughtful essay entitled "Darkest America," by Kelly Miller, professor of mathematics at Harvard University, treating the Negro question from a geographical point of view. With "Colonial School Books," Clifton Johnson closes the interesting and valuable series of articles that have given so much pleasure to New England readers, and Judge Shute furnishes the third, last, and best instalment of his witty "Neighborhood Sketches."

BOOK REVIEWS

The Art of Living Long, a New and Improved English Version of the Treatise of the Celebrated Venetian Centenarian, Louis Cornaro, with Essays by Joseph Addison, Lord Bacon, and Sir William Temple. Published by Wm. F. Butler, Milwaukee.

The articles on Cornaro's life and teachings, recently published in our pages, have elicited enquiries as to where a good translation of the treatise of this celebrated nobleman may be obtained. The above, published in 1903, is the latest and best version. In this volume the value of the unique jewel is enhanced by its beautiful and appropriate setting, surrounded as it is with the choicest gems of literature relating to the subject of which it treats. Addison's Essay forms a charming introduction, and selections from Bacon and Temple, a most appropriate sequel. Extracts from Milton, Dryden, Shakespeare, Young, etc., interspersed through the volume, add to its charm and value. Altogether, it is a most attractive and instructive volume, which every one who desires a long and happy life (and who does not?) should place among his classics.

The Lover's Love, by Rev. William P. Pearce, Review and Herald Pub. Co., Washington, D. C., a delightful volume of 172 pages, based upon the text of John 3:16. This book is brimful from cover to cover with helpful thoughts and saving truths, which are impressively illustrated by a wonderful wealth of incident and anecdote. There is not a dull

page in the book; no sermonizing; no hackneyed exhortation; not a useless sentence. It is truly a choice production, a veritable treasure of garnered spiritual wisdom. The writer recognizes God in his works. He says, "God is everywhere, and his name is written upon all his works. His majesty is seen in the towering mountain and the mighty ocean; his love shines in every flower and dewdrop; his voice is heard in the storm; and his glory is depicted on the variegated landscape, in the lightning flash, and in the magnificent aurora."

Everybody who reads this book will be better for so doing. It is just the sort of book to put into the hands of a careless young man or woman. It will carry with it an irresistible, sweet, winning influence. We bespeak for the work a wide circulation.

The Art of Living, by Ellen Goodell Smith, M. D. Published by the author, Amherst, Mass. Price $1.00, postpaid.

This book is the summing up of the more than forty years' observation and experience of the writer as physician and lecturer. Its key-note is simplification of life, and it contains chapters dealing with every branch of the science of living. The writer has apparently been herself helped by all systems of health reform, and is circumscribed by none, but the book is in the main in line with the teachings of Dr. Dewey, to whom it is dedicated.

Beauty, by Philip Houghton. This delightful paper, read a few weeks ago at a meeting of the Good Health League, held at Caterham, England, is not a prosy digitation nor a rhapsodic eulogy, but rather a serious study of the essence of real beauty. The author does not believe in beauty apart from excellence, considering the attainment of beauty possible only in continual struggle toward perfection.

"Trifles make perfection, which is no trifle. I do not doubt if throughout life we try to entertain a never-sated hunger for this principle of excellence, live daily and hourly by its light, Beauty will spring up, aye! even beneath our feet, and will stream into our life to enlarge, to enrich, and to bless it."

We have received from Mr. Adair Welcker of the Stock Exchange Building, Pine St., San Francisco, Cal., a copy of the **Roosevelt March,** by his daughter, Miss Henrietta Welcker.

Price, 50 cents. Band arrangement for thirty-two instruments at same price.

GOOD HEALTH

A Journal of Hygiene

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

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BATTLE CREEK. . . . . MICHIGAN

GOOD HEALTH FOR MAY.

In harmony with the spring season, the May number of Good Health will deal especially with the Out-of-Door Life. The key-note of the journal will be sounded in the leading article by the Editor, on "Beauty by Health Culture." There will be illustrated articles on "Grace and Beauty Exercises," "Wholesome Sports," "Nature Study," etc., etc. A suggestive article by Mary Wood Allen, M.D., will deal with the subject of "The Husband as Nurse." Dr. Kate Lindsay will continue under the title of "Artificial Infant Feeding," the excellent articles begun in this number. These are a few items from the list of good things in preparation for our next issue.

HEALTH STORIES WANTED.

The publishers offer a prize of $25 for the *best* health story, $15 for the second best, and $5 each for the three next in merit, upon any of the following subjects:—

Foundation Stones of Hygiene.
The Alphabet of Health.
A Girl's Experience in Healthful Cooking.
Housekeeping Without a Kitchen.
Diet and Character.
The School of Health.
In Vacation Time.
House Nerves.
The Pie Question.
How The Other Half Live.

The House Healthful.
Kitchen Sunshine.
Out of Doors, M. D.
A Good Dinner.
The Wage Earning Woman's Health Problem.
The Health Settlement Association.
Good Dinners for Slim Purses.
Nature Cures.

The stories need not be limited to these topics, but each must exemplify the principles of health and hygiene taught by this magazine.

All contributions must be received not later than June 1.

A PRIZE OF $10, EACH, IS OFFERED FOR THE BEST ANSWERS TO THESE THREE WANTS.

Want No. 1.

Short articles by professional women or other women whose occupation is sedentary, describing means and plans by which the necessary out-of-door life and exercise has been secured and health thus maintained.

Wanted by April 20.

Want No. 2.

A vegetarian menu, with recipes, for a family meal, either breakfast or dinner, consisting of new and wholesome dishes.

Wanted by April 20.

Want No. 3.

Illustrated articles showing how children may spend a summer vacation in the most profitable manner.

Wanted by May 20.

Wanted for Good Health for 1904 100 Photographs

Of boys and girls, youth, young men and women who have been reared in harmony with the natural method advocated by this journal.

Send with the photographs a brief description of the diet, habits, disposition, mental and moral traits, and characteristics of each.

These photographs should be received by May 1 or sooner, and if so desired will be returned to the sender.

A LIVE ISSUE

About the first of May, the **Southern Watchman**, of Nashville, Tennessee, will issue a special number. This number is to contain 24 pages printed in two colors. There will be an appropriate and striking cover design, and the issue throughout will be profusely illustrated.

It will be a brief, clear-cut presentation of the live issues of the hour from a prophetical standpoint; and, in view of the present difficulties in the Far East, it will be of the keenest interest to all. The publishers will spare no pains in making this a most timely, interesting and valuable number in every respect.

Although, as stated above, this Special Number will contain 24 pages, and be printed in two colors, yet it will be furnished at the following low rates: single copies, 5 cents; 5 to 24 copies to one address, 4 cents per copy; 25 or more copies to one address, 3 cents per copy.

Those who desire to send it to their friends, may forward a list of names to the office of publication, and single copies will be sent direct from this office to the individuals, as follows:—1 to 24 copies, 5 cents per copy; 25 to 99 copies, 4 cents per copy. 100 or more copies, 3½ cents per copy. This includes wrapping, addressing, and mailing.

Orders may be sent at once to the Southern Publishing Association, 1025 Jefferson St., Nashville, Tennessee.

NOTICE.

In calling attention in our last issue to "Three Remarkable Books," by Mr. Horace Fletcher, we stated that the price was $1.00. We should have added that if the books are sent by post, the cost will be fourteen cents extra for the first, "The A. B.-Z. of Our Own Nutrition," and twelve cents extra for each of the other two, "The New Menticulture or the A. B. C. of True Living," and "The New Glutton or Epicure."

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They may be ordered direct from the BATTLE CREEK SANITARIUM Co., Ltd., provided you cannot secure them fresh and wholesome from your family grocer. A Draft, Post-office Money Order or Express Money Order should accompany each order, we have no accounts with individuals.

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Kentucky	New Jersey	Wisconsin
Maine	New York	

If you live in any of the above mentioned cities or States and wish to order in lots of $15 worth or more, we will allow you a discount of 10% and pay the freight, *not* the express. We do not advise you to order in this quantity. We think you will find it more satisfactory to buy in smaller lots and have the goods fresher. Another thing, you cannot tell when to expect freight shipments. You may get one shipment in a few days and the next may be several weeks on the road. Freight is uncertain; express is sure and quick.

We Prepay Freight

We prepay freight on orders amounting to $10 or more to all freight stations in the following States and territories: —

Alabama	Louisiana	North Carolina
Arkansas	Mississippi	South Carolina
Florida	Nebraska	Oklahoma
Georgia	North Dakota	Tennessee
Indian Territory	South Dakota	Texas
Kansas		

If your order amounts to $20 or more, we will prepay freight and allow you a discount of 10%.

$15 Orders

We prepay freight on $15 orders to freight stations in Montana, Wyoming, and Colorado.

$20 Orders

We prepay freight on $20 orders to freight stations in Washington, Oregon, Idaho, and New Mexico.

Customers in California, Arizona, Nevada and Utah, will do well to purchase their foods from the St. Helena Sanitarium Food Co., or some of its branches. This company has on sale a full line of our products.

Foreign

We ship foods to many customers in Canada and have agents in several other foreign countries. If you live outside of the United States write us for prices or the name of our nearest agent.

We wish to call your attention to the fact that there are many imitations of our foods. Because a food is made in Battle Creek, and is called a Health Food, is no proof that it is genuine. The only safe rule to follow is to accept nothing but that which bears the name of the Battle Creek Sanitarium Food Co. or of the Sanitas Nut Food Co., Ltd. These two companies are the originators of Health Foods, and their products are the only ones used and endorsed by the Battle Creek Sanitarium.

BATTLE CREEK Sanitarium CO., LTD.

[over]

We want you to try

Sanitarium Foods

Because we know if you once try them, you will always use them and will thank us for having brought them to your attention

Read This Paragraph Carefully before Sending Your Order.

The foods listed below are worth $3.07. In order to induce you to try them, we offer them for $2.50, and will prepay express charges to Minnesota, Iowa, and Missouri, and to all points east of the Mississippi River and north of Tennessee. If you live south of Kentucky, Virginia, Missouri and Kansas, or in Kansas, Nebraska or the Dakotas, add 50 cts. to help pay express charges. We pay the balance. If you live beyond these boundaries, write us before sending the trial order.

Now please remember that this is no very great risk on your part. You get more than your money's worth ($3.07 worth for $2.50), and if you don't buy this food, you will buy the kind that costs more.

Cut out this cupon and send to us with your remittance.

CUT OUT, SIGN AND MAIL

$3.07

for

$2.50

This offer is not good if you are already purchasing Sanitarium foods direct from factory. Only one sample order, will be sent to a family. No Substitutions allowed.

Battle Creek Sanitarium Co., Ltd.
Battle Creek, Mich.

THIS OFFER EXPIRES

Gentlemen: I enclose _____ for the $3.07 worth of Sanitarium foods listed below. You agree to ship by express prepaid.

1 pkg. Bromose	$0.25	*1 pkg. Granola*	$0.12
1 jar Meltose	.30	*1 pkg. Graham Crackers*	.15
1 can Protose	.25	*1 pkg. Oatmeal Wafers*	.15
1 can Nut Butter	.15	*1 pkg. Whole Wheat Wafers.*	.15
1 pkg. Granose Biscuits	.15	*1 pkg. W. W. Cream Sticks.*	.15
1 pkg. Toasted Corn Flakes.	.15	*1 pkg. Gluten Meal 20%*	.20
1 box Chocolates	.30	*1 pkg. Caramel Cereal*	.15
1 pkg. Breakfast Toast	.15	*1 can Baked Beans*	.15
1 pkg. Vegetable Gelatine	.15	*1 pkg. Granulo*	.15
			$3.07

Equal 30 cts. worth ordinary gelatine.

Name _____

Street _____

67

Town _____

State _____

Department of Dietetics

Special Advice

Will be given by our Dietetic Specialists to those who desire our foods selected with especial care and professional skill to fit their ills.

Cut out Coupon Send to us No Charge for Advice

BATTLE CREEK SANITARIUM CO., Ltd.

Department of Dietetics
Battle Creek, Mich.

Gentlemen: I understand you make a special line of foods for those whose health is so impaired as to render the use of ordinary food impracticable. I wish you would send me full particulars and a blank to fill out, so that my difficulties may be submitted to your Dietetic Specialists who will prescribe foods indicated in my case.

Name _____

Street _____

67

Town _____

State _____

[over]

OUR NEW MAGAZINE

CLUBBING OFFERS

For the Season of 1903-'04

Our offers for the season of 1903-'04 are the best, in many respects, which we have ever been able to make. There is associated with us this year a most brilliant galaxy of magazines, all of which are offered *without restriction as to new or renewed subscriptions.*

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Woman's Home Companion	1 00
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CLASS B	Regular Price
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The World's Work	3 00
Outing	3 00
Country Life in America	3 00
Lippincott's Magazine	2 50
The Independent	2 00
Current Literature	3 00

Our Prices

	Regular Price	Price to the Public
Good Health with Success	$2 00	$1 50
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Order at Once

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115 Washington Ave., N. - Battle Creek, Michigan

DIRECTORY

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 diseases are recognized at these institutions as at the Battle Creek Sanitarium. Both medical and surgical cases are received at all of them.

BATTLE CREEK SANITARIUM, Battle Creek, Mich.
J. H. KELLOGG, M. D., Superintendent.
COLORADO SANITARIUM, Boulder, Colo.
ST. HELENA SANITARIUM, Sanitarium, Napa Co., Cal.
NEBRASKA SANITARIUM, College View, Lincoln, Neb.
PORTLAND SANITARIUM, Mt. Tabor, Ore.
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TRI-CITY SANITARIUM, 1213 15th St., Moline, Ill.

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INSTITUT SANITAIRE, Basle, Switzerland.
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A. E. LEMON, M. D., Superintendent.
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A. J. READ, M. D. Superintendent.
SURREY HILLS HYDROPATHIC INSTITUTE, Caterham, Surrey, England.
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CHRISTCHURCH SANITARIUM, Papanui, Christchurch, New Zealand.
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TREATMENT ROOMS, 320 North Tejon St., Colorado Springs, Colo.
TREATMENT ROOMS, 201-4, Granby Block, Cedar Rapids, Iowa.
R. L. MANTZ, M. D., Superintendent.
BUFFALO BRANCH SANITARIUM, 922 Niagara St., Buffalo, N. Y.
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EATING-HOUSES where food prepared in accordance with the principles of rational dietetics and scientific cookery may be obtained, are now open in the following places.

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The Laurel, 11 W. 18th St., New York City.
J. B. Stow, 105 E. 3d St., Jamestown, N. Y.
W. L. Winner, 1017 Walnut St., Philadelphia, Pa.
Sanitarium Rooms, 1809 Wallace St., Philadelphia, Pa.
Hygienic Company, 1209 G St., N. W. Washington, D. C.
Sanitarium Rooms, 224 E. Broadway, Louisville, Ky.
Sanitarium Dining Room, corner Church and Vine Sts. Nashville, Tenn.
Restaurant, 305 St. Charles St., New Orleans, La.
Ellen V. Vance, 307 Madison St., Fairmount, W. Va.
Hygeia Dining Room, 54 Farrar St., Detroit, Mich.
North Mich. Tract Society Rooms, Petoskey, Mich.
Hygeia Dining Rooms, 5759 Drexel Ave., Chicago, Ill.
Hygienic Cafe, 426 State St., Madison, Wis.
Hygienic Cafe, 164 Wisconsin St., Milwaukee, Wis.
Pure Food Cafe, 607 Locust Street, Des Moines, Iowa.
Pure Food Cafe, 410 E. 12th St., Kansas City, Mo.
Good Health Cafe, 145 S. 13th St., Lincoln, Neb.
Nebraska Sanitarium Food Co., College View Neb.
Pure Food Store, 2129 Farnum St., Omaha, Neb.
Vegetarian Cafe, 322½ N. Tejon St., Colo. Springs, Colo.
Vegetarian Cafe, 1543 Glenarm St., Denver, Colo.
Hygienic Restaurant, Sheridan, Wyoming.
Vegetarian Cafe, 4th and C Sts., San Diego, Cal.
The Vegetarian, 755 Market St., San Francisco, Cal.
Vegetarian Dining Rooms, 317 W. 3d St., Los Angeles, Cal.
Portland Sanitarium Rooms, Mt. Tabor, Ore.
Good Health Restaurant, 616 3d St. Seattle, Wash.
White Rose Restaurant, W. H. Nelson, Proprietor, 36 W. 18th St., New York City.
Health Restaurant, Alexander Martin, 555 Boylston St. Boston, Mass.
VEGETARIAN CAFE, S. 170 Howard St., Spokane, Wash.

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NOTICE!

Since January 1, 1904 the subscription price of THE LIFE BOAT has been increased to 35 cents and the MEDICAL MISSIONARY to 50 cents per year; we offer, however, these two with GOOD HEALTH, one year's subscription to each for **$1.25,** or GOOD HEALTH with the following one year for price set opposite each.

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