

GOOD HEALTH



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SEPTEMBER, 1900.

- The Stream of Life.
- The First Sanitary Book in the English Language.
- The Revolution in Dress—Illustrated.
- The Effect of Alcohol on the Nervous System in the Light of Recent Scientific Research—Illustrated.
- Modern Life and Hygienic Living. ✓
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VOL. XXXV.

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

NO. 9.

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GOOD HEALTH

A Journal of Hygiene.

VOL. XXXV.

SEPTEMBER, 1900.

NO. 9.

THE STREAM OF LIFE.

BY J. H. KELLOGG, M. D.

THE heart is the great central wheel of life. From its cavities it sends out blood in spurts with sufficient force to throw it eight or ten feet into the air if one of the arteries were connected with a straight tube. The daily work of the average heart is equivalent to lifting one hundred and twenty-four tons a foot high. The stream of life sent out from the heart operates all the functions of the body. The stomach is a wheel, the brain is a wheel, all the organs are wheels, and all are run by the blood, which is forced through every part of the body. The more rapidly the stream flows, the greater power there is to work the machinery.

The disorders suffered by chronic invalids are caused by slowed nutrition. The necessary changes in the body do not take place rapidly enough. The stream of life flows slowly. In order that we may have activity of brain, stomach, liver, and other organs, there must be an active change of matter in the body, and the more vigorous and active the change, the more vigorous and active the life will be. Some one has called the movement of the little atoms in the body "the dance of life," and the more lively this dance, the more forceful is the life.

The vital energies of the chronic invalid move slowly. He can with difficulty form a judgment. He must run up a column of figures four or five times to

obtain a correct result. He must read a paragraph several times to understand its purport. Rousseau said, in one of his books, "I am naturally very witty, but my wit is always two or three hours behind time." He likened himself to the knight who, when going out from his gate one day, received an insult; after riding on for several miles, he turned and went all the way back to say to the man who had insulted him, "In your teeth, you villain." This was because his nutrition was slow. The wit, the memory, all the faculties of the chronic invalid may be slow.

The important thing to do for the chronic invalid is to stir him up. Give him a bath,—not because he needs it for sanitary purposes, although this is sometimes the case, but to arouse his body. The great purpose of the bath is to cause a perturbation of the system, to evoke a tornado of physical impulses. When one stands in a shower bath receiving hydriatic percussion, every time one of the little bullets from that water Gatling gun strikes him, impulses are set in motion through the nerve centers which awaken the activities of the whole body.

Every internal organ has a special skin surface with which it is connected, and through this skin surface, communication can be made with that organ. The region over the stomach is connected with the

stomach. The skin surface over the liver is connected with the liver. Up and down the spinal cord there is a skin surface connected with the spinal cord. The application of cold water to the skin over the stomach arouses the activities of the stomach so that it makes more gastric juice. If one who is sleepy dashes cold water over his face, he is at once aroused.

It is necessary to keep presenting these ideas, because hydrotherapy is something mysterious to many. I do not claim to understand the ultimate mysteries of life, but I know that pain in the stomach is relieved by a fomentation.

The whole philosophy of getting well is the regulation of the blood supply. The first thing necessary is to set the heart going by cold applications to the skin, and these set all the wheels of the body in motion. Exercise is one of the most important means of waking up the circulation. Increase of activity gives an increase of appetite, and this means a movement out of the physical old man and a movement in of the physical new man. This is what the chronic invalid needs—to get rid of the “old man.” The Bible instructs us to be good by putting off “the old man” and putting on “the new man.” The way to put off the old man is to wear him out, to use him up, to put the new man in his stead. The chronic invalid who has been shut up, or who has neglected exercise until the whole stream of his life runs sluggishly, until his skin is tawny, and his perspiration rank,—that man is himself rank, phys-

ically rank. Offensive perspiration is merely a physical expression of what the man is. The unpleasant odors come out of his blood. When he has a bad breath or bad teeth, it is not the breath or the teeth alone that are bad, but the whole man is bad. When a man has a bad coat on his tongue and a bad taste in his mouth, it is not the tongue that tastes bad, but the man. The bad taste and the bad coat are merely a sample of what the whole man is. Think of it! The tongue surface is a surface of only about six square inches, but the stomach surface extends over seven square feet, about one hundred and forty-four times the surface of the tongue, and all this surface has the same taste as the tongue.

By various processes of infection, by sedentary habits, wrong diet, and other injurious practices, our bodies have become saturated with this diseased matter. In order to remove this rubbish, it is necessary to send a stream of pure blood moving through all parts of the body to wash them out and make them clean. A garment washed in dirty water does not become clean. The body of the chronic invalid that is polluted and poisoned can not be washed clean by dirty blood. The blood, in order to purify the body, must be cleaner than the body. It must be absolutely clean, immaculately clean, if the body is to come out white and spotless and full of life and health; and this requires pure food, abstinence from meats, animal fats, tea, coffee, condiments, and all irritating and indigestible foods.

LET us not always say,
 “Spite of this flesh to-day
 I strove, made head, gained ground
 upon the whole.”
 As the bird wings and sings,
 Let us cry, “All good things
 Are ours, nor soul helps flesh more, now,
 than flesh helps soul.”

—*Browning.*

THE FIRST SANITARY BOOK IN THE ENGLISH LANGUAGE.

BY WILLIAM E. A. AXON, LL. D., F. R. S. L.

IN the British Museum there is a small quarto volume of sixteen leaves entitled "The Boke for to Lerne a Man to be Wyse in Buyldyng of his Howse for the Helth of Body and to Holde Quyetnes for the Helth of his Soule and Body. The Boke for a Good Husbnde to Lerne."

This tractate, the colophon informs us, was "Imprynted by we Robert Wyer, Dwellynge at the Signe of St. John Evangelist, in s. Martyns Parysshe, in the Felde besyde the Duke of Suffolkes Place at Charynge Crosse." No other copy of this booklet is known to be in existence. There is neither date nor name of author, but bibliographers have discovered that the eight chapters of the "Boke" are identical with the first eight chapters of the "Dyetary of Helth," written by Dr. Andrew Boorde, and printed in 1542 by Robert Wyer. Whether the "Boke" is an earlier work than the "Dyetary," or only an extract from it, can not be said with absolute certainty, but to me it seems probable that having written the "Boke," the author afterward enlarged his plan, and added his views on diet, physic, and a variety of other matters to make up the forty chapters of the "Dyetary." However this may be, Andrew Boorde claims his place as the apostle in England of sanitation, for his book is the first distinctly sanitary treatise in the English language. The early English Text Society reprinted various writings of Boorde under the erudite editorship of Dr. F. J. Furnivall. In the preparation of this notice, use has been made both of the reprints and of original editions.

What shall a man do who would build wisely a house for himself and for his posterity? First, says Dr. Boorde, he

should remember the counsel which God gave to Abraham, and seek out a land flowing with milk and honey, with pasture, water, woods, and gardens. He should "dwell at elbow room," make certain of water, and, if possible, of wood also. Then he must see that the outlook of the house is fair and pleasant. Such a building "doth comferte and rejoyseth a mannes herte to se it, specyally the pulcruse [*i. e.*, beautiful] prospect." The air can not be too clean and pure, considering that it compasseth us round about. Fresh air conserves the life of man, and comforts his brain, while bad air corrupts the heart and shortens life. The influence of certain stars and standing waters, marshes, carrion lying long above ground, many people in a small room, living uncleanly, and being filthy and sluttish, are all to be feared and avoided. Dunghills and sinks are to be "divers times mundified and made clean." The necessity of cleanness in kitchens, larders, and other places is enforced with great clearness. He warns the builder also to count the cost, and at the beginning to provide enough to carry the enterprise to a conclusion. Many nails, pins, laths, tiles, and slates will be needed, and much timber, stones, or bricks. Make the foundation on gravel and clay, or rock, or on a hill or hillside facing east and west, especially northeast, southeast and southwest, but not full south, for "the south wind doth corrupt and doth make evil vapors." North is better than south. The parlor should be at the left of the hall, the pantry at the lower end, the cellar under the pantry, the kitchen next, with a larder house. Lodgings should be placed on the other side of the

quadrangle, with the gate house opposite the hall door. There should be a privy chamber next to the state chamber, and as many as possible of the rooms should look toward the chapel. There should be an outer quadrangle with stables and other offices. The slaughterhouse should be half a mile away, and the dairy, bakery, etc., should also be at a distance. If there is a moat around the house, a fresh spring should open into it. The moat should be scoured frequently so as to be clean, and the filth of the kitchen should be kept from it. Then a mansion ought to have an orchard and a garden of sweet-smelling plants. A fish pool, and a park with deer and conies are recommended, as also butts for the practice of archery, and a bowling alley. There must be a fire kept up to dry the walls, and after that "a man may lie and dwell in the said mansion without taking any inconvenience of sickness."

There is a very sensible warning against building a house without the ability to furnish it adequately. He who does so and has to borrow or send now for this and now for that, will have no rest or peace, and "men will call him light witted—

"To set up a great house,
And is not able to keep man nor mouse;
Wherefore let every man look or he leap,
For many corns maketh a great heap."

Before starting housekeeping, one ought to have three years' income saved, he says—and wisely.

A wise man will arrange the expenses of his household according to the rent of his lands. The income should be divided into three parts,—the first to pay for food and the other expenses in the sustenance of the family; the second part for dress, liveries, wages, and almsgiving; the third part should be saved to meet extraordinary expenses, such as sickness, repairs, "and the charges of a man's last end." The

final article is remarkable, and reminds us that in the sixteenth century the funerals of the well-to-do people were enormously costly. It is perhaps as an inheritance from this foolish past that the poorer classes in England still too often spend extravagant sums in burial expenses—money that would be more wisely spent in providing for the widow and orphans.

Dr. Boorde knew the value, as a sanitary agent, of a peaceful spirit. "He that is once behindhand and in trouble, he can not be in quietness of mind, the which doth perturb the heart and so doth consequently shorten a man's life."

After all the good advice as to the setting up of a house, Dr. Boorde proceeds to tell "how the head of a house should exercise himself for the health of the soul and body." Be always ready to die, and when you have first trained yourself to obey the commandments of God, see that the members of your household are not idle, for that is the chief master of all the vices. Punish the swearers, for there is more swearing in England than anywhere else. Such things reformed, then may a householder be glad, not ceasing to instruct them which be ignorant, but also continuing to show a good example of living. "Then may he rejoice in God, and be merry; the which mirth and rejoicing doth lengthen a man's life, and doth expel sickness."

With these words of simple piety Dr. Boorde ends his "Boke for to Lerne a Man to be Wyse in Buyldyng of his Howse." The "Dyetary," in which it is incorporated, contains much information as to meats and drinks. From it we may gain some idea as to the food stuffs that were mostly in use in England in the sixteenth century. The foods suitable for each temperament or complexion are set forth, with perhaps more certainty than scientific method. The treatment, so far as food is concerned, of pestilence and

the sweating sickness, of fever, leprosy, falling sickness, headache, and various other ills, is discussed. The method recommended for dealing with the insane reads very strangely now. The poor lunatic was to be kept in a dark room with a keeper of whom he was afraid; he was to be deprived of all sharp tools and of his girdle. He was to have his head shaved once a month. Few words were to be used to the unfortunate man, "except it be for reprehension and gentle reformation." But how continual reprehension was to bring about a gentle reformation is not explained.

Dr. Boorde's advice against overeating and drinking is still sound. "Such repletion, specially such gurgitations, doth engender divers infirmities, through the which brevity and shortness of life doth follow. . . . Wherefore abstinence for this matter is the most best and perfectest medicine that can be."

A few words may now be said as to the life of the writer of this book. Andrew Borde, Bord, or Boorde, as the name is indifferently spelled, was born at Boord's Hill, Sussex, about 1490. He was educated at Oxford, and while under age became a Carthusian monk, but about 1521 was dispensed wholly or partially from the rules of that order on being nominated Suffragan Bishop of Chichester — an office which he did not fill. The strict rule of the Carthusians, who were rigid vegetarians and austere in other matters, was not to Boorde's taste; the prior released him from his vows, and though there is no reason to suppose that Boorde continued his vegetarianism after leaving the Carthusian order, he understood the medicinal value of the plant world. "There is no herb nor weed," he says, "but God hath given virtue to them to help man."

Mr. John Leigh, who was medical officer to the city of Manchester, as well as an

accomplished bibliographer and physician, said of the sanitary teaching in Dr. Boorde's tract that it was admirable. "Certainly, until quite recently, the knowledge of Englishmen on all sanitary matters connected with the surroundings of a house, must have retrograded since Boorde wrote." Nothing can be better than the advice he gives as to the situation of a house, the soil on which it should be erected, the placing of the outbuildings, the avoidance of stagnant water, etc., and the means to be taken to secure a pure atmosphere.

Boorde went abroad to study medicine. He had the Duke of Norfolk as a patient, and, more doubtfully, Henry VIII. In a second Continental experience he visited the universities of Orleans, Poitiers, Toulouse, Montpellier, and Wittenberg. He also went to Rome and to Compostela. In 1534 he took the oath of conformity to the new order in the English Church, and seems to have been sent abroad by Cromwell to report as to the state of foreign sentiment in regard to Henry VIII. From Spain he sent over rhubarb seeds, with directions for their growth, two centuries before the plant was acclimatized to Great Britain. Boorde fell ill, but on his recovery returned home, and is next heard of at Glasgow University. Here he practiced as a physician. About 1538 he set out for a longer foreign pilgrimage, in which he went as far as Jerusalem. He settled for a time at Montpellier, and then wrote his "Introduction of Knowledge," "Breviary of Helth," and "Dyetary of Helth." These were all printed in London. He then apparently lived at Winchester, where he published more than one year's "Pronostication," or almanac. Of this period of his life there is an accusation of scandalous immorality, but whether this was well founded, or only one of the false charges so common in the controversies of that age, it is not easy to

say. He died in the Fleet prison in April, 1549. Besides the books named, he wrote others which have been lost, and several have been attributed to him on very scanty evidence.

It has even been said that from him comes the name of "Merry Andrew," or the designation of a mountebank or practical joker. But this is absurd.

His "Introduction of Knowledge" is an entertaining volume in which he describes the characteristics of the various nations of Europe, and gives specimens of their several languages. It is remarkable

as showing his wide outlook and keen observation. His book contains the first specimen ever printed of the language of the gypsies, or "Egipcians," as they were then usually called.

Andrew Boorde is not flawless. His character has been assailed, and he is not entirely free from the prejudices and superstitions of his time, but in many things he was in advance of his age. The student can still enjoy his racy style, and a place of distinction must be assigned to him as the pioneer of English sanitary literature.

THE REVOLUTION IN DRESS.

BY DINAH STURGIS.

OF all the revolutions now going on in the world, none will have more potent influence upon the lives of women than that at present taking place in dress. Time was, and not so very long ago, when dress was looked upon as a tremendously difficult problem. Even to the optimistic it seemed as if not more than a very small, very wise, and exceptionally able minority was ever going to solve it. But though the figures until lately seemed to warrant this gloomy view, the facts now joyfully point out unmistakably that a change is taking place which will eventually work such wonders as a short time ago would have been held to be wholly visionary. This will be the overthrow of one general and often most inferior style for everybody, and the establishment of a sufficiently high standard in comprehension and taste to put the stamp of greatest approval upon dress that is at once healthful, simple, and yet artistically attractive.

True, comparatively few women have yet learned to dress in harmony with health and beauty, — the ideal achievement in the realm of clothes, — but there is a profound awakening on the part of

the hitherto prejudice-bound majority. Many women during the last few years have accepted the theory that simple, hygienic dress is desirable, and compatible with true beauty, but in practice most of them have continued to cling to the old order of disease-producing and -continuing modes, to extravagant and unlovely fussiness in dress, because they believed that these alone could make them "look like other people."

As if disgusted with such weakness, fashion, to whom every one had previously looked for nothing but soullessness, has been roused to come to the rescue. She has just issued an edict that looking like other people is "bad form," and that henceforward her shibboleth is to be originality in dress. This of itself is sufficient to clear the way for those timid souls who were longing to dress in accord with health and true beauty, but were afraid to attempt to do so for fear of straying from the beaten tracks of custom, and of being branded as "peculiar," — as if anybody in this world ever amounted to a row of pins who was not more or less peculiar.

But fashion has not stopped here. Al-

though penny-a-liner reporters of fashions in dress as they see them displayed on women who court notoriety are dwelling loudly and long upon the enormous extravagance of the modes of the day, fashion is flying her banners none the less over a variety of styles that are simple, charming, and designed in accordance with the laws of health. Of course we should be brave enough to wear what is good in itself and right for us, regardless of "fashion," but the truth is that we receive a very decided impulse toward sanity in dress whenever fashion has a lucid interval.

It has been the habit of many women of late years to claim that nothing stood between them and sensible dressing but their inability to find a dressmaker who would make "reform" dresses. Now, dressmakers are human. This means that they have their prejudices just as other women have. They shy at the word "reform" as many other women who are not dressmakers do. Try diplomacy. A very little has been known to capture even haughty and intolerant purveyors to wardrobes. One woman whom I know, has had no difficulty for a dozen years past in finding dressmakers in New York, Boston, London, and Paris (and these are all the places in which she has looked for them) who have been willing and able to carry out her ideas in dress in all grades of gowns, from the wash frock at a total cost, including making, of five dollars, to the reception gown at one hundred and seventy-five dollars. These dressmakers may not have known that they were making "reform" dresses. The woman for whom they made them did not tell them so. Very likely they did think that they had an eccentric customer, but what did that matter, since it injured no one, and the customer was the gainer?

Dressmakers are not blind to their own best interests. Some of them may not be

willing, for pure altruism, to wrench themselves adrift from their old-time mooring molded upon the idea that a woman should look like a wasp and be weighted down like a derrick, but even they are eager to extend their business. Had the demand been made upon dressmakers long ago by sensible women for sensible dress models, it would have been met, just as the manufacturers of the ridiculous old-style machine-knit underwear, and a host of new concerns rushed to meet the demand for ready-made union suits at reasonable prices that followed the production of the custom-made union suits at high prices which alone could be had a very few years ago.

The truth is that sensible women had not got round to creating a demand for sensible dress models, and now the supposedly utterly frivolous fountain head of Fashion (with a capital F) has stepped in, and by speaking first, wrested from them the credit which sensible women might have had.

Delightfully attractive dress models that are simple and serviceable, and not only health-permitting but health-encouraging are no longer a novelty. Even Parisian *couturieres*, currently held to exist merely to humor the whims of feminine butterflies, are interspersing their concoctions for human spendthrifts who enjoy acting as show-forms for dry-goods dealers, with refined, lovely gowns in empire and princess and wholesomely combined two-piece gowns that have no hint of contraction from neck to hem, with sleeves that permit the utmost freedom, and that are regulated as to length according to the requirements of the case.

For a model that can not scare the most conservative, and yet is a capital example of what a little planning will do to perfect an all-round utility gown, nothing could be better than the illustration on page 510. The skirt, which is hung where it

should be, somewhat below the bust, but well above the so-called "waist line," and is supported by a princess lining, is shaped gracefully above the hips in the manner of the famous empire models. Being designed for street wear by the addition of a coat, the sleeves are made plain, but are comfortably loose.

For a house dress alone, the length indicated is graceful for the drawing-room. For a combination business and street dress the skirt should easily clear the ground all around, being at least two full inches from the floor. For a storm dress the material should be wet-shedding, and the skirt at least five inches from the floor. While the stock, if made loose and low enough so that it does not press into the chin, is not harmful, and is likely to be worn upon street dresses for another season, it is comforting to know that more and more dresses are being made for indoor wear without the standing collar that in so many instances is decidedly uncomfortable, and gives the wearer a choked appearance.

The model illustrated has a princess back and jacket fronts, but the gown may be hung on a skeleton lining waist with a blouse front, having the jacket bodice separate. By the lat-



ATTRACTIVE AUTUMN HOUSE AND STREET TOILET.

ter arrangement a second and dressier bodice can be made. Of course infinite variations may be made upon this model by the use of different fabrics, colors, and trimming.

A little reflection shows that the dressmaker-obstacle to sensible dressing, which never was the bugaboo that we like to excuse ourselves for believing, has been eliminated. But the woman who is her own dressmaker—what about her grievance? She must make her own dresses from paper patterns; and pattern makers, comes the monotonous cry, have patterns only for the distorted feminine figure. This is a fallacy, too. It is true that fashion-drawings, with few exceptions, picture monstrously impossible creatures, ten feet tall, with waist measures smaller than their neck measures, with faces like simpering apes, and contours like eels with the colic. But ask the publishers

why this is so. They all tell the same story: They are in the business to make money, and women patronize most lavishly the publications containing the absurd plates and patterns that are farthest from reasonable designs. This does not excuse the publishers, but it puts the blame where it belongs, upon the buyers. Let women require fashion books, if fashion books they must have, and patterns that conform to sensible standards, and the downfall of nonsensical standards will be speedy and permanent.

However, even now, when the sensible demand is small, patterns are not hopeless. Individual gumption and taste can prune them of their surplus decoration, enlarge them where needful, and curtail them where curtailment is required. In other words, if patterns are adapted to the individual, instead of adopted outright, they can be made to serve one well.

Women are very slow in learning that the effect of a toilet depends upon its "lines," as artists say, upon its coloring, its suitability to the figure, complexion, and occasion, upon its grace, and not upon any 13-15-14 puzzle arrangement of details. One half of the ingenuity expended upon many a piece of "fancy work" that is devoid of fancy, but represents a deal of outlay of time, patience, and skill, will make a gown that conforms to health, comfort, and simple beauty.

The art of selection is an important feature of dress. The kind of gown that one should wear has to be determined, if it is to be successful, by the lines of the natural figure, the time and place of its wearing, and also by the circumstances of the wearer. The tall, slender woman looks like an undraped Maypole in a sheath-shaped princess gown, but remarkably well in a plaited or gathered skirt hung from a lining waist over which a blouse effect is devised under a bolero.

The very stout woman looks best in a gown with unbroken lines from under the arm to the bottom of the dress, with a back that has narrow side-forms running to the shoulder seams, and fullness let into the back of the skirt below the waist line; the front should have surplice folds graduated to a point, not at the waist line, as is usual, but low down on the abdomen; it is hideously ugly to emphasize the abdomen and bust by contracting the waist line and calling attention to the *embon-point* above and below by making the line of contraction the beginning or end of decoration. The waist line of the stout woman should be obliterated in front, and barely suggested at the sides and back.

Now when fashion is making it so easy for the timid to adopt a style of dressing that shall give the body enough covering, not too much, and shall leave it unrestricted, the utmost effort should be made by every woman to set up for herself, and therefore help maintain for all women, a standard of simplicity. The wife of the public man in the metropolis has different requirements in the matter of clothes from those of the ranchman's wife on the prairie, but the wife of the public man owes it to herself and to all other women not to debase her influence by making a clotheshorse of herself.

A fine fitness in apparel adds much to its charm, and if it is fine and fit, it is good so long as it holds together.

Queens do not alter the cut of their robes with every dry-goods opening. Why, then, do their subjects, and especially why do the free and enlightened daughters of republics? The fact is that in dress we have been neither free nor enlightened, but the bondage is of our own making. We can throw it off whenever we will. Let women rise against the usurpations of fashion mongers and dressmakers, remembering that their bodies are temples worthy of the tenderest care.

THE EFFECT OF ALCOHOL ON THE NERVOUS SYSTEM IN THE LIGHT OF RECENT SCIENTIFIC RESEARCH.

BY W. H. RILEY, M. D.,

Superintendent of the Colorado Sanitarium, Boulder, Colo.
(Concluded.)

EXPERIMENTS have been made upon the lower animals, particularly the rabbit, the dog, and the cat, to determine, if possible, the immediate effects of alcohol upon the internal structure of the nerve cell. These experiments have been followed out somewhat as follows: An animal like the rabbit has been fed a moderate amount of alcohol with its food, the amount given being sufficient to pro-

duce slight or moderate intoxication. The animals have been killed at different periods after eating the food containing alcohol, and the nerve cells and the central nervous system have been subjected to careful microscopical examination by the latest and most approved methods of study. Some animals have been killed in a few minutes after the drug has been administered; others, in a few hours. In more than one instance, changes have been found in the nerve cells in less than an hour after the administration of the alcohol. A German investigator by the name of Dehio, and also Dr. C. C. Stewart, of Clark University, Mass., have brought out some interesting and convincing facts along this line. Dr. Stewart found distinct retrograde and pathological changes in the body of the nerve cells of the rabbit fifty minutes after the administration of a moderate quantity of alcohol. The same changes were also observed in a more marked degree in the case of other rabbits that were killed and whose nerve cells were examined some fifty-four hours after the administration of the alcohol.

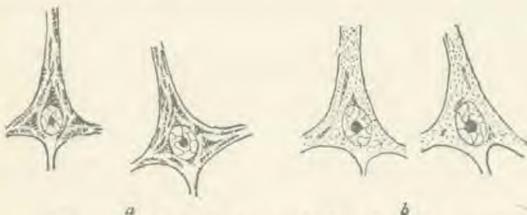


FIG. 1 (after F. R. Bailey, in *Medical Record*) is an illustration of the nerve cells from the human brain. The nerve processes of the cell are not shown in the drawings; *a* represents two healthy nerve cells; *b*, the nerve cells from the brain of a case of acute alcoholism. In *a* the chromophilic bodies are shown distinctly; in *b* they are dissolved and scattered, and have largely disappeared, from the internal use of alcohol.

duce slight or moderate intoxication. The animals have been killed at different periods after eating the food containing alcohol, and the nerve cells and the central nervous system have been subjected to careful microscopical examination by the latest and most approved methods of study. Some animals have been killed in a few minutes after the drug has been administered; others, in a few hours. In more than one instance, changes have been found in the nerve cells in less than an hour after the administration of the alcohol. A German investigator by the name of Dehio, and also Dr. C. C. Stewart, of Clark University, Mass., have brought out some inter-

esting and convincing facts along this line. Dr. Stewart found distinct retrograde and pathological changes in the body of the nerve cells of the rabbit fifty minutes after the administration of a moderate quantity of alcohol. The same changes were also observed in a more marked degree in the case of other rabbits that were killed and whose nerve cells were examined some fifty-four hours after the administration of the alcohol. The same changes that have been observed in the nerve cells of these lower animals under the administration of alcohol have also been observed in the brain cells of man in cases where death has been produced by acute alcoholic poisoning. The nature of the first changes found both in the rabbit and in other lower animals, and also in man from alcoholic intoxication, is a dissolving and scattering through the body of the cell of the chromophilic bodies previously described. The change is apparently the same whether alcohol is given to the lower animals, like the rabbit, for experimental purposes, or whether it is taken by man himself for the purpose of gratifying his perverted appetite. The opinion of all investigators is unanimous that alcohol causes a breaking down and dissolution of the chromophilic bodies. The larger the quantity of alcohol taken, and the more severe the poisoning, the greater are the changes found in the nerve cell. If the poisoning is continued for any length of time, as it is in cases of chronic alcoholism, then the more solid structure of the

nerve cell breaks down under its influence, and in some instances the cell is entirely destroyed, and disappears.

Figure 1 is an illustration of nerve cells from the human brain; *a* represents the cell in a healthy condition, and the chromophilic bodies can be distinctly seen; *b* is an illustration of the nerve cells from the brain of a man who died of acute alcoholic poisoning. It will be noticed that in this nerve cell the chromophilic bodies have largely disappeared, and in place of the granular substances being collected together in masses, as is shown in *a*, they are dissolved and scattered, and have almost entirely disappeared from the body of the cell. The changes represented in *b* are the same as those observed in the nerve cells of rabbits and others of the lower animals that have been fed alcohol, and in which cases the examination of the nerve cells has been made within a few hours after the administration of the poi-

use of alcohol. The dissolving and disappearing of these chromophilic bodies is known as chromatolysis, and is the first change that occurs in the degeneration of the cell.

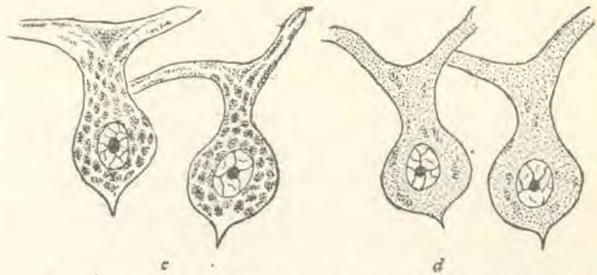


FIG. 2. (After F. R. Bailey, in *Medical Record*.) Nerve cells from the cerebellum, or hind brain; *c* represents healthy cells; *d*, cells that have been poisoned by such diseases as sunstroke, diabetes, and urmic poisoning accompanying diseases of the kidneys. In *d* of this illustration the chromophilic bodies are also dissolved in the cell by the poisons of these diseases.

Figure 2 portrays the changes that occur in the nerve cells in certain diseases, such as sunstroke, diabetes, diseases of the kidneys, in which poisons are accumulated and retained in the body, and affect the nerve cells; *c* represents the healthy nerve cell, while *d* represents the diseased nerve cell, caused by poisons that accumulate in the body as a result of these diseases.

Figure 3 represents the changes produced in the nerve cell as a result of the poisons of infectious diseases, such as diphtheria, typhoid fever, hydrophobia;

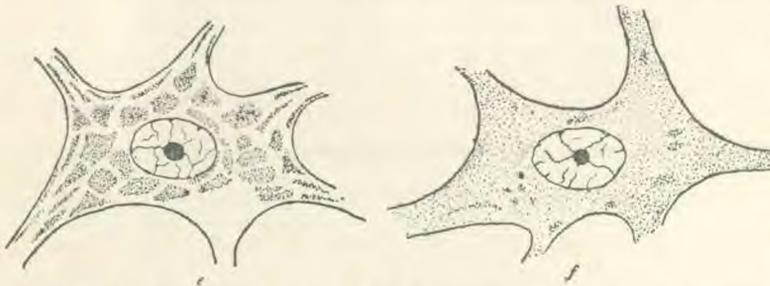


FIG. 3 (after F. R. Bailey, in *Medical Record*) represents nerve cells from the human spinal cord, *e*, a healthy nerve cell, showing distinctly the chromophilic bodies; and *f*, the appearance of a nerve cell that has been poisoned by the toxins produced by diphtheria, typhoid fever, hydrophobia, etc. Here we see in *f* an almost total absence of the chromophilic bodies. They have been dissolved and scattered by the poisons of these diseases. We may see from these illustrations the effect of three classes of poisons upon the nerve cells. These three classes of poisons produce the same degenerative changes in the body of the nerve cell.

son. It should be emphasized that this dissolution and disappearance of the chromophilic bodies within the cell is a retrograde process, and is the initial step in the breaking down of the nerve cell, which goes on from bad to worse with the

e represents a healthy nerve cell with the chromophilic bodies distinct, while *f* represents the cell after it is acted upon by the poisons of these diseases.

In figures 1, 2, and 3 we have a very telling example of the effect of different

kinds of poisoning on the nerve cell. From this we can see that alcohol is an active poison, producing the same changes in the nerve cell as do the poisons of diphtheria, typhoid fever, diabetes, and other

branches. Compared with a healthy nerve cell, Fig. 1, page 466, August number, there is a decidedly different appearance.

Since alcohol causes these various changes in the nerve cells of the brain and in the nervous system of man, it is no wonder that when he is intoxicated his mind is clouded, his speech is incoherent and thick, that his ideas are disconnected, his vision is blurred, objects seem distorted; he has hallucinations and illusions of various kinds; he staggers. How can any one whose nerve cells are broken down by this poison think and act as one who is sane and healthy?

Many, of course, may argue that an occasional spree does not injure their health, but if feeding a rabbit or a cat a moderate amount of alcohol is sufficient to produce retrograde changes in

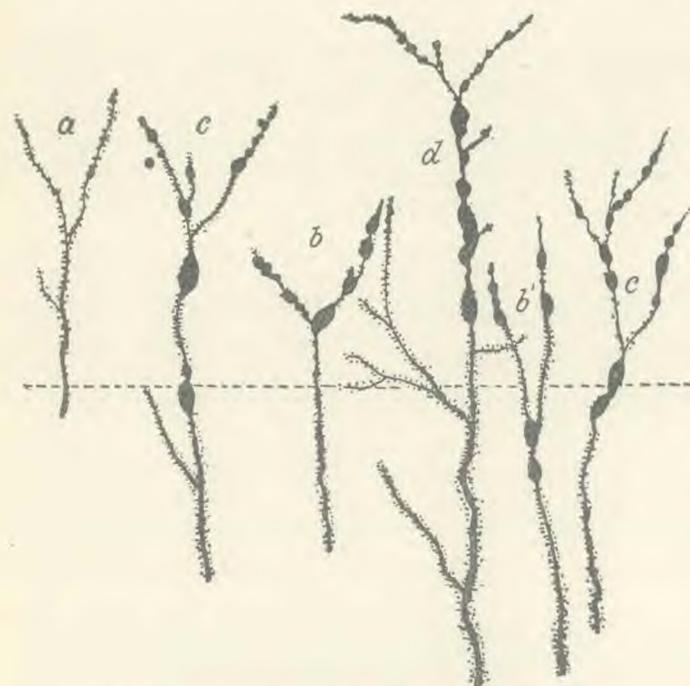


FIG. 4 is an illustration of the nerve branches and fibers in a case of alcoholic insanity. The patient died of this disease, and when the nerve fibers were examined under the microscope, they were shown to be swollen and broken down in the manner illustrated in the drawing. These swellings of the nerve fibers, as seen in this illustration, are characteristic effects produced by alcohol, and are usually seen in the brain of those dying from alcoholic insanity.

constitutional diseases. These changes in the nerve cell already referred to are the initial or beginning changes. When alcohol is used for any considerable length of time, the retrograde process goes on, and more severe changes are noticed in the nerve cell.

Figures 4 and 5 are drawn from the nerve cells found in the brain of a man who died of alcoholic insanity. It will be noticed that the nerve branches in Fig. 4 are very much swollen and distorted and broken down. In Fig. 5 are seen the degenerative changes that have occurred in the body of the cell as well as in its

the nerve cells, is it not reasonable to suppose that every time a man becomes intoxicated, the nerve cells undergo the same retrograde process in their structure? We can come to no other conclusion from these scientific investigations.

It is true that if the nerve cell is not too thoroughly poisoned, it will rebuild itself, and in time present a normal appearance, but no one can argue that this is beneficial to the nerve cell; on the contrary, common sense and reason both tell us that it is positively detrimental. Evidence is becoming more and more clear and emphatic that alcohol at all times, and in all

quantities, however small, acts as a poison upon the human body. Of course the less poison taken, the less the harm; the more taken, the greater the harm; but harm is always done to a greater or less degree. A man may use alcoholic liquors for a time without doing apparent injury to his life, but sooner or later there is a reckoning day, and at the age of forty-five or fifty years he may be paralyzed, suffer a stroke of apoplexy, or contract some other serious disease resulting from chronic alcoholic poisoning. The writer has seen scores of cases of paralysis caused by alcohol in men who never became "intoxicated." Man does not need to be so intoxicated as to dethrone his reason in order to have the drug do him harm.



FIG. 5. This figure shows four nerve cells from the brain of a man who died of alcoholic insanity. It will be noticed that the body of the cells and the nerve fibers are broken up and degenerated.

The changes in the nerve cell and nerve fiber shown in Figs. 4 and 5 are the more severe changes, and represent complete destruction of the nerve tissue. The changes represented in Figs. 1, 2, and 3 are the initial changes produced by alcohol and other poisons, and are the beginning of a degenerative process. Such changes as are shown in *b* of Fig. 1 occur whenever a man becomes intoxicated from the use of alcoholic liquors.

MODERN LIFE AND HYGIENIC LIVING.¹

BY MARY HENRY ROSSITER.

A COLLEGE professor of mine used to maintain that everybody always does what, under the circumstances, he prefers to do: if the student studies his lessons, he would rather miss the opera; if he goes to a ball game, he prefers to fail in his classes. According to this theory, we, as Americans, really prefer to be sick than well, to be nervous dyspeptics rather than sound, vigorous people who "know not of their health,"—being healthy, as we know not of heart or lungs until pain announces disease.

The business man who swallows his breakfast in ten minutes, rushes to his car, sits over a desk the entire day, and

eats a heavy dinner at seven or eight o'clock at night,—this man actually chooses to have gout, rheumatism, Bright's disease, or some other retribution of nature. In these days, when the axioms of healthful living are flying everywhere, no man intelligent enough to engage in business can miss them all.

The farmer who gives his body too much exercise and his mind too little, who eats salt pork and corned beef, and drinks quantities of tea and coffee,—possibly also beer and whisky,—can not lay it to Providence or the farmer's fate if at forty he is a crooked and stiff old man.

The housekeeper—certainly the housekeeper in 1900—who does not learn better than to feed her family half-cooked

¹ Address delivered before the Woman's Council of the Bay View Assembly, Bay View, Mich., August, 1900.

mushes, hot breads, and rich pastries; who pulls down the shades lest her carpets fade; who sweeps great clouds of dust into the room; who keeps dirty rags in the cellar way,—truly that housekeeper is deliberately inviting ill health and disease to abide under her roof.

The society woman (or rather the would-be society woman, for the women of the best society are fast becoming leaders in dress reform), the shop girl, and the gum-chewing miss who still cling to the corset, the small round waist, and heavy skirts, all plainly announce that they prefer to look hollow-eyed and listless, to have the backache and a thousand nameless ills.

It is no longer possible to plead ignorance as an excuse for physical sins. Schools of health, of hygienic cookery, of physical culture, are springing up everywhere like railroads. They wish to connect us with the centers of progress. If we refuse to get aboard, we prefer to remain provincial. Even newspapers and magazines are beginning to regard health reform other than jocosely. Some of our most popular and fashionable home periodicals actually devote one or two columns every month to the most important subject in the world. True, their suggestions upon dietetic and sanitary topics are often startling, but the most brilliant day that ever dawned was ushered in through shadows and misty lights.

No, it is not because of ignorance that modern life has so little to do with hygienic living. I believe it is because of indifference,—your indifference, my indifference, almost everybody's indifference. It is the same kind of indifference with which we regard other great evils to which we have long been accustomed,—intemperance, municipal corruption, the increase of insanity. I wish I could show you as clearly as it appears to me that it is this very indifference to the principles

of healthful living that lies at the bottom of all national as well as individual distress.

Health is the touchstone of life. It is the vital principle of happiness. In a general, far-off, indefinite way, we are ready to admit this. But we do not make it personal. We do not say, "*My* health is the touchstone of *my* life, the *vital* principle of *my* happiness." We do not even think this. We have learned to look upon our state of health or disease as an inheritance, a gift of the gods, a dispensation of Providence, something with which our personal conduct has no more to do than it has with our height or the color of our hair. We simply endure or enjoy it, perhaps grumble about it as if it were a hump or a legacy. If we could once be aroused to the tremendous significance of health; if we could catch a glimpse of what it would mean to every man, woman, and child in the United States to be perfectly well; if every intelligent person could for one moment realize his own power and responsibility in the matter, we should speedily have a revolution, a settling of social and industrial problems, a clearing of the moral and political atmosphere that has never been equaled or approached since time began.

In these turbulent days of Bryanism, McKinleyism, the discussion of platforms, the incessant agitation of imperialism, expansion, 16 to 1, the gold standard, we who are interested in hygienic reform can but be reminded that these are not the most serious questions, the greatest perils that confront our nation. True, the air is full of problems; but it is also full of germs. There may be more deadly microbes in your back yard and mine than there could be dangers in the success of any candidate. Chest expansion is of vastly more consequence to the average individual than the expansion of the United States. Indigestion, bad manage-

ment, insanitary dwellings, conditions produced by filthy surroundings, are causing more disease and death to-day than poverty, war, and famine combined. Let our statesmen and politicians, then, remove their minds for a moment from the Monroe doctrine to consider the health of the people. Physicians and statisticians tell us that tuberculosis, neurasthenia, imbecility, insanity, are increasing at a fearful rate. Unless something is done, it will not be long, before there will be no men in the country fit to be soldiers and commanders. Is it any worse to be starved to death by a Chinaman than by your own stomach? to be mobbed by the heathen than to suffer the agonies of disease? Let our political leaders, then, think on these things.

However, I have no idea that the Republicans could be persuaded to put a plank in their platform against pork; that the Democrats would legislate against liquor; that the Populists would cry down that most popular of all health-destroyers, tobacco; that the Prohibitionists, who are notorious for tea and coffee tipping, would advocate cold water only.

No, the most effective way, in my opinion, to bring principles of health before the public now, when it is the fashion to incorporate one's pet fad into a political organization, would be to form a new party, a party pledged to the imperialism of rosy cheeks and vigorous bodies; a party whose standard is neither the gold standard nor 16 to 1, but which would bear upon its banners, "The best wealth is health;" a party whose principles could not fail to appeal to every father, every husband, every dyspeptic, every consumptive, every nervous person, every philanthropist, in the land,—the party of good health.

A consideration of the logical platform of this party shows how far removed we are at present from anything approach-

ing healthful living. It might begin something like this:—

"Recognizing that the most sacred laws of health are universally violated; that sickness, disease, and death are alarmingly increasing; that the gastronomic excesses of the very rich are a menace to the physical welfare of the nation, compared with which trusts are a thistledown; that the occupations and avocations of the great middle classes absolutely compel them to an unnatural and unhygienic life; that the ignorance and the unwholesome surroundings of the poor are driving them all the time deeper and deeper into wretchedness and crime;—believing, therefore, that nothing can save this nation from physical, moral, and spiritual destruction but an immediate and general return to the simplicity and beauty of a life in harmony with every natural law, we call upon all those who have come to realize that a sound mind in a sound body is of more importance than foreign conquests or domestic tariff, to adopt our platform and vote for our candidates."

The great object of this party would be threefold,—to make everybody see the charm and the power of a healthful life; to teach him how to live it; and to make it possible.

The platform itself would be a great educator. It would set forth the principle that every human being is entitled by nature to fresh air and sunshine, eight hours' sleep, nourishing but not stimulating food, comfortable clothes without bondage to fashion, reasonable recreation for body and mind. Employers would be required by law and by popular sentiment to provide for these as they now do for a fifteen-minute lunch and a conventional uniform. Employees, on the other hand, would be required to conform to a schedule of hygiene.

The party would advocate the establishment of schools of cookery in every city,

town, village, and country district. These schools would be conducted upon the most scientific principles, and all house-keepers and cooks would be required to take at least the primary course. The proper elements and constituents of food, the effect of various combinations, the evils of condiments, of dough and pastes and liquid dishes, the injury resulting from the use of tea and coffee, heavy meats, gravies, pastries, grease, the serious and often far-reaching consequences that follow even slight digressions in diet, the horrors that constantly attend the confirmed dyspeptic, the wonderfully invigorating influence upon every nerve and tissue exerted by wholesome food, properly cooked, and eaten at proper intervals,—all these things would be taught in the government schools.

The platform would also pledge itself to the establishment of public baths and swimming pools, urging that these are at least of equal importance with circulating libraries. It would provide for open-air exercise for city people, and would put gymnasiums in the country.

It would work for a department of health in every State, an organization equipped with every facility for teaching the people not only how to protect themselves from contagious and infectious diseases, but also how to live beyond the reach of contagion,—so to inoculate themselves with rich, pure, red blood as to be forever immune to every germ. The department of health would be in charge of physicians who would be paid for keeping their patients well, and fined when they fell sick.

If I had anything to do with the making of this platform, I should try to get something put in against slaughterhouses. I would not have them. I should argue that people are better off without meat; that one can never be sure it is not diseased; and that it is certainly cruel to kill innocent animals to eat when nature pro-

vides an abundance of pure, clean foods without eyes and brains and legs and hearts.

If the party of health should come into power, there would be no more need of drug stores. Medicine, cough drops, soda water, would be abolished. In place of the drug store we should have treatment-rooms for giving massage, electricity, and all kinds of baths.

This would be a woman's suffrage party. The ballot would be granted to every woman who could prove by tape line an actual waist measurement of from twenty-eight to thirty-five inches according to her other proportions. Under the first administration of the good health party it would be made a misdemeanor for a woman to wear a train on the street.

The principles of health would be carried out in all the details of national life. The polling places would be so stationed that every voter would have to walk five miles to deposit his ballot. Only those who could do this without fatigue would be allowed to vote.

Every candidate for office would be required to hand in to the election committee a sworn certificate that he was in the habit of taking a cold plunge every morning.

Our candidate for president would be the healthiest man in the United States,—a man who had never smoked or chewed tobacco or tasted alcohol; who never drank tea or coffee, or water at meals; who had thirty-two sound natural teeth; who always went to bed at ten o'clock, a man who had studied foods and always ate for nourishment and never for fun; who abhorred pepper, vinegar, and mustard, and believed that ice cream should be eaten hot. With such a candidate and such a platform—of which I have given the merest suggestion—and with the support of those who, themselves, their wives, or children, have lost good health or

never had it, the good-health party could not fail to sweep the country. There would not be a microbe or a particle of dust left on the road to the White House.

I said that if everybody could be well, we should have a settling of social problems, a general clearing of the atmosphere. I believe this. I believe that a man with a sound mind in a sound body loves his fellow man, that he will treat him justly. When every man loves his fellow man and treats him justly, socialism, anarchy, war, rebellion, trusts, corporations, theft, murder, crime, oppression, will disappear from the earth, and the golden age will enter in. There will be no more need of hospitals, penitentiaries, insane asylums, houses of correction, or poorhouses.

Emerson said, "Every man would be a poet if his digestion were perfect." It is but carrying out the same idea to say that every man, if his whole body and mind were perfect, would be a philanthropist, a humanitarian, a perfect husband, father, and friend.

Is it not strange that we allow ourselves to become so wholly absorbed in a hundred other things as entirely to overlook what is of the deepest and highest moment to every living soul? And this is not the worst of it. We are accustomed to regard lightly, even humorously, many acts and habits that we know injure health. We laugh at our own and our neighbors' sins against physical law as if they had nothing in common with moral obligations. How often we hear such expressions as these: "I know coffee is n't good for me, but I can't give it up." "The doctor has ordered my husband to stop smoking, but he says he does n't think it hurts him very much." "Ice cream always makes me sick, but I can't resist it." "I know that salad will keep me awake all night, but it's too delicious." "I'm always cross when I wear new shoes." "Sister

Maude is sick. She danced too long last night."

The idea that it is morally wrong to eat things, to wear things, or to do things that will make one irritable, lazy, or even sick is seldom suggested. But if we are to judge anything at all by penalties, the penalties for physical transgression are just as sure and just as heavy as those for any other sin. We reap what we sow.

The law of this world restrains us from pulling down our neighbors' houses, setting them afire, breaking in the windows. The public safety even requires a statute prohibiting us from destroying our own dwellings, burning out the woodwork, demolishing plate glass. But we tear our bodies to pieces, burn them up with poisons, mar the windows of the soul, without a qualm. Civil law does not forbid this. The churches say little about it. But we read in the New Testament, "The temple of God is holy, which temple ye are." "If any man defile the temple of God, him shall God destroy." Our bodies, then, are regarded by the divine law as more than houses, private dwellings, or even public buildings. They are temples. We are not at liberty to destroy them or defile them if we would. Is it not a far higher conception to look upon this body and to guard it as the dwelling of the Divine One than to despise it, and chafe against it as the prison of the soul?

Even if we considered it merely as an instrument for our own use, would it not be madness, even crime, to dull its edges, clog its wheels, dislocate, crowd out of shape, cripple, and weaken the most delicate parts of its machinery, coarsely and roughly to destroy the costliest, rarest, most intricate and perfect visible work of the Creator? Regarding it in this way, which must be a reasonable and true way, does not even so small a thing as a tight dress or a lobster salad assume a moral significance?

Christ, we must believe, was a healthy man. The words "healthy," "hale," "whole," "holy," we are told, all come from the same origin. No man could heal others who was not himself whole. No man could be the perfect model for men who was not sound in body as well as in mind and soul.

Too many of the pictures and paintings representing the Saviour portray him as pale, hollow-cheeked, and melancholic. This is in accord with the heathen and

barbaric idea that physical weakness necessarily accompanies spiritual strength, that goodness and purity are naturally morbid. It would do much for the cause of health if some great artist would paint a Christ, and if the great teachers would teach a Christ, strong, beautiful, and perfect in body,—if they would depict a Christ radiating not from brow alone, but from his whole person the magnetic, life-bringing light of physical righteousness.

THE WET-HAND RUB.

BY J. H. KELLOGG, M. D.

THIS procedure consists simply in rubbing the cutaneous surface with the wet hand.

A basin of water at 40° to 75° and plenty of Turkish towels are the only requisites for this bath. In beginning the application, the attendant stands with his side to the couch, facing the patient, dips both hands into the water, then applies them, one to each side of the patient's face, covering as large an area as possible. Friction is made from the median line downward, the tips of the fingers sweeping over the brow and describing a sort of semicircle along the cheeks to the under side of the jaw. Repeat the movement from three to six times. In men, wet the hair by shampooing with the wet fingers or with a wet towel.

Before wetting the face, a dry Turkish towel should be folded about the head in such a way as to protect the ears, and if the patient is a woman, the hair also, a precaution which will be much appreciated by nervous patients.

Next, the application is made to the chest, both hands being employed, first the upper part, then the sides of the chest

being rubbed vigorously. After the entire chest has been gone over three or four times with quick, short movements and considerable pressure, the towel is thrown over the chest and the surface dried quickly, the rubbing being continued until the surface is reddened. The face and head are not to be dried until the end, as it is desirable that these parts be cooled by evaporation.

The prolonged application to the head is to protect from congestion; the application to the chest before proceeding to other portions of the body is to stimulate the heart and lungs to increased activity, thereby promoting reaction.

The arms, first one, then the other, next receive attention. The attendant grasps the patient's hand with his left hand, while with the right he vigorously rubs the arm with long, rapid strokes reaching from the shoulder to the wrist, his hand being kept cold and moistened by dipping in the basin after every four or six strokes. If the patient is fairly vigorous, he may hold his arm perpendicular while the attendant rubs with both hands.

On finishing the arm, the attendant rubs the hand between both his own, and ends with one or two smart blows upon the palm with the flat of his hand. The arm is quickly enveloped with a Turkish towel, the patient holding each end, and is rubbed until the reddening of the skin indicates the establishment of reaction. The blanket is then drawn over it, and the other arm is treated in like manner.

Next, give attention to the abdomen. Apply the friction first transversely, the rubbing being done alternately with the two hands, then in a circular manner, following the course of the colon. The thighs are next treated, but one being uncovered at a time. Then follows the treatment of the legs and feet, each of which should be rubbed until there is evidence that the circulation is well established.

The patient should now turn upon his face, and fold his arms beneath his head, thus drawing the shoulder blades upward



and outward, so as to flatten the dorsal surface as much as possible. The attend-

ant then dips his hands and applies them first to the back and sides of the neck, extending the fingers around so as to reach the front of the neck. The upper part of the back, the shoulders, and the outer portion of the upper arm should next receive attention, then the middle and lower parts, and the sides of the trunk. Lastly, apply to the whole length of the spine a few vigorous strokes. As fast as any part is dried, it should be covered with a Turkish towel or blanket.

Not more than from five to fifteen seconds should be occupied in rubbing any part with the wet hand before the application of the towel. If the rubbing is insufficient to produce reddening of the surface, light spitting or percussion should be applied after drying. Good reaction should be secured in each area treated before proceeding to another portion of the surface.

The skin must be warm at the time of the application. An excellent hour for patients who are not bedridden is in the morning before the patient has left his bed. Care should be taken during the

application to avoid exposing so large a portion of the body as to produce chill by evaporation.

The temperature employed and the duration of the treatment must depend upon the individual case. The temperature most frequently employed is from 65° to 75°, or the ordinary living-room temperature. Generally the hands of the attendant are simply dipped into water so as to moisten their surfaces, no more water being applied than is naturally carried by the moist hand. In certain cases, however, as when this procedure is employed as a general antipyretic or antifebrile measure, a larger quantity of water

should be employed. The bed of the patient in such cases should be protected by a rubber blanket, and the patient should be wrapped in a Turkish sheet. Instead of simply dipping his hand into the water, the attendant cups his hand in such a manner as to dip up all the water possible. This is quickly thrown upon the portion of the surface under treatment at the moment, which is at once vigorously rubbed. This alternate deluging and rubbing of the skin may be repeated from one to half a dozen times. In certain cases hot instead of cold water is employed.

The cold wet-hand rub combines tonic, restorative, and derivative effects. The intensity of the effects produced depends

upon the temperature of the water and the vigor of the friction. The colder the water, and the more vigorous and prolonged the friction, the more intense the effects. The feeble neurasthenic patient experiences, after an application of cold wet-hand rubbing, a delightful sensation

of increased vigor, and relief from malaise and mental and nervous weakness.

Wet-hand rubbing may be made a most useful means of reducing the temperature and increasing vital resistance in febrile cases where the patient is too feeble to endure the application of the cold bath or the cooling pack. The lower the temperature of the water used, the more freely



it is applied to the parts which are being rubbed, the longer the application, and the more frequent its repetition, the greater will be the antifebrile effect. This means of reducing temperature is very appropriate for children and aged persons, and in cases of typhoid and other continued fevers in which the cold immersion bath can not for any reason be employed.

Wet-hand rubbing with water at a temperature of 85° to 95° is a quieting measure of value in feverishness due to nervous excitability rather than to actual elevation of temperature. When employed for this purpose, the rubbing should be very gentle, and the passes should be in the form of stroking, the direction being, so far as

possible, from the center toward the periphery. The surface may be left moist, or may be dried by simply covering with a towel and gently passing the hand over the surface. The effort should be to avoid both thermic and circulatory reaction or stimulation of the heart.

Wet-hand rubbing is a measure of less power than the rubbing wet sheet, cold friction, and most other tonic applications, and hence its use is naturally limited to cases in which other more vigorous and more efficient measures can not be employed. It is well adapted to very feeble neurasthenics who dread water and have but little power to react. The warmth of the hand of the attendant, the rubbing, and the small amount of water employed when used for tonic effects, all tend to promote reaction, so that it may be said there is no patient too feeble to admit of the application of this measure. Even very weak patients allow the application of ice water when applied to the surface by the medium of the hand, though water at a much higher temperature would not be tolerated if applied by means of a sponge, towel, wet sheet, or any other vehicle. In case of very feeble, nervous, and excitable patients, the application should be made at first at a temperature of 70° or even 80° , and lowered one or two degrees each day until water at a temperature of 50° or even lower can be tolerated.

By this means the patient may be gradually trained to receive at first tepid, then cool, and finally cold water; then other procedures, as cold friction, the towel rub, the rubbing wet sheet, and later the half bath, the cold shower, and the horizontal douche may be employed.

Wet-hand rubbing is especially indicated in the case of very feeble invalids who, being entirely unaccustomed to cold water, have a dread of its application, which

might almost be termed a species of hydrophobia.

Wet-hand rubbing is useful in fever cases in which the circulation of the skin is deficient, as shown by pallor, coldness, and cyanosis, as a preparation for more vigorous antipyretic measures. Each part must be rubbed until red. It may be appropriately employed whenever it is desirable to encourage cutaneous reaction, either alone or following a hot bath of some sort. This measure is especially useful for chilblains (40° to 50°).

For very feeble patients wet-hand rubbing may be applied to the back only. Very cold water applied to the back in this way is an excellent tonic. Cold wet-hand rubbing is also useful in aiding the circulation in the lower extremities in dyspeptics and neurasthenics troubled with cold feet and legs. In these cases the circulatory disturbance is not due to weakness of the heart, but to vasomotor spasm in the cold parts. Rub first with ice water, then with warm flannels until red and warm.

There is no procedure of more general value than this simple measure. It is applicable to almost every form of acute and chronic disease. It is of special service in all forms of chronic disease accompanied by anemia or low nerve tone and feeble vital resistance, the number of which is too great to mention. It may be so graduated as to constitute the most mild and gentle measure possible, or a most vigorous and thoroughgoing hydratic procedure.

Vigorous rubbing of the surface with the hand while cold water is poured upon the patient from the height of a few feet is the most efficient means of combating sunstroke. This method was first used by Paulus of Aegina, A. D. 660 (Winternitz). It has been advocated in recent years by a number of writers on hydrotherapeutics.

Wet-hand rubbing is constantly employed in combination with many other baths. For instance, in the application of heating compresses, if the patient does not react promptly, the surface should be first rubbed with the hand dipped in cold water. Rubbing the chest with cold water is a valuable means of accelerating the heart's action before a general cold application, and thus increasing the patient's ability to react. Rubbing the face, head, and neck with cold water is the usual preparation for cold baths of all kinds.

Wet-hand rubbing is employed in connection with the shallow bath and the shallow foot bath, and rubbing with the hands is practiced in connection with nearly all cold baths excepting packs,

compresses, and the different forms of the douche. In general, cold friction applied locally is an excellent means of protecting an internal part against congestion from the cold douche. The water employed should be very cold, and the application should be made to the cutaneous area in reflex relation with the internal part which it is desired to protect; as, for example, if it is desired to protect the liver, the application should be made over the region of the liver just before the douche. The stomach, the bowels, the chest, and the heart may be protected in like manner.

Wet-hand rubbing should not be employed for the reduction of temperature in smallpox or scarlet fever

THE PROBLEM OF LONGEVITY.

BY F. EMORY LYON.

PROBABLY no incident in history has received more ridicule than the search by Ponce de Leon for the fountain of youth; and yet few romances of the past answer more nearly to a fundamental desire in human nature, — the desire for health and continued vigor. In these last days, nothing is being more certainly and seriously sought out by many than this selfsame fountain of health, with this difference, — while Ponce de Leon, in a superstitious age, lent himself to the mythical influences of the past, we, in a scientific age, are seeking our fountain of youth in scientific sources. The only wonder is that amid all the superstitious idolatry of other days there should have been so little devotion given to the goddess Hygeia. Passing strange that while men and women have bowed down in abject servility to fetich and fashion, to Mammon and vice, to a whole pantheon of powers destructive of health, they should have paid so little praise to the guardian divinity hovering over the temple of the Holy Ghost.

But this, as I have said, is a scientific day, when we are trying to rid ourselves of both idolatry and superstition. We are not satisfied to worship symptoms. We insist on knowing causes before allowing ourselves to fear effects. If the wind whistles weirdly through the blind at night, we do not pronounce it a ghost, but search for the cause. If we behold an apparition approaching in the dark, we do not run as before a resurrected spirit, but throw off the mask of the friend who tries to perpetrate the practical joke. So, in like manner, we have dissolved much of the mysticism about bacteria and bacilli that has haunted the populace to the point of superstition, as of myriads of imps flitting about seeking whom they may devour; and, demanding reasons, we have found that all such germs, in so far as they are disease-producing, are but the natural outgrowth of insanitary conditions. The causes may be known and abolished.

To the modern world, therefore, the problem of longevity should not be a

matter of magic or mystery. With our present knowledge along all lines of life-science, the average term of human life ought to be both greater and more definitely known. Without attempting to wrest from Providence the destiny of man, we may yet determine the approximate length of life in any given case by the immutable laws of cause and effect. To say, as many do, that "we shall all die, anyway, when our time comes," is to express both skepticism and superstition, as if it makes no difference whether we obey the divine laws of nature. Such a statement is but an appeal to blind fate, and an ignorant disregard of scientific facts concerning the way we ought to live. That long life depends upon the liver is true in more than one sense. Not less does it depend upon the harmonious action of every natural function. Whether we live out the threescore years and ten, we may reverently say, depends far more upon ourselves than upon God. For while God has created us and given us the breath of a diviner life than that of the beast, and surrounded us with the natural elements of life, and although for these blessings we are continually dependent upon his mercy, yet upon us depends, after all, the question of whether we will rightfully use, or abuse the blessings.

A concensus of statistics seems to indicate that the average length of human life is gradually increasing, and doubtless we hear of more centenarians every year; but while we may live longer than our forefathers, it is undoubtedly true that modern high-strung life is more feeble and delicate. It is not enough that there should be a barely perceptible increase in the average length of human life. With our modern conveniences and comforts, should we not live very much longer than our ancestors, and be fully as strong and enduring? More than that, should we not now greatly profit by the flood of light

that has been thrown upon all phases of physical education? Most of this definite scientific knowledge has come within the last twenty-five years, it is true, so we have to be sure we are keeping up with the subject in our adult years. It is only within the last decade that real dietary experimentations have been carried on to any extent.

The more we study this and other kindred subjects, the more apparent it becomes that they are complicated questions with many sides. They involve the study of the highest form of living organisms — the human body. While the study of life itself is most fascinating, — more so than star and stone or chemistry and calculus, — it is the fascination of approaching mystery and complication. We have here problems which can not be discussed by a mathematical axiom. It is easy to demonstrate beyond a peradventure that, under favoring conditions, —

- "The skin may last for...900 years,
 - "The bones may endure...400 "
 - "The heart.....300 "
 - "The liver400 "
 - "The stomach nearly300 "
 - "The kidneys.....200 "
- or more,
- "The lungs.....500 years."

But all this does not answer the question as to how long a person might or is likely to live. It only begs the question. If all parts of the body could be made to work in entire harmony, it is evident we might live at least the two hundred years allotted to the kidneys. Just here is the rub. To secure such perfect harmony is so nearly impossible that but very few persons, if any, ever accomplished it. Cases are on record of persons living to the age of from one hundred and forty to one hundred and sixty-nine years, but these rare cases do not affect the general problem of longevity. What we are after is the average span of life for the general

population. Doubtless one of the greatest difficulties in the way of realizing a longer life is the singular dread many have of becoming old, notwithstanding the natural instinct for life while it lasts. As one writer forcibly puts it, "There is a class of fools who say they do not care to live to a good old age, for fear of the feebleness and dependence of senility. The grossest physical sin of life is a desire to die, or a carelessness about living." There is no doubt that this feeling and expression is far too common. It is hard to make people realize that "old age is exactly what we make it. Many men and women between the ages of eighty and ninety are as lively, bright-witted, independent, and cheerful as the average person of forty. They enjoy living." So might we all, and if we lived in harmony with all physical, mental, and spiritual laws, we would be agile in all respects, and always expect to be; and would not this very matter of expectation have much to do with the average age of the race? As one strong and pleasing writer puts it: "We are told by good authority that a study of the human body, its structure, and the length of time it takes it to come to maturity in comparison with the time it takes the bodies of various animals, and their corresponding longevity, reveals the fact that its natural age should be nearer a hundred and twenty years than what we find it to-day. But think of the multitude all about us whose bodies are aging, weakening, creaking, so that they have to abandon them long before they reach what ought to be a long period of strong, vigorous middle life. The natural length of life being thus shortened, it comes to be what we might term a 'race belief' that this shortened period is the natural period. Subtle and powerful are the influences of the mind in the building and rebuilding of the body. As we understand them better, it may become

the custom for people to look forward with pleasure to the teens of their second century."

So far are we from this goal, however, that it is evident we still have the problem of longevity to solve. There is no doubt we are finding the key to its solution in scientific prevention. Prevention is the cynosure, in these days, of every worthy reform. So we say, "To cure is the voice of the past; to prevent is the divine whisper of to-day." Whatever advancement has been made in medical and especially in surgical science, it must be confessed that theirs is not our goal. They presuppose a diseased and mangled humanity, while we are in search of harmony and wholeness. But if we ask, "Where shall we begin our prevention?" we are confronted with our fundamental ideals in this respect.

These are assuredly, first of all, to be well born. This should be the natural and inalienable heritage of every child coming into the world. The discussion between Professor Weismann and Herbert Spencer, as to whether acquired habits, talents, and characteristics are transmitted by inheritance, does not seem to be fully settled. With our present certainty that at least natural tendencies and gifts are passed on from generation to generation, it behooves us to take as much care in the "breeding" of our children as in the breeding of cattle, sheep, and horses. Horace Mann once said, "The time to begin the education of a child is one hundred years before he is born." The same is even more true if we consider the physical basis of a well-developed life. We are at least beginning to study the inevitable laws of heredity, and are more and more comprehending their infinite significance. More and more we are bound to admit that, as one puts it, "Each of us is only the footing up of a double column of figures that go back to the first pair.

Every unit tells, and some of them are plus and some minus. If the columns do not add up right, it is commonly because we can not make out all the figures." So fully do we now recognize this principle of heredity that we believe it applies not only to health and disease of body, but also to the transmission of mental and moral qualities. Indeed, do we not all inherit taints, tendencies, and peculiarities from our ancestors? In every second generation, we know, we behold "a chip of the old block." Our children hold up to us, as a mirror, our own faults and foibles; and, while it may not be so apparent or develop so early in life, the spiritual is as transmissible as the physical. For, asks George Eliot: "Shall the trick of nostril and of lip descend through generations, and the soul that moves within our frame like God in worlds, imprint no record, leave no documents of her great history?"

This great fact of heredity, the extent of which we are only beginning to understand, we can see at once is of immense importance in our desire to secure a higher standard of health, for not only does it give the body itself a predisposition to disease in many cases, but also largely determines the temperament of mind and qualities of character—elements of the utmost importance in the securing of continued health. Too much, therefore, can not be said and taught as to the bearing of this question upon marriage, upon proper conditions of parentage, and upon the healthful surroundings amid which children are brought into the world. So much for those who come after us. We would advise them to be wise in choosing their prenatal conditions. Unfortunately for us who find ourselves in the world, we were not consulted as to how we should like to be born. Hence we must make the best of the physical heritage bestowed upon us. Some of us have strong bodies, and scarcely know what it is to be ill.

Others, because some one before them violated a law of being, have brought with them into life the burden of low vitality or chronic malady. By what obedience to physical law or healthful habit, by what exercise or art of holy living, shall they conserve the vital forces that remain?

Much, doubtless, can be done to counteract these misfortunes, especially if taken at the earliest possible age, by the parents. But much has also been done even when adults have taken the matter into their own hands, and by unusual precautions, by diet, by extra care of the health, and by various methods of physical culture, they have so far seemingly reversed the order of nature as to live a long and useful life.

If any doubt the efficacy of personal hygiene and sanitary precautions in preventing disease and death, they have but to consult vital statistics at any time or place. The register of interments for a single year in Philadelphia, for example, shows that mortality from old age forms but four per cent of the total number of deaths. The remaining ninety-six per cent is made up of deaths from inherited maladies and contagious diseases. Commenting on these figures, Dr. Joseph G. Richardson says: "Now I have no doubt that all of these deaths from contagion, and a large proportion of the deaths from inherited diseases, might, by proper hygienic management, be absolutely prevented. In other words, by due attention to the rules of the most perfect science of hygiene, nearly three hundred thousand inhabitants of the United States might annually escape dying, as they do, of painful diseases in their youth and their prime, living out, instead, the full measure of their usefulness to extreme old age, and then almost without reluctance putting off this mortal life by a nearly painless process of its gradual extinction."

HEALTH AND LONG LIFE.

BY CHARLES ARTHUR GASKELL.

"So age is opportunity no less
Than youth itself, though in another dress."
— *Longfellow.*

"Grow old along with me ;
The best is yet to be,—
The last of life, for which the first was made."
— *Robert Browning.*

IT has been said that "sleep, riches, and health, to be truly enjoyed, must be interrupted." We even think it the part of wisdom now and then forcibly to interrupt sleep and riches; but rather than exchange good health for disease, who of us, in theory at least, would not be willing to get up from a Christmas dinner with a good appetite; or, like Gladstone, to chew every morsel of food thirty-two times; or to drink boiled water in place of tea, coffee, or of hydrant microbes?

As an engineer is given charge of a locomotive to keep it in good condition, so we have been placed in charge of these vital engines, every one differing in some important regard from every other. No one has so good a chance to learn the peculiarities of his own body as he who lives in it and feeds and cares for it. This lifelong experience gives a considerate person a very great advantage over even the best of physicians, and though this is no reason why society should dispense with physicians, every one ought to concern himself to know what is most needful for the proper care of the vital machinery in the midst of which he lives. The life of a locomotive is very short in the hands of a careless engineer, and when we consider how careless most people are of the bodies intrusted to them, it is not to be wondered at that the census of 1890 reported not quite five thousand persons in the entire

country who had lived one hundred or more years.

People, as a rule, do not die. Most of them kill themselves. As measured by the ratio of average length of life and period of growth among other animals, man should live considerably beyond one hundred years, with a possibility of traveling very happily and very far into the second century. Few attain to such years, but how few there are who do what is necessary to attain it. "The secret of longevity," wrote Dr. De Brassy, "is consideration in all things, cleanliness, and a pure life, and I believe it is in the power of every one to become a centenarian." This is very encouraging, and as the Doctor justified his optimism by living to the age of one hundred and three years, his counsel should be of value. It is age, and not youth, that has the greatest capacity for enjoyment, if this capacity is not squandered by early excesses. Many are older at seventy-five than some of those described to us by Haller as having lived beyond one hundred and fifty.

Unquestionably the great majority of those who die might live many years longer were proper care taken as to food, rest, exercise, air, warmth, sunlight, and to foster a spirit of contentment and hopefulness. The promise, "With length of days will I bless thee," like all other promises, involves conditions. Nothing more beautifully illustrates how, by the very nature

of things, we are called to be "workers together with Him," the Author of our being, than this responsibility of taking care of the bodily temple. "Without Him we can do nothing," and it is equally true that without us he can do nothing.

There is no science so valuable as to know how to live, and it is wonderful how far a little health, well treated, will carry one. The Venetian nobleman, Louis Cornaro, affords a very instructive example of this; for, when he began to take proper care of himself, he had not, it would seem, even a little health. When not yet forty this man had become so diseased in consequence of excesses that his life was despaired of, and even under the best care possible it was not thought he could live longer than a year or two. The mere fact that a man who was constitutionally weak, and who had very poor digestive powers, lived to the age of one hundred and three, a life that to the very end was cheerful, active, and happy, and with a keen enjoyment of its daily concerns, is most persuasive. His experience shows what a burden is taken from the system when the quantity of food is reduced far below what is commonly regarded as a moderate amount. In his sixty-eighth year he reduced his nourishment to twelve ounces of solid and fourteen ounces of liquid food a day. At ninety-five years of age he wrote in justification of this moderate diet, "I eat very little because my stomach is delicate, and abstain from certain dishes because they do not agree with me." As he drew near his hundredth year he wrote, "Great age may be so useful and agreeable that I believe I would have been wanting in charity had I not taken pains to point out by what means men may prolong their days; and as each can boast a happiness all his own, I shall not cease to say, *Live, live long.*" But he that would live long would do well to begin early to lay the foundation in good habits.

Fontenelle, the French author and centenarian, was naturally of a very delicate constitution. He was accustomed to attribute his length of life and his uniform health and spirits to his calmness of disposition and his natural cheerfulness—qualities which kept him young up to the last moment of life. But his biography shows him to have been very regular in all his habits, carefully planning beforehand the work of each day; he rarely departed from a prearranged plan. His hours of work, of repose, of meals, of reading, and of recreation were all fixed precisely, and thus he went on from day to day, and from year to year, until life's pendulum stopped. He was noted for his brilliant sallies and humor, which he seems to have enjoyed heartily, though it is said he himself neither laughed nor wept. "Mirth," said one of our grand old men, "is God's medicine. Everybody ought to bathe in it. There is no table medicine like laughter at meals. It is the great enemy of dyspepsia." The Frenchman who said, "The greatest wisdom is a habitual cheerfulness," gave, perhaps, the best possible seven-word recipe for the attainment of a serene old age.

As most of us have learned by experience that by a few days of excess of any kind the physical powers become less strong, we may from this understand how easily our lives are shortened when vitality is steadily drawn upon more rapidly than nature reproduces it. Vital energy may be made to burn slowly or rapidly. Like the oil in a lamp, it may be consumed to little effect and in a little time, or it may be made to last longer, and yet to burn more brightly. Probably no one doubts his ability to bring upon himself a period of premature senility by imprudent living. We wish here to call attention to the fact that by living prudently one may avoid the imbecilities that often attend advanced years. "The rule of the wise man," said

Cicero, "is to make use of what one has, and to act in everything according to one's strength." In other words, the person who would win the prize of long and happy life must live within his means, physical and financial.

The secret of longevity lies in the attainment of a natural life, to be brought to an end by a natural death — a change that closely resembles falling asleep. We are so accustomed to think man must die of disease that a really wholesome old age is a matter of surprise. This, no doubt, is why so few do what is necessary to attain it. It is a most lamentable loss to the world that so many whose knowledge and experience eminently fit them for responsible work and for doing great good for many years, are early cut off from their usefulness for the lack of applying knowledge so available to them along this line. The tendency of wealth and civilization is rather to prevent men from dying young than to cause them to live to advanced age. The average of human life, which during the nineteenth century has increased a little over eight years, should continue to increase with man's mastery over the forces of nature; but no advancement may be expected in the proportion of centenarians except with man's mastery over himself.

We do not hesitate to say of a drunkard that he has killed himself, but one rarely speaks of overeating as a shortening of life, yet probably more people are killed by imprudent diet than by famine, plague, or by any other cause. The appetite alone should never determine the amount of food taken.

As good moral habits yield happiness, so good physical habits yield health. It has been said that "people who do every day the same thing with the same moderation and the same relish, live forever." They certainly are the hardest people in the world to kill. It is not the rich who

become centenarians, but people whose food is plain and moderate, who exercise much, who are daily exposed to the fresh air, and who are kept so busy as to forget themselves, except to provide for their physical needs. Mental and physical occupations are an absolute necessity if the constitution is to be kept in healthy working order, but the mind should not be oppressed with anxiety of any kind. Every time one frets, he shortens his life. Nothing wears the life out like worry or mental chafing. Of the chemist M. Chevreul, who died April 9, 1889, at the age of one hundred and two years and seven months, it is said, "Throughout his long life he had worked hard, sparing neither mind nor body, and it would seem that his faculties were preserved with but slight impairment up to the time of his death." Almost any one of equally good habits who in body and mind is kept congenially active, is in a fair way to carry his youth into his second century. Man is a trinity of body, mind, and spirit. His happiness depends upon each factor of this threefold nature, and to keep them in parallel vigor one must exercise, study, and love.

" Good heart-occupation
Is health and salvation."

One's vocation may be so chosen as to bring into wholesome activity each of these at the same time and continually. Goethe advised that brain workers follow some mechanical by-trade,—some pursuit that, during certain regular hours, involves physical activity. Thus, we are told, "Uncle Tom's Cabin" was thought out "chapter by chapter, in the soapy steam rising from dishpan and scrubbing pail, and written between the setting and rising of the home-made loaves." Surely the life and character of the writer was made stronger by this combination, as was also that of Elihu Burritt, the philologist-blacksmith, by the close association of book

and anvil. Senator Depew is quoted as having said he never knew a business man to retire after forty years of age, with a view to resting and enjoying himself, who did not either soon return to the responsibilities that had already become necessary to his health and happiness, or die within three or four years. Russell Sage, the multi-millionaire, who is now beyond eighty, was recently asked why he did not retire from business. "I will do so," he replied, "if you will tell me what else I can do that will accomplish as much good and keep me in as good health." What is true of business applies with equal force to every pursuit. Habits of life and a routine of duties to which one has for a considerable time become accustomed, should, as a rule, be continued, or some equally agreeable pursuit substituted; and the older one grows, the more necessary is his occupation to his happiness and health. Our statesmen who have become presidents have afterward relaxed the effort to which they were accustomed, and after their highest political distinction they appear to have dropped that hopefulness of spirit, that looking forward to a loftier realization, so essential to the attainment of many additional years of life. We state this as a fact, and not as an unavoidable condition. A man who has become president of these United States—the most magnificent empire on this planet—has nevertheless only touched the fringe of the great glory our King has yet to give to him who constantly moves on with a confidence born of an enlarging faith and

purpose. Better far the poet's ideal,—

"Build thee more stately mansions, O my soul,
As the swift seasons roll."

Let it be emphasized that advanced years, to be at their best, *should be lived for*. It is of no use to say, "When I am rich, or when I retire, I will do thus and so." If it is left that way, the desire will have perished long before the opportunity comes. Every person who is an employee, and not in possession of his own business, is likely some time to be replaced by younger life, as indeed, teachers, and persons in political life generally are. Let such persons at once start the beginnings of something that may interest and employ their later years, giving a little time to it regularly, because, as one advances in life, it is easier to carry on work than to begin it. There is less power for initiative later on, though not less for patient endeavor. Let the teacher keep up with some favorite science or some other specialty, and know the advancement made in it, so that when more time is found, he can pursue it with greater advantage. If one has taken some share in the social or religious work of his neighborhood, there will be found abundant field for such work later, when there is more leisure. Age is much given to maxims of thrift and economy, but in addition to this let one spend his money to do good, and in ways that will enlarge his experience. Then, as he foots up other accumulations, let him also take account of riches, gains, and his store of happy memories.

(To be concluded.)

A CHILD'S KISS

Set on thy sighing lips shall make thee glad ;
A poor man served by thee shall make thee rich ;
A sick man helped by thee shall make thee strong ;
Thou shalt be served thyself by every sense
Of service which thou renderest.

— Elizabeth Barrett Browning.

RED BETTY, OR THE SLAUGHTER OF THE DUMB INNOCENTS.

BY MRS. L. D. AVERY-STUTTLE

CHAPTER VI.

(Copyright, 1899.)

ONE bright morning that spring," Red Betty continued, "I found the dearest little bunch of soft, spotted, red and white velvet curled up by my side. Then I knew that the tiny creature was my own; and O, kind lady, how I loved it! The love of all creatures for their offspring is a natural instinct, implanted in their breasts by the All-wise when he created them. Strange, indeed, that mankind, who claim to understand most truly what this impulse is, should so often completely ignore its presence in the poor creatures placed under their care.

"How jealously I guarded the tiny, helpless thing, yet I suffered from the very first with a vague fear of coming evil,—a fear that I should soon be separated from him, my little firstborn. I remembered my dear mother, and the fears which so constantly troubled her, and knew as never before how she had suffered.

"After a while master turned me into another lot where the grass was greener and more plentiful, and I could not see my little one all day. I noticed that the milk I gave was saved for master's own family. All day long I thought about my little one, and at night when I came up, I would hurry to meet him, and stand for a long time caressing him. Yet all the time a kind of presentiment made me uneasy and unhappy. Ah, kind lady, my worst fears were soon to be realized.

"I bade my little one good-by one bright morning, and as I walked away, the little fellow trotted after me all the way to the bars, when he was driven back

by the boy. I gave him a loving caress, and gazed after him long and tenderly. My lady, that is the last time I ever saw him alive.

"How well I remember that day. About noon I seemed to hear my little one calling to me, but I thought it must be my imagination, for I was unusually nervous; yet I could hardly wait for the shadows to lengthen, when the boy would drive me to the shed. At last he came, and I hurried along over the old path to the barnyard. As I drew nearer, I detected a peculiar, sickening odor, and turning the corner, my heart stood still with horror, and my straining eyes grew fierce and bloodshot. There, hung upon a bloody pole, was a tiny skin—spotted, white and red! Drops of blood were everywhere. There was a steaming, horrid, crimson pool by the shed. My breath came in short, hard gasps; my brain seemed filled with fire; briny tears fell from my staring eyes, and my heart seemed turning to stone.

"The master came around the barn with his milking-stool and pail in his hand, and sat down by my side. When he saw that there was only a little milk for him, he said to himself: 'I ought to have known better than to have let her into this yard.'

"Master was unwise enough to take the little milk that I did give into the house, and the next day I saw Peter, the hired man, riding the best horse in the stable after the doctor as fast as he could go. I felt astonished that mistress did not know better than to feed her baby

milk drawn from a poor brute which was almost crazed with terror and anguish. O lady, lady! you can never know what I have suffered," and Red Betty shuddered with horror. I myself was weeping tears of shame and remorse that I had ever in any way been instrumental in helping forward this horrid traffic of blood.

Again methought I gave my companion a bit of tender grass and a drink of cool water, when she once more proceeded with her story:—

"This was only one, kind lady, of many quite similar events—tragedies to me—which fell to my unhappy lot. You see master thought the milk I gave worth very much more than the life of my little ones.

"One day master drove home some fine-looking cattle, and turned them into the pasture where I stayed. Among them was an old cow whose conduct from the first was most alarming. She would run wildly from one side of the field to the other. Her eyes were staring and blood-shot, and when milking time came, she would plunge and dash at the man in the most frantic manner. Master could not do anything with her, and the hired man became so angry that he caught and beat the poor creature until she fell down quite exhausted. The next day she acted worse than ever, and when the men caught and tied her, she would give scarcely a drop of milk. Master was much astonished, for he said that the animal had behaved very well before she left her old home.

"That set me thinking," said Red Betty, "and I made up my mind that the poor thing was only homesick. When the men had gone into the barn, I spoke to her, and asked if she would like to go back home. O, how wildly her eyes gleamed.

"'Home!' she exclaimed, 'home! I am going home to-day. *I will not wait.* I will not stay in this strange place with these strange men and strange animals.

I want to see my old master and my old stall, and the pleasant barn, and my same old corner in the shed where I have stood for so many years. I want a drink out of the spring that always bubbled up in the east meadow. I tell you I'm going now—I will not wait,' and the poor thing moaned and dashed wildly about.

"The next morning," continued Red Betty, "the hired man took her back, and asked the man to return master's money, because they could do nothing with the animal. He did not bring her back, so I suppose he made the exchange.

"But I must hasten with my story," said Red Betty, and methought she glanced uneasily at the gate of the inclosure, where the herd of cattle from which I had rescued her still stood, lowing and bellowing, and tossing their heads impatiently.

"Do you see, lady, there are not so many in the inclosure as there were. Of course you can guess the reason why; my turn must come soon," and she turned her eyes imploringly toward the blue sky, whence there seemed to come to my dreaming ear a Voice soft as an angel's, but sad as a peri's:—

"Because the creature itself also shall be delivered from the bondage of corruption into the glorious liberty of the children of God. For we know that the whole creation groaneth and travaileth in pain together until now."

Red Betty listened intently until the last musical echo of the wonderful Voice died away, and then she spoke, while a look of glad thanksgiving shone in her sorrowful eyes,—

"Did you hear the Voice, lady?" I nodded assent, and she continued:—

"I have heard the Voice many times in my life, kind lady. It always speaks to me in times of peculiar danger and suffering, and although I have never been able to comprehend the words, still I am always comforted."

Then I wondered if it might not be that He who numbers the very hairs of the heads of his children, and in whose sight even a little sparrow is precious, might in some manner unseen and unknown to mortals, impart comfort and hope to his sorrowing creatures upon which falls, O, so heavily, the burden and the curse of sin. I thought of the cruel sufferings of the poor Cuban oxen of which I had read only the day before. Wishing to refresh my memory upon that point, methought I took from my pocket the clipping which I had made at the time, and read it once again:—

“To study the home and the habits of dumb animals in Cuba one should visit a sugar plantation. Only three miles from the seashore, near Caibarien, is one of these great haciendas. We drove by rows of stately palms, almost under drooping banana trees with their deep green clusters, and skirted fields of rich, rank grass as high as a horse’s head. Reaching the inclosure, in the center of which stood the planter’s house, we saw fully twenty yoke of oxen recently brought over from Venezuela. They were quietly chewing the cud after a heavy morning’s work. The yoke in every case was fastened just behind the horns with leather straps and bands drawn tightly around both horns and head, rather than with a bow around the neck, as in this country. They were compelled in this way to pull with the head instead of from the shoulder. So tight were these leather bands and so immovable the yoke that the latter seemed a part of the head itself. Nothing could be more cruel. At every jolt on the rough country roads the heavy tongue of the cart jarred the yoke until the heads of the poor creatures trembled, and shook from side to side. I have seen them with bloodshot eyes and faces wrinkled and drawn as if in an agony of pain. It is said that in some cases the teeth are jarred out of the jaws. Relief does not always come with the end of the

day’s work, since in many quarters, on account of the difficulty in removing the yoke, it is left fastened for weeks at a time.

“As if the suffering of the poor creatures was not enough, the farmer guides his plow with one hand, and holds an iron-pointed prod, the *garrocha*, in the other, with which he goads the flanks of his team, to make it move faster.”

So deeply was I plunged into the meditation which this strange circumstance—the sounding of the wonderful Voice—had caused, that I scarcely noted the passing of time. At last, however, I was roused from my reverie by the soft voice of my companion:—

“Kind lady, I must proceed with my history; that is, if you care to hear it,” she added apologetically. I nodded assent, and murmured an excuse for my absentmindedness, when she continued:—

“At last, master Riggs, with whom I had lived ever since that memorable summer spent in the forest, made up his mind that he would sell me. A man named Hakes, a wealthy merchant, who lived in a neighboring city, offered a good price for me, and so one day I was hurried off. I heard Mr. Hakes explaining to my master that his family had been taking their milk from the milk cart, and that he had just found that the cows which furnished the supply were fed from the distillery near by. His little girl had not been well for some time, and the doctor had suggested that possibly there was some trouble with the milk. That was the reason why Mr. Hakes thought best to buy a healthy animal of his own. It was about ten miles to the home of my new master, and while he drove back in his carriage, he left Isaac, his hostler, to lead me. Isaac rode his horse, leading me after him.

“I watched this man very closely, for I rightly judged he would be my keeper.

His eyes were mild and kindly, and his voice as soft and tender as a woman's. He rode very slowly, so as not to tire me, and he stopped two or three times to give the black pony, Firefly, and me a cool drink, for it was a hot day. At last we came to the top of a high hill, from which we could see the city in the distance. Down in the valley at the right were a number of long sheds. These were filled with cattle, and I noticed that the stench, even at a distance, was quite sickening. Then I knew that these were the cattle fed from the distillery slops which my new master had spoken of, and from which he had quite likely been obtaining the milk supply for his family.

"Just as we were passing them we met a man who knew Isaac, and as he stopped for some time to talk with him, he led the black pony and me to two trees growing close by the sheds, but some distance from the road, and tied us. Then he went away with his friend and was gone for some time.

"When I found myself alone, I noticed that a board had been partly torn from the high, light board fence that shut the inclosure from the public view, and that by moving the loose board with my horns a little, I could see into the sheds. The stench was very dreadful,—almost sickening—and I wondered how any poor animal could long endure being shut up in such an ill-smelling pen. The longer I thought about it, the more my curiosity was aroused, and I found myself cautiously pushing the board farther aside with my head. At last I succeeded in getting a plain view of the interior, though it was quite dark in the sheds, and at first I could not see very plainly. I found, however, that after my eyes became accustomed to the darkness I could see very well.

"The place was filled with poor animals, almost all of which were evidently weak

and ill,—in fact, some of them seemed quite unable to stand. It was milking time, and two or three men with buckets were busy milking. Heaps of foul-smelling garbage were everywhere. At last one of the men approached a wretched brute which lay upon her side breathing heavily. I was quite horrified to see that the man intended to milk her. She made an effort to rise when he came near, but she was too weak; then the cruel man raised his foot and kicked her with his heavy boot. She moaned and struggled violently, but she could not rise.

"'Come here, Dave, and give us a lift; the stupid black brute can't get up. We must get the milk out of her once more before she goes to the boneyard,' he added with an oath; 'every little helps, and at the present price for milk, it won't do to be too particular.'

"By this time the poor thing had gained her feet, and the man began hurriedly to milk into the pail, which was already half full. There was a raw-looking sore upon her side, and one of her knees was swollen badly. As soon as the man had finished milking her, she again lay down, though every movement seemed to be painful. As she did so, she turned her head directly toward me, and the dim light of the pestiferous pen flickered upon her face. Something about it seemed strangely familiar. I gazed upon her with a sort of fascination. Suddenly she looked up. She had not seen me until that moment. Our eyes met. O lady! lady! can you understand my feelings when I saw that it was my own mother?

"For a minute," continued Red Betty, quite overcome with emotion, "neither of us spoke; but I saw by the look of astonishment and delight in her eyes that she knew me. I was the first to speak, but I whispered very low, for fear the men would notice me and drive me away or nail the board again in its place. 'O mother!

mother!' I moaned, 'how did you come to live in this dreadful place?'

"'Never mind, my child,' she answered, 'let us be thankful that we have again met. Let us not mar the joy of our meeting by sad reflections.'

"However, after I had told her a few particulars about myself, and whither I was then bound, she reluctantly told me that our old master had sold her about two years before, and that ever since then she had been drifting from one place to another, always finding each new master a little more cruel and heartless than the others, until a year before, she had been taken to this place and fed upon the slops from the distillery till her weakened body could not resist the attacks of disease. She told me that she expected to live but a short time longer, and that she suffered

constantly. I then noticed a large swelling under her jaws, from which slimy drops were slowly oozing. I shuddered. She said that she had heard the men talk about sending her to the butcher in a day or two, and that she had already seen several of her companions driven away, which were scarcely in better condition than she, but that she only hoped to die before the worst came, and that she did not expect to see the rising of another sun.

"Then I turned my eyes," said Red Betty, "and saw Isaac coming to untie the black pony, Firefly, and me. I could only cast one last tender glance at my poor mother, bid her a hasty good-by, and leave her lying there in her misery. Then Isaac led me away. I never saw my mother again," and Red Betty sighed mournfully.

(To be continued.)

FALL AND WINTER SALADS.

BY EVORA BUCKNUM.

IN our last article we confined ourselves entirely to salads without oil; not that we would undervalue the use of oil of the right kind used in the proper manner, but because during the heat of summer we enjoy cooling and refreshing foods, and the thought of anything rich and heavy is disagreeable. This is a natural impulse, because of the heat-producing properties of oil, and because during the summer months fresh fruits afford the laxative properties for which the oil is so valuable. But now that the cool days of autumn are coming, the system will begin to call again for fat-producing elements, and will suffer if deprived of them, for it is certain that the human machinery, as well as any other, requires oil to keep it running smoothly. To be sure, the thought of using animal fats is not for a moment to be entertained.

In nuts and in the olive we find oil in its most assimilable condition, a state of perfect emulsion, and as the salad is such a general favorite, and many will take oil in that way and derive great benefit from it, we give this month directions for a few salad dressings in which the oil is perfectly or partially emulsified (there is a difference of opinion among leading authorities as to whether the system requires any free oil, even a vegetable oil), and in which we use no mustard, pepper, or vinegar.

Sour Salad Dressing with Nut Butter.—

2 rounded tablespoonfuls nut butter
 $\frac{1}{3}$ - $\frac{1}{2}$ cup water
 2 tablespoonfuls lemon juice
 $\frac{1}{2}$ teaspoonful salt

Rub the butter smooth with the water, adding a little at a time. Let this solution just boil up over the fire, add the

lemon juice and the salt, cool, and the dressing is ready to serve. This dressing is suitable for nearly all salads where a sour dressing is required. It is especially delightful with lettuce.

For sunflower mayonnaise, or other salads where a yellow color is desired, have the beaten yolk of an egg in a bowl,

occasionally, and stirring well if there is danger of cooking too rapidly. When the dressing begins to thicken, remove at once from the fire, and set in a dish of cold water, stirring until partially cooled. Strain through a wire strainer.

This dressing is the most practical in use, being suitable for all salads where a



PROTOSE AND CELERY SALAD.

and pour the hot dressing slowly over it, stirring. When using egg, take less water and more lemon juice and salt.

Nut and Tomato Dressing.— Use from one half to three fourths of a cup of strained stewed tomato in place of the water, and three fourths to one teaspoonful of salt. This is a rich dressing, and made with almond butter is very pretty.

Improved Mayonnaise Dressing No. 1.—

- 4 large eggs
- $\frac{1}{4}$ cup nut oil or California olive oil
- A scant half cup lemon juice
- 1 well-rounded teaspoonful salt

Beat all the ingredients, in the inner cup of a double boiler, just enough to blend well. Put into the outer boiler, containing warm, not hot, water, set over the fire, and stir with a wooden spoon continuously, taking the inner boiler out

raw mayonnaise is used, and for many of which the latter is unsuitable. The small proportion of oil also makes it desirable. Those who prefer more oil and less acid may use the following:—

Improved Mayonnaise Dressing No. 2.—

- 4 whole eggs and yolks of 2
- $\frac{1}{2}$ cup oil
- 2 tablespoonfuls lemon juice in a cup with enough water added to make half a cup
- 1 $\frac{1}{2}$ teaspoonfuls salt

Cook the same as in dressing No. 1.

In these dressings the oil is perfectly emulsified by combination with the egg and lemon juice.

Nut oil is a great boon to those to whom the flavor of olive oil is disagreeable. However, according to chemical tests made by the Department of Agriculture at Washington not long since, we

get no pure olive oil except that from California. Some, imported directly from Europe, called "pure," they found to contain only five per cent of olive oil, the remainder being cottonseed oil. As I



HELIANTHUS MAYONNAISE (INDIVIDUAL DISH).

heard it expressed, "the cottonseed oil is sent to Europe and made into olive oil, then returned to us."

The simplest and most easily prepared of all dressings is French or plain dressing, and even in this the oil may to some extent be emulsified. The regulation way of making the French dressing, as to proportion, is three parts of oil to one of lemon juice (or in bygone heathen days, vinegar). Though a small quantity of oil is necessary to health, too much is a detriment, so we may reverse the proportions, and take for—

French or Plain Salad Dressing.—

- 3 tablespoonfuls lemon juice
- 1 tablespoonful nut or California olive oil
- $\frac{1}{2}$ teaspoonful salt
- or sometimes
- 1 $\frac{1}{2}$ tablespoonfuls lemon juice
- 1 $\frac{1}{2}$ tablespoonfuls oil
- $\frac{1}{2}$ teaspoonful salt

Mix the salt and oil together, then add the lemon juice, a little at a time, stirring, and the mixture will become creamy. Pour it over the salad, and serve at once. This dressing should not be prepared until just before serving.

Protose and Celery Salad ("better than chicken salad")—The ingredients entering into this salad are protose, celery,

onion, lemon juice, improved mayonnaise dressing No. 1 or 2.

Cut protose into dice, or shred into coarse pieces with a fork. Sprinkle over it a very little salt, lemon juice, and grated onion (there should not be enough of the onion to give a positive onion flavor to the salad), mix all well together, and set on ice. Cut fresh crisp celery into pieces from one eighth to one fourth of an inch in length and set on ice. Just before serving, add the celery to the protose (equal quantities of celery and protose may be used, or only one-third celery), mix with them the salad dressing, and serve in the center of a bed of crisp curly lettuce leaves, garnishing with nasturtiums or with the fresh green and white leaves of celery, or, as in the illustration, chervil, celery leaves, and radishes cut like lilies.

Helianthus (Sunflower) Mayonnaise.—

- Lettuce
- Hard-boiled eggs
- Improved Mayonnaise Dressing No. 1

Press the whites and yolks of hard-boiled eggs, separately, through a wire strainer with the thumb (see illustration, *May GOOD HEALTH*, page 283). Then pile the yolk up in the center of a gilt-edged plate, placing the white around it, like a nest. Surround this with shredded lettuce piled up, and drop on to the lettuce carefully, at frequent regular intervals, a teaspoonful of dressing.

When the salad is served at luncheon as the principal dish of the meal, one egg for each plate is none too much, but for a dinner of several courses, two eggs for three plates is sufficient. This dish is a universal favorite, for its taste is as enjoyable as its beauty.

Apple and Celery (the Waldorf) Salad.

—Take equal quantities of apple, sliced fine, *not chopped*, and celery prepared as for the Protose and Celery Salad, with

either of the improved mayonnaise dressings, and you have something superior to that served in New York City at sixty cents a plate.

Banana Mayonnaise.—Peel a very ripe banana, and lay it whole on a lettuce leaf, or on a plate with a spray of chervil beside it, and cover it with Improved Mayonnaise Dressing No. 2.

The banana may be cut into quarters, lengthwise, dipped into the dressing, and laid on the dish cob house fashion.

Peas and Onion Salad.—Drain stewed or canned green peas, and lay them on a clean towel to absorb the moisture. Add to them enough onion chopped fine to give a strong onion flavor. Mix a little salt and lemon juice with them, and let them stand in the ice box for half an hour or longer. When just ready to serve, pour over them a sour dressing of peanut butter made with the smaller quantity of water. Mix all together lightly, and serve on lettuce leaves.

Tomato Salad.—This is a simple and at the same time enjoyable salad. Dip perfectly ripe tomatoes quickly into boiling water, then into cold water, after which lay them on ice until thoroughly chilled. Just before serving, peel and lay each one on a lettuce leaf on an individual salad plate, or put them all together, each with its leaf of lettuce, on a large salad dish, then dip on to each a generous spoonful of the Sour Salad Dressing with Nut Butter, and let it run down on the opposite sides of the tomato, leaving the remainder of the tomato to show its beautiful color. One of the prettiest salads I ever saw had the tomato on a plate which shaded from a very light green in the center to a dark green on the edge, with borders of gilt near and on the edge of the plate. On one side of the tomato was a heavy spray of dark green parsley, and on the other side one not quite so heavy.

Apple and Onion Salad.—Apples sliced fine, with enough onion chopped fine to flavor, with this nut butter dressing, make one of the special favorites.

Russian Salad, or Salade à la Russe.—For this salad take as great a variety of legumes and starchless vegetables as possible, the vegetables being cut into dice, small balls, and into fancy shapes with vegetable cutters.

Carrots, beets, celery, dark green string beans, green peas, red kidney and French beans, with a flavoring of chopped onion, may be used. Mix them all together, marinate with a little lemon and salt, and let them stand in the ice box for an hour, then pour over them the French dressing, and serve at once. The mixture of smaller pieces should be well piled up on some green in the dish, and one or two large pieces of beet or carrot laid on the top.

This is a strikingly pretty salad, and one that is enjoyed by nearly all tastes.

English Salad.—Wash and drain crisp lettuce leaves, and shred each into eight or ten pieces. Place these in a salad bowl with a few fresh leaves of green mint (spearmint), and cover with a dressing made by mixing, as for French dressing, one tablespoonful of oil, one half to one tablespoonful of sugar, one eighth of a teaspoonful of salt, and two tablespoonfuls of lemon juice. Or the mint may be chopped, not too fine, and put into the dressing.

If the green mint is not procurable, one eighth of a teaspoonful of powdered dry mint may be used in the dressing, but of course it is not equal in flavor to the fresh.

The principles and suggestions furnished in this article and the one in the August number of GOOD HEALTH should enable any one to prepare a great variety of delightful salads without harmful combinations.

The New Doctrine.

"I do not forget the new doctrine that alcohol is 'food,'" says John G. Wooley, in the *New Voice*. "It is food for lust and lies and idleness and dishonesty and every 'slug' and 'scale' and parasite of character. But from Noah's time to the fourth year of William the M. E. (me) it never fed a virtue in any man. . . ."

"Has it not saved the sick?—Yes, it may have done so. So has a buggy-whip saved both horse and man from being run over by a train. The system assimilates a whipping, it is oxidized, or 'somethingized,' in the body of horse or man, and produces prompt energy. But a whip is not 'food.' So, when in pneumonia or typhoid or the like, or in any physical crisis, a man's heart would stop from shock or weariness, the watchful and skillful physician may whip it with a lash of whisky or a wisp of wine, across the dead-line. But I have no doubt but alcohol has killed ten pneumoniacs for every one that it has saved, and so also in other diseases and accidents. . . ."

"A sudden fright will cure hiccoughs, but I saw a friend of mine—a man fifty years old—a married man and a good lawyer, but childless—spring with a diabolical yell at a little baby peacefully hiccoughing on its mother's lap, and cure it, to be sure—by throwing it into convulsions. He meant well. He thought fright was 'a food.' But the mother hated him; his own wife called him a fool; and he slunk out of the house like a criminal, and can not to this day, I doubt not, look an honest baby in the face."

Cellaritis.

The term "cellaritis," says the *Household*, has been applied to a debilitated condition of body for which a damp and unclean cellar is responsible. "Although the word is an offense against both English and Greek, it serves a good purpose to

warn the unthinking or the indifferent of the danger that the malady may invade the family. Every housekeeper should keep the cellar so free from objectionable matter as to make it a congenial place of meeting for a committee of sanitarians."

Testing Drains.

A simple method of testing drains, according to *Health*, to ascertain whether they are sound at the joints, is to pour oil of peppermint mixed with hot water down the upper end. If any of the joints are weak, the smell may be detected about the house, and as sewer gas might enter through such joints as the odor may show up, a plumber's aid should be called in. A very good plan to detect sewer gas in a room is to saturate unglazed paper with a solution of one ounce of pure acetate of lead in half a pint of rain water. Let it dry partially, and then expose it in the room suspected of containing sewer gas, the presence of which in any considerable quantity soon blackens the test paper.

The Plague Defined.

Dr. José Verdes Montenegro, of Madrid, has made an extensive study of the bubonic plague, and gives it as his opinion that this terrible epidemic "is simply a disease of rats, which infects man."

THERE is no use arguing with the inevitable. The only argument available with an east wind is to put on your overcoat.—*Lowell*.

"PLEASE give me some more of the pudding, mama," said small Johnny the other evening at dinner. "Don't you think you have eaten enough, Johnny?" asked his mother. "No, I guess not," replied the little fellow. "My stomach only aches a little bit."—*Child Study Monthly*.

EDITORIAL.

NEW FACTS ABOUT DIGESTION.

PAWLOW, of the Petersburg Institute for Experimental Physiology, published not long ago the results of extensive experimental investigations carried out under his direction in relation to the work of the digestive glands. The great exactness of the observations made and the scientific skill brought to bear in this experimental research place the results upon a thoroughly scientific foundation. In these investigations he confirms some facts which had previously been held upon less positive grounds than are now presented. Other facts are quite new. All are interesting and practical.

One special point which it was the purpose of the author to settle, was the influence of the different food substances upon the several secretions. Particular attention was given to the study of the pancreatic and gastric secretions. It was found that the amount of secretion varied with different food substances, as milk, bread, meat. Pawlow noted, as have Hayem and Winter, that the gastric secretion slowly rises to a maximum after the taking of food, and follows a distinct and constant curve during the acid stage of digestion. The same is true of the secretion of pepsin and other ferments. These curves differ for different food substances, and remain constant for the same food elements.

A very interesting observation was that the gastric and pancreatic secretions are both under the absolute control of the vagus nerves. Irritation of the vagus increases the secretion, while dissection of the vagus, even during feeding, renders further secretion impossible.

The influence of the sympathetic in favoring secretion was found to be neutralized to a large extent, so as to be almost altogether hidden, by excitation of the vasoconstrictors.

A very important and practical observation was that fats diminish the gastric secretion.

Soda diminishes both the gastric secretion and that of the intestinal glands. It was pointed out long ago by Landois and Stirling that the presence of fat interferes with the digestion of carbohydrates, but Pawlow has shown that fat likewise diminishes the digestion of albumins through its inhibitory influence upon the gastric secretion. This fact explains very clearly the influence of fats in producing so-called "biliousness," a condition in which the gastric secretion is insufficient to prevent the putrefaction of foods in the stomach, giving rise to ptomaines which may produce systemic poisoning, with the various general and local disturbances accompanying a so-called bilious attack.

The deterrent influences of soda upon the gastric and pancreatic secretions suggest the vast mischief which is being done by the almost universal use of baking powders, saleratus, and salsoda in the making of bread. Another source of injury through the use of alkalis, which ought to be mentioned, but which seems to be unsuspected, is found in several of the popular infant foods, in some of them as high as one per cent of potash being used in the process of manufacture.

Pure albumin was found to have no effect in stimulating gastric activity, but peptones and meat extracts were found particularly active in exciting the development of hydrochloric acid. This observation contains a most important lesson in the therapeutics of hyperchlorhydria. It has long been the custom for physicians to recommend meats—sometimes an almost exclusive meat diet—as a remedy for this very common gastric disorder. Meat affords temporary relief by neutralizing the hydrochloric acid present, but at the same time the meat extracts present stimulate the secretion of hydrochloric acid. This is still further favored by the neutralization of hydrochloric acid by the

meat proteids. Thus hydrochloric acid is formed, which is converted into an acid albumin, or syntonin, while the meat extracts encourage the formation of more acid. So the malady, instead of being cured by the use of meat, is only intensified.

Carbohydrates lessen the secretion of hydrochloric acid, and hence are the foods *par excellence* for this condition. The practical difficulty very frequently encountered is the fact that in hyperpepsia, starch digestion is often performed with difficulty. It is a very common thing to find the coefficient of starch digestion as low as 25 or even 20 in cases of pronounced hyperpepsia. It may be even lower in extreme cases. This difficulty may be overcome by the use of heat-digested cereals, such as zwieback, browned rice, granose, granola, and other toasted cereals. In extreme cases it is highly advantageous to go a step further in aiding starch assimilation by prescribing malt-digested cereals in the form of malted milk, malted

nuts, maltose, grānut, and various foods prepared according to Liebig's formula. It is even wise and in some cases necessary to withhold for a time all starch which has not been perfectly transformed, as in Trommer's Extract of Malt and other preparations of similar character.

Recently perfected products are preferable to the older preparations of this sort, for the reason that they are not only thoroughly sterilized, while ordinary malt contains germs in great numbers which are capable of producing fermentation in the stomach, but are also wholly free from the very pronounced malt flavor characteristic of many malt preparations and which to many persons is highly objectionable. When properly prepared, the flavor is that of honey and maple syrup combined. These products are exceedingly toothsome, and may be eaten with impunity by persons who can not take cane sugar or other saccharin substances, and who are unable to digest starch.

NATURAL FOOD RESTAURANTS.

THE interest in natural foods has been steadily increasing during the last fifty years, and within the last few years so rapidly that a prominent medical journal has thought it necessary to call attention to a movement which it denotes "the uprising of the vegetarians." The writer of the article in question ought to be sufficiently well versed in historical literature to know that human beings who refuse to soil their teeth with the blood of their fellow-creatures are by no means the product of modern times. The first men were eaters of fruits and nuts and partially ripened grains, just as the great majority of human beings are now, together with the gorilla, the chimpanzee, and the orang-outang, man's nearest relations in the brute world.

Men and women are coming to think more and more seriously about the question of diet, and are recognizing more and more clearly the necessity for excluding flesh foods from the bill of fare. The connection of rheumatism and gout with flesh eating has

come to be so closely recognized that these maladies are now quite commonly known as meat-eaters' disorders. Migraine, or sick-headache, Bright's disease, some forms of paralysis, and of epilepsy, and numerous other maladies may be included in the same list.

There are now to be found in almost every city of any size in the United States, as well as in England, Germany, France, and other civilized countries, many persons whose physicians recognize the necessity for restricting or proscribing the use of flesh foods. There is a growing demand for cafés or eating places where such persons may obtain a thoroughly first-class meal without the admixture of flesh or fish or fowl in any form. A number of such restaurants have been established in different States in the United States within the last year or two. The most successful of these are found at 1422 Market St., St. Helena, Cal.; the Portland Sanitarium, Portland, Ore.; 607 Locust St., Des Moines, Iowa.; Health Food Café, 112

State St., The Pure Food Café, 102 Madison St., and the Health Food Restaurant, 38-40 Lake St., Chicago. At these places several thousand meals are served daily to patrons

who recognize the importance of the dietetic reform for which these institutions stand, and who are able to appreciate in their own bodies the benefits of a pure dietary.

Art in Eating.

A certain New York caterer says that there is as much art in the assortment and arrangement of food flavors as there is in the arrangement of colors; he considers a well-prepared meal a sort of picture. Going through the meal and taking one flavor after another is very much like listening to a beautiful song or a finely executed piece of music. According to this gentleman, there is a sort of rhythm in flavors.

No doubt there is something in this. There is harmony in flavors as well as in musical sounds, and this matter will be studied in the future, perhaps, more than it is now. But first and foremost of all, we shall study the relation of diet and foods to health. The first question of the future will not be, "Do I like this?" or "Do I like that?" but, "Is it good for me? is it what will make good brains, good nerves, good tissues, good bones, and good muscles?" I am sure that a century hence this will be the first question in reference to diet. It will be necessary, then, for us to ask that question first, for we are growing weaker. It is said that we are growing weaker and wiser. We are certainly growing weaker, and I hope we are growing wiser. We find ourselves physically very much inferior to our ancestors; at the same time there are greater demands upon us. More is required of us, for we have greater enlightenment than any other age in the history of the world; and yet we have less physical ability to meet these demands. The consequence of this will be that we shall have to study diet in reference to strength.

George Washington's Diet.

Washington was a man of frugal habits. Although not a trained athlete, he possessed great vigor. The place is still shown in the city of Washington where he threw a silver

dollar farther than any other man of his time could throw it. On one occasion he covered twenty-four feet on a running jump, an achievement which has remained unequaled until within a few months of the present time. During his term as president, Washington and his wife entertained every Thursday, but it was noticeable that the president himself partook only of the plainest and simplest food, his entire meal often consisting of a single dish. This simplicity in diet may possibly be the secret of Washington's great physical endurance and of the clearness of mind which made him master of many difficult situations.

Coffee and the Plague.

A story has recently found its way into the newspapers which ought to be of great interest to coffee drinkers. The sanitary officials of New York harbor discovered that a ship arriving in port laden with coffee had on board persons infected with the plague. The ship was placed in quarantine, and the usual methods of disinfection were employed in relation to the passengers and the ship itself, but what should be done with the coffee? After considerable deliberation it was decided that the coffee should be roasted, and the owners permitted to discharge and dispose of it. It is quite probable that the roasting destroyed the plague germs or parasites so that no one is likely to suffer an outbreak of the disease by drinking this plague-stricken coffee, but one could readily imagine that a knowledge of the facts might impart to the coffee an aroma not altogether agreeable to connoisseurs of this insidiously injurious beverage.

Tuberculosis in Animals.

A correspondent calls attention to some interesting facts recently noted with reference to the cause of death in the London

Zoölogical Garden. Among the antelopes and other vegetable-eating animals it was found that tuberculosis was the cause of death in a little more than one fourth, or twenty-six per cent, of all cases. Among carnivorous animals the death-rate from tuberculosis was much smaller. Among meat-eating eagles and other birds of prey eleven per cent died from tuberculosis, while the proportion of deaths from this disease among grain-eating birds was thirty per cent.

It has been argued from this that flesh eating tends to prevent consumption, but the evidence is not at all conclusive. Carnivorous animals are less subject to tuberculosis, not because their constitutions are heartier, but because by the long-continued use of the flesh of tuberculous animals they have become more or less immune to the disease; that is, flesh-eating animals are exposed to such intense infection from this malady in

the eating of tuberculous animals that the susceptible animals have been killed off long ago, so it is evident that the survivors have by the process of natural selection been rendered more or less immune or refractory to the disease.

It appears to the writer rather remarkable that so high a proportion as eleven per cent of the beasts of prey and of the eagles should be carried off by this disease. It would seem as if these animals should have become more completely immune through subsisting upon dead creatures of various sorts.

Experience shows that flesh foods are exceedingly unwholesome for persons suffering from tuberculosis. By their use the fever is aggravated and the general symptoms become worse. Dr. Riley, the superintendent of the Boulder (Colo.) Sanitarium, informed the writer not long ago that he had often verified the truth of this statement.

ANSWERS TO CORRESPONDENTS.

Fried Foods.—E. D. B., Pennsylvania: "1. Is grain fried in free fat indigestible? Why? 2. Is grain boiled in fat indigestible? Why? 3. If food is fried in emulsified fat, is not the envelope of the globule destroyed and the fat set free? 4. If food is boiled in emulsified fat, does not the latter become free? 5. Is raw beef fat emulsified? 6. Does frying convert raw beef fat into free fat?"

Ans.—1 and 2. Yes, because saturated with fat. The most important elements of food are starch, albumin, and fat. The starches and albumins are digested in the stomach by the gastric juice, but fats are not changed until they are brought in contact with the bile and pancreatic juice in the intestines. The presence of fats in a separated state in the stomach interferes with digestion by smearing over the masses of starch and albumin, and preventing the contact of the saliva and the gastric juice; the food is very efficiently protected from the action of the gastric juice and saliva, and digestion in the stomach is consequently exceedingly slow. The food is retained too long in the stomach, and as the result, fermentation takes place, particularly butyric-acid and lactic-acid fermentations, whereby irritating acids are formed, and heartburn and other disorders produced.

3. Frying is an improper method of cooking foods.

4. Boiling a dilute emulsion of fat does not usually cause separation of fat unless the emulsion is an artificial one. Milk is a natural emulsion, and may be boiled without separating the fat. The same is true of nut emulsions.

5. No.

6. Yes, the fat is a separated, or non-emulsified fat as soon as melted.

Ruptures—Food.—Mrs. N. J. L., California, asks (1) if ruptures can be cured without the use of the knife; (2) what foods will strengthen the tissues of the body.

Ans.—1. Yes, in rare cases; but an operation is usually required. The operation is not dangerous, and rarely fails to be successful in the hands of a skilled surgeon.

2. All natural foods, such as fruits, grains, and nuts, when properly prepared and properly eaten.

Neurasthenia.—G. H. M., California, has what he believes to be neurasthenia, and is also troubled with eczema. He is thirty seven years old. What diet and treatment are advisable?

Ans.—Such a case requires a suitable course of sanitarium treatment. The cause of both the neurasthenia and eczema must be thoroughly investigated and removed.

Cracknels.—H. C. M., Missouri, asks our opinion of cracknels.

Ans.—They are decidedly unwholesome.

Catarrh.—E. C. L., Oregon: "Is it an indication of chronic catarrh when the nostrils are closed alternately so that the Pocket Vaporizer affects neither one side nor the corresponding eye?"

Ans.—Yes, probably.

Diet.—H. K. S., Illinois: "I am sixty-one years old, a farmer, and able to work from one half to two thirds of a day. Twenty five years ago I had a great deal of pain in the region of the solar plexus, and my stomach has been weak ever since. I am troubled much with constipation and insomnia. There is shaking of the hands and jaw, rheumatism in the joints, but lungs sound. What health foods should I use?"

Ans.—Any of the health foods which agree with you are wholesome for you. None of them are likely to produce disease of any sort, and they are so prepared as to promote good digestion, enriching of the blood, and the general health.

Gluten Meal for Babies.—"Aunt Sarah," Pennsylvania: "1. Is wheat gluten meal good for a baby three months old, suffering from indigestion? 2. If so, how should it be prepared?"

Ans.—1. Many of the so-called gluten meals are simply ordinary wheat flour, and contain a large amount of starch. The gluten flour manufactured by the Battle Creek Sanitarium Food Company is the only gluten meal which we can recommend.

2. Starchy foods are objectionable for a young child. Malted nuts or Sanitas foods are especially preferred.

Prolapsed Stomach—Food for Baby.—W. C. G., Iowa: "1. What are the symptoms of a prolapsed stomach? 2. What causes a heavy, uncomfortable feeling in the stomach after eating? 3. What is a good food for a baby four months old, who is constipated? It is fed both on cow's milk and mother's milk."

Ans.—1. A dragging sensation across the lower abdomen, the formation of gas in the stomach, and other symptoms of indigestion.

2. The stomach may be prolapsed, and there may also be a nervous disorder of the stomach.
3. Malted nuts and Sanitas foods. Cow's milk is generally harmful in such cases.

Deafness.—Mrs. J. A. C., Massachusetts, asks advice as to treatment for deafness, the difficulty centering in the middle ear. She is afflicted with asthma.

Ans.—An aurist should be consulted. For the

asthma the patient should make a visit to a sanitarium. Such cases are difficult for ordinary home treatment. We advise the patient to correspond with the Sanitarium at South Lancaster, Mass.

Cramps in the Toes.—S. Y., California, asks what to do for cramps in the toes. The trouble has existed for fourteen years.

Ans.—Warm baths, 104° to 110°, and massage are the best measures.

Foods.—Mrs. L. A. D., Massachusetts, asks our opinion of the following foods: Macaroni, cream cheese, gelatin, preserved fruits, canned fruits, jellies, honey, and the nutritive value of fruit and vegetable soups.

Ans.—Macaroni, and canned fruits if not excessively sweetened, are wholesome foods. Cream cheese and similar products are utterly unfit to enter the human stomach. Gelatin is not, of itself, a food. Preserved fruits contain too much sugar, and are indigestible. Sweet jellies are likewise objectionable. Honey is rather preferable to cane sugar, but is likely to cause fermentation, and is decidedly injurious to persons who have an idiosyncrasy against it. The nutritive value of fruit is comparatively small. Most fruits contain so much water that the proportion of nutrient material contained is not more than six or seven per cent. Grapes and cherries, however, have a somewhat higher percentage than this, and the nutritive value of bananas is almost as great as that of potatoes. Vegetable soups have little nutritive value, as they are almost wholly water, and are difficult of digestion for people who have dilated or prolapsed stomachs and who are dyspeptic generally.

Nuttose.—F. Mc C., Maryland, asks how many ounces of nuttose are required a day for health and strength.

Ans.—Nuttose contains too large a proportion of fat to constitute the sole nutriment, but it may be combined with farinaceous substances. Half a pound might be combined with bread and fruit in making up the daily ration.

Piles—Hip Disease.—G. E. O., Ohio, asks (1) the cause of and treatment for itching piles; (2) if a little girl afflicted with hip disease can escape future abscess.

Ans.—1. Chronic constipation and the use of condiments are the leading causes. Enlarged hemorrhoids must be removed by a surgical operation. A local irritation may be removed by a short hot or prolonged cold sitz bath. The constipation must be cured and the other causes removed.

2. Relapse is not uncommon in these cases, but by building up the general health by means of daily cold baths, massage, and an out-of-door life, relapse may often be avoided.

Hypopepsia.—Mrs. M. E. T., Illinois, wishes advice for hypopepsia.

Ans.—In hypopepsia there is deficient secretion of hydrochloric acid. Meat should be avoided, and the diet should consist of well-dextrinized cereals, such as browned rice, zwieback, toasted granose cakes, grānut, malt honey, fresh fruit, cooked fruit without cane sugar; eggs may sometimes be taken in moderation. Animal fats and oils of all sorts must be avoided, nuts or nut preparations being used instead. The daily cold bath (cold friction mitt, towel rub, wet sheet rub—see Midsummer Number) and a cold bag over the stomach for half an hour before meals, are highly beneficial in these cases.

Foods.—A. B. C., Canada: "1. How long does it take for the following foods to digest,—nuts, peas, and beans? 2. Are they suitable for one with weak digestion? 3. Are fruits better cooked than raw? 4. Is kumysoon easily digested, and is it a good food for hyperpeptics? 5. Is kumyss as made from yeast injurious in such a case? 6. Is buttermilk better than kumyss made with yeast?"

Ans.—1. The time required for the digestion of peas and beans is from two to two and one-half hours. No satisfactory experiments have been made with nuts.

2. Persons with feeble digestion, especially those with prolapsed or dilated stomachs, should avoid the use of the hulls of peas, beans, and lentils, and, in general, coarse vegetables and the skins and seeds of fruits must be avoided. Purges of peas and beans are easily digestible when the whole seeds can not be eaten without inconvenience. Nut preparations, such as protose and malted nuts, are usually digested without difficulty.

3. Fruit, when ripe, mellow, and easily crushed in the mouth, is easily digestible. Hard fruits, or fruits which are not perfectly ripe, should be thoroughly cooked.

4. Kumysoon is an easily digestible food, and is helpful in many cases of hyperpepsia.

5. We can not recommend it, as it contains both yeast and alcohol in considerable quantities.

6. Yes, if made from sweet sterilized milk.

Steel Charged with Electricity—Ammonia.

—Mrs. A. W., Michigan: "1. Are pieces of steel charged with electricity dangerous to use? 2. Is ammonia good to use in bathing?"

Ans.—1. No.

2. A small amount of ammonia added to the water increases its cleansing power and takes the place of soap, but it is in no way better.

Diet for Dry Condition of the Body, Scrofula, and Weak Digestion—Baths—Maltine Preparations—Climate—Drinks—Liquid Diet.—A. F. P., Illinois: "1. What is the best diet for a dry condition of the body—the skin, hair, nails, etc.? 2. What diet is best for scrofula? 3. What for weak digestion? 4. What liquid will stimulate the liver when there is a lack of bile? 5. What solids? 6. What baths should one take when the liver is hard? 7. What is your opinion of Maltine preparations? 8. What climate is most healthful for scrofulous temperaments? 9. Have fruit soda and phosphates a healthful effect on the digestive system? 10. What is a perfectly nutritious liquid diet?"

Ans.—1. A diet rich in fats, particularly nuts and nut preparations.

2. An abundant and easily digestible dietary. Fat-containing foods are especially helpful. Ripe fruits of every sort, malted nuts and other nut preparations, buttermilk, and well-dextrinized cereal foods, as granose, granola, and grānut.

3. The digestion may be disturbed in a variety of ways. As a rule, dry foods, well dextrinized or browned by toasting, taken dry, so as to secure mastication, are the most serviceable. Ripe fruits and nut preparations may be added.

4. Water. The only sort of stimulus which the liver requires when sluggish is water, with perhaps the addition of a fruit diet.

5. A fruit diet is especially helpful. Fats should be avoided, and especially meats.

6. Short, warm baths may be helpful, but fomentations over the liver, and a cold douche over the liver are especially to be recommended.

7. They are good foods, but have very little value as digestive agents.

8. The climate which permits the largest amount of out-of-door activity.

9. We have never found any use for them.

10. Milk and nut emulsions.

Eczema.—E. H. R., California, has had eczema for five years. "1. Is it a blood or a skin disease? 2. How should it be treated, diet, etc.? 3. Her eyelids are very troublesome. What will relieve them? 4. Does the disease generally last seven years?"

Ans.—1. It is a skin disease due to infection. It is generally accompanied by disordered digestion.

2. Abstinence from flesh foods, animal fats, and indigestibles generally, and the adoption of measures for building up the general health are the most effective means in securing a permanent cure.

3. Bathing in very hot water will generally give relief.

4. The disease may last seven times seven years if the patient lives long enough.

Headache.—Mrs. D. H., New York, asks the cause and cure of incessant headache during hot weather.

Ans.—The cause is probably cerebral congestion. The prolonged neutral bath at 92° and a cold compress to the head are to be commended.

Bright's Disease.—L. A. K., California, asks for an outline of treatment for Bright's disease, especially the diet.

Ans.—This subject is too extensive for these columns. Briefly, it may be said that the patient should live in a warm climate, so that activity of the skin may be promoted; he should live out of doors as much as possible. Chilling must be carefully avoided. Very careful cold bathing is useful as a means of maintaining the general health. Flesh foods, condiments, cheese, and all sorts of indigestibles must be avoided, also all excesses in diet, and excesses of every other sort. Exercise must be moderate. Exhaustion is dangerous. Prolonged neutral baths, 92° to 95°, several times a week, are useful. Fruit should be used very freely. A diet of buttermilk may sometimes be adopted for a few days or weeks with benefit.

Nut Butter.—R. D. H., North Carolina: "1. I hear that nut butter has been banished from the Sanitarium table, as containing more germs than dairy butter. Is this true? 2. What cook book do you recommend?"

Ans.—1. There is no truth whatever in the statement.

2. Address the Good Health Publishing Company for circulars.

Swelling under the Eyes.—W. E., California, asks (1) what causes swelling under the eyes of an eleven-year-old girl; (2) the remedy.

Ans.—1. The cause may be impoverished condition of the blood, disease of the kidney, or disease of the heart.

2. The case should be investigated by a competent physician.

Digestion of Foods—Cramps.—A. B. C., Canada: "1. What foods are digested entirely in the stomach, and which pass on for further digestion? 2. Which is preferable for hyperpepsia—

hot or cold water? 3. I have cramps in the feet and lower limbs. What diet and treatment are necessary?"

Ans.—1. The digestive process is not completed in the stomach. Very little absorption takes place in the stomach. It is a pouch in which the foods are liquefied and prepared for passage down the small intestines where the more complete digestive work is finished by the pancreatic juice and other digestive fluids.

2. Hot water, taken half an hour before the meal.

3. You may be suffering from enteroptosis, which will require an abdominal supporter. Perhaps fomentations to the abdomen at night, a wet girdle (see Midsummer Number), and a hot foot or leg bath will relieve the cramps when present.

Meat Question.—J. B. S. asks: "1. How do you reconcile your statements in reference to a meat diet with the remarkable history of the Jewish people? 2. Do they not exceed all races in longevity, and that to an extraordinary degree? 3. Do any people compare with them in vitality? and are they not to a great degree meat eaters? 4. Does GOOD HEALTH think a dietary of fruits, nuts, etc., used by our gorilla ancestors would have been preferable?"

Ans.—1. The history of the Jewish people is an indication of the injurious effect of meat. The decline of the human race in longevity after the adoption of a meat diet is a conspicuous fact. (See "Shall We Slay to Eat?" page 113.)

2. Yes, but not because they are flesh eaters, but because of their abstinence from many injurious forms of flesh food.

3. The Jewish race is certainly a long-lived race, and particularly free from cancer, tuberculosis, and other maladies to which people who make free use of pork are particularly subject. The Jewish race is not especially a meat-eating one. In central Europe they use flesh food very sparingly.

4. The gorilla, the chimpanzee, and the orang-outang certainly set the human race a good example in the matter of diet.

Diet for Anemia—Nutcoa.—C. R. S., Wisconsin: "1. What is the best diet for impoverished blood? 2. Are sterilized milk and properly cooked eggs bad? 3. What is nutcoa? 4. Is it a free fat? 5. Is it wholesome?"

Ans.—1. A diet of well-prepared fruits, grains, and nuts.

2. These are not the best foods, but they are much superior to flesh foods.

3. A fat prepared from cocoanuts.

4. It is a separated fat.

5. We can not commend it.

LITERARY NOTICES.

THERE are some remarkable articles in the **Forum** for August, *primus inter pares* being "The Present Status of Afghanistan," by no less a dignitary than Sultan Mohammed Khan, Chief Secretary of that "buffer country" between Russia and England. The Hon. Charles Denby, late minister to China, relates "How Peace was Made between China and Japan," and F. F. Hilder writes of "The Present and Future of the Philippines." The well-known English labor leader, James Keir Hardie, who has done as much as any living person to advance the interests of organized labor, analyzes the present status of "Labor and Politics in Great Britain." An article of great interest to educators is "Child Study and its Relation to Education," by Prof. G. Stanley Hall, whose essay on "College Philosophy" attracted so much attention some months ago. The late Secretary of Legation at Rome, Mr. Remsen Whitehouse, writes instructively of "Some Italian Problems," and "Tolstoi's Russia," "Canada and Imperialism," "Texas, Past and Present," "The Negro Problem in the South," are titles which will attract by the timeliness and interest of the subjects they represent.

McClure's Magazine for August starts out with "A Prisoner among Filipinos," by Lieutenant-Commander James C. Gillmore, U. S. N. The paper is illustrated by W. R. Leigh, from sketches and plans by the author.

Current Literature for August gives a fine criticism of Rudyard Kipling by Richard Le Gallienne. In speaking of Kipling's stories, the writer says: "They are full of surprises, but one great and disappointing surprise is the facility with which we forget them." "Hemp" is a reading from the prologue to "The Reign of Law," by James Lane Allen. Tolstoi, Kuang Hsu, and other celebrities of the day, the Bubonic Plague, Contagion by Telephone, The System of Public Baths, are timely subjects.

The **Cosmopolitan** for August is distinguished by a finely illustrated article by William T. Stead on "The Paris Exposition." "A Newport Palace," by Montgomery Schuyler, is another striking feature. "The Republic of the United States of Great Britain," by John Brisben Walker, gives occasion for serious thought. The writer maintains that "it is only a question of time until England the republic will take the place of England the monarchy."

"Tito, the Story of the Coyote that Learned How," is the title of the story by Ernest Seton-Thompson in the August Fiction Number of **Scribner's Magazine**. It tells how this clever little animal, learned in the ways of men, overcame her enemies, and saved her kind from annihilation. There are a number of illustrations by the author. Seton-Thompson is a philanthropist as well as a fine writer, in that he so portrays the real life, the sensibilities, the sufferings of our little brothers of the animal world, that we wonder at and begin to abhor our constant cruelties toward them.

The August Magazine Number of the **Outlook** is its thirteenth annual educational number. As usual, the number contains many articles of timely quality, relating directly to important educational matters. Several of these articles are beautifully illustrated, notably that by Sylvester Baxter on "The Cuban Teachers at Harvard University," the illustration including several photographs made expressly for this purpose; and that by Hamilton W. Mabie on the University of Virginia, in the series of articles Mr. Mabie has from time to time written, under the title of "Some Famous Schools."

Mrs. S. T. Rorer writes in the August **Ladies' Home Journal** on "Why I am Opposed to Pies," making it clear that they are not healthful, supply but little nutriment, and call for much work in the making. "Josiah and I Go a Visitin'" is a new humorous story by "Josiah Allen's Wife," of which the first installment appears in this number.

Frank G. Carpenter, who is now in the East, sent to the **Saturday Evening Post** a long article about the Empress Dowager and China, his facts having been gathered only a few days before the present troubles broke out. Two years ago the Empress Dowager set aside all precedents, and received the ladies of the foreign legations at Peking. One who was present told Mr. Carpenter about it, and he in turn describes the historic event to the world.

The **Scientific American** of August 4 has an illustrated article on the "Artillery Practice of the National Guard," another describing "The Hone Automatic Flood-Gate," one on "The Power-Generating Plant at the Paris Exposition," besides several short articles illustrating novelties, as "A Musical Bicycle." An interesting feature of the next issue, August 11, is an article by D. Allen Willey, on "The Petrified Forest of Arizona,"

PUBLISHERS' DEPARTMENT.

WHAT PEOPLE THINK OF NUT FOODS.

THE Sanitas Nut Food Company are constantly in receipt of such letters as the following:—

"I do not tire of them [speaking of malted nuts, nuttose, bromose, meltose, and maltol], although I have used them daily at each meal for three years. It is wonderful to me how well they nourish the body and satisfy its every need. The longer I use them, the more attached I am to them, and I only wish that others knew their value as I do. There would certainly be a great change in the dietary of mankind, and a great improvement in their health, if they would use pure food; and it would certainly be a great relief to thousands of overburdened wives all over the land if they could be taught the value of nut foods, and the scientific preparation of foods as taught at the Sanitarium Cooking-School and advocated by Mrs. Kellogg."

Another correspondent says: "I am strongly of the opinion that you have done a great service to the public by your experiments, and am well satisfied that one of the valuable sources of food supply has been too long ignored."

Another, unsolicited, sends the following: "I have used fig bromose and malted nuts, and shall in the future continue to use them, as I believe they are excellent; in fact, superior to anything on the market to-day."

A NOVEL feature has recently been added to the equipment of the Battle Creek Sanitarium in the fitting up of an outdoor gymnasium in which every possible provision is made to enable the patients to enjoy the benefit of exercise in the open air, unhampered by the restrictions of conventional dress. As the gymnasium is inclosed by a high board fence, exercise may be taken in a light bathing suit.

In the inclosure are to be found, among other things, a tennis court, logs, saws, axes, swinging rings, sand piles for sand baths, a large swimming pool, sprays, etc., etc.

THE Sanitarium is enjoying a period of unexcelled prosperity in the way of patronage. During the summer months it has taxed the capacity of the main building and the cottages to the utmost to accommodate patients.

A non-poisonous antiseptic mouth wash,

one that can be safely left on the bath-room stand, is LISTERINE. Composed of ozoniferous essences, vegetable antiseptics, and benzo-boracic acid, LISTERINE is readily miscible with water in any proportion. A teaspoonful of LISTERINE in a tumbler of water makes a refreshing and delightfully fragrant mouth wash. Used at the morning toilet it effectively removes all agglutinated mucus which may have accumulated during the hours of rest.

An ounce of LISTERINE to a pint of water will be found sufficiently powerful for the general care of the deciduous teeth of children, while a solution composed of one part of LISTERINE, and three parts of water, will be found of agreeable and thoroughly efficient strength for employment upon the brush and as a daily wash for free use in the oral cavity in the care and preservation of the permanent teeth. Many users of LISTERINE employ it in its full strength and enjoy its pungency.

LITERATURE UPON DEMAND.

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WE are glad to announce that the Midsummer Number of GOOD HEALTH is having even a much wider circulation than we anticipated for it, and it is being read in thousands of homes where the magazine has not entered before. It is evident that it contains the right sort of information to meet the demands of the people at this season, and we are constantly receiving orders for more copies from people who invariably state that they have sold or loaned all copies forwarded to them, and in many cases that one copy has been read by several families and still passed on to others. We also have evidence of thousands of copies being preserved as a "reference work," which clearly goes to show the increasing interest in the minds of the people concerning healthful living. We had an extra large edition printed, and are prepared to fill orders for less than ten copies at 10 cents each; ten or more copies, 5 cents each.

AT the present time active agents are engaged in the sale of health books in Illinois, Iowa, Indiana, Washington, Ohio, New York, Missouri, Wisconsin, Colorado, Minnesota, California, Arizona, Virginia, and Michigan. During the summer, representatives of the health work have been present at many of the Chautauquas and Assemblies, giving demonstrations of healthful cookery, dress, etc., and a deep and general interest in health topics has been manifested at these various places. Peo-

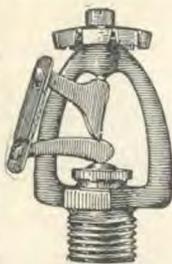
ple are beginning to realize more than ever before that "health is wealth," and to achieve and retain it is becoming a popular and all-absorbing study with many.

A CERTAIN small Boston boy got into the habit of teasing his mother for pennies, until at last she said to him: "Now, Willie, I don't like to give you pennies; if you want money you should go to work and earn it." The boy remained thoughtful for some time. Then, within a few days, the mother perceived that Willie had plenty of pennies. She wondered a little where he got them, but did not question him. But one summer day she noticed that some sort of hullabaloo was going on in the back yard. Looking out, she saw Willie surrounded by a mob of boys, who were yelling with delight. She went down into the yard to see what was going on; and, as she passed out she saw, stuck up on the back wall of the house, this notice, quite neatly "printed" out with a pencil:—

WILLIE JONES WILL EAT

1 small green worm for..... 1 cent
 1 large green worm for..... 2 cents
 1 small fuzzy worm for..... 3 cents
 1 large fuzzy worm for..... 5 cents
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 And Willie was apparently doing a thriving business.—*Boston Transcript.*

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Glycozone is put up only in 4-oz., 8-oz. and 16-oz. bottles bearing a yellow label, white and black letters, red and blue border, with my signature.

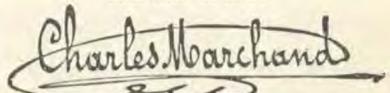
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Supports most perfectly, allows absolute freedom in movement without marring the classic lines of the figure. Retains skirts and loose supporters. Comfort, Grace, Health. Made in white, drab, and black satene, in sizes 30 to 30 in. bust measure.

Price, \$1.50 prepaid.

Classic Mfg. Co.,

1020 Medinah Temple, - CHICAGO



EAT LESS MEAT.



THE EASY FOOD.

Easy to Buy, Easy to Cook, Easy to Eat, Easy to Digest.

QUAKER OATS.

At all Grocers in 2-lb. packages only.

Lee's Endion Grape Juice

is the most

Delicious and Refreshing Summer Health Drink,

a perfect liquid food, a rich blood maker and nerve feeder, an invigorating and easily digested diet for the sick, nature's simplest and best tonic for the convalescent, and the fruit of the vine for sacramental use.

For sale direct, at reduced rates, by

JOHN H. LEE,

Endion Fruit Farm, BENTON HARBOR, MICH.

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4 BOOKS

for Less than Half the Price of One!

JUST THINK OF IT.

EVERY MOTHER is interested in her own home and the training of her child. "Studies in Home and Child Life" deals in a practical way with the vital questions of child-training, such as are constantly demanding answers in the home where there are young children. With the exception of the Bible, it is the best book ever written on child-training, and in anticipation of the great field of usefulness before it, we make this exceptional offer that every American home may enjoy and profit by its teaching.

"STUDIES IN HOME AND CHILD LIFE," Illustrated, 256 pages (regular price, \$1.50).

"NATURAL FOOD RECIPES," containing 120 new recipes by Mrs. E. E. Kellogg.

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ALL FOR 60 CENTS!

and 15 cents to cover postage.

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USE **PEARLINE** The **Modern Soap**

in powdered form for your convenience

The **MODERN WAY** of using soap.

Allen's Foot-Ease

A POWDER FOR THE FEET.



SHAKE INTO YOUR SHOES Allen's Foot-Ease—a powder for the feet. Gives rest and comfort to tired, aching feet. We have over 30,000 testimonials. **TRY IT TODAY.** Sold by all Druggists and Shoe Stores, 25c. Do not accept an imitation. Sent by mail for 25c in stamps.

"Oh, What Rest and Comfort!"

FREE TRIAL PACKAGE sent by mail. Address

ALLEN S. OLMSTED, Le Roy, N. Y.

FLOWERS FOR WINTER AND SPRING.....

Let their beauty and fragrance bless your home.

... HOW WE CAN ASSIST YOU. ...

One dollar's worth of Spring Blooming Bulbs; a Floral Magazine one year, price 50 cents; GOOD HEALTH one year, price \$1.00; **ALL ONLY \$1.00.**

By special arrangement with the publishers of *How to Grow Flowers*, who have purchased the stock of a California grower of Freesia bulbs at a great bargain, we are able to announce the following splendid special offer, good for a limited time only:—

**Send Us One Dollar
and Secure**

{ Twenty fine Freesia bulbs, price \$1.00.
{ *How to Grow Flowers*, one year, price 50 cents.
{ This great Health Journal one year, regular price \$1.00.

Flowers are Nature's sweetest gift to man. Their mission is to extend the kingdom of love, beauty, fragrance, and happiness. The sweet presence of flowers is always welcome, but never so much so as in the dreary days of winter. It is then that floral treasures most appeal to us, and every home should possess at least a few winter-blooming plants. It is not difficult to do this.

The Freesia the Best of the Winter-blooming Bulbs.

No description can do adequate justice to the beauty of the Freesia. The flowers are two inches long, and about the same in width, shaped like miniature Gladioli, and borne in clusters of six to ten, on depressed horizontal scapes. The body of the flower is pure white, lower segments spotted with yellow. The perfume is most delicious. The cultivation of the Freesia is of the simplest, as the bulbs require only to be potted, watered sparingly at first, placed in a sunny window, and watered more freely as growth progresses. To have the best results, the bulbs should be planted early in the fall—this month if possible. Freesia bulbs are worth five cents each.



SOMETHING IN REGARD TO "HOW TO GROW FLOWERS."

Each number contains 36 large pages, printed on fine book paper, beautifully illustrated. It tells when, how, and what to plant, when and how to prune, when and how to mulch, how to protect in winter, how to get rid of insects, water and heat needed, how to bed out plants, the best varieties, about floral decorations, and gives complete directions for having success with flowers. It is the only floral paper not run by commercial florists. *How to Grow Flowers* is a work of art, all the illustrations made from photographs, thus showing flowers as they actually are. The great merit of the magazine, though, is its practical helpfulness to all who love and grow flowers. It is an indispensable aid, whether you have a single plant or a large collection. No flower lover can afford to be without it.

Our Magnificent Clubbing Offer in Full.

For only \$1.00, the regular price, we will send you GOOD HEALTH one year, and in addition will forward "HOW TO GROW FLOWERS" one year, and a choice collection of twenty Freesia bulbs. This offer is one unparalleled in liberality, and can not be kept open long. Address—

Good Health, Battle Creek, Mich.

If you are a subscriber, send us one new subscription, and we will send you the bulbs and *How to Grow Flowers*.

One of Our Own

"It is not best to wear woolen clothing next the body. With woolen underwear the moisture of the skin is retained, the surface of the skin becomes chilled, and the person is far more likely to take cold than if he wore linen, for linen takes up the moisture and transmits it to the outer air, drying at once. Wool is also irritating to the skin, while linen is not."

Dr. J. H. KELLOGG,

Surgeon-in-Chief
Battle Creek Sanitarium.

(From "GOOD HEALTH," December, 1899.)

The above, coming from one of our own foremost physicians and sanitarians, is based upon more than three years of experimentation with and actual wear of—



Dr. Deimel's
Linen-Mesh
Underwear

No further comment needed.

All true DEIMEL LINEN-MESH garments bear the above TRADE MARK. If you can not obtain them, write to us.

Booklet and samples of the cloth free.

We also manufacture the finest DRESS SHIELDS in existence. Can be washed; are odorless. A guarantee with every pair.

THE DEIMEL LINEN-MESH CO.

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FROM THE FACTORY TO THE HOME



BARGAIN OUTFIT NO. 2.

SEND NO MONEY

Cut this advertisement out and send to us, and we will send you this beautiful outfit, including Brass and Enamel Iron Bed, Sanitary Elastic Cotton and Wood Fiber Mattress, Hair-Wood, Steel-Supported, Woven-Wire Spring, three quarters or full size, by freight, C. O. D., subject to examination. When convinced that this offer is an exceptional bargain, equal to any \$25.00 to \$30.00 outfit, pay your railroad agent our special price of \$12.50 and freight. If at any time within thirty days you are not satisfied with your purchase, we will cheerfully refund money to you. ORDER TO-DAY.

Upon request we will send you our latest catalogue of complete Household Furniture.

Marquette Manufacturing Co.

(Marquette Bed Co.)

EDWIN T. SWOBE, Manager. Marquette Building, Dept. E, CHICAGO.

Hygienic Water-Seal COMMODO

IN SUBURBAN HOMES

where modern bath-room facilities are denied, the *Hygienic Water-Seal Commode* is an absolute necessity for comfort and sanitation.

IN SICKNESS,

especially in *Contagious Diseases*, the *Commode* is indispensable in every home, as the *WATER SEAL* prevents escape of all germs and odors. It is light and portable; made of best galvanized iron; will last a life time. Provided with disinfectant receptacle. Indorsed by leading physicians and nurses. Not only private homes, but all Hospitals, Sanitariums, summer and winter resort hotels and cottages, schools and colleges, need a supply of *HYGIENIC WATER-SEAL COMMODOES*.



Inside View and Cover.

Price, \$3.00. Purchaser pays express charges. Send for Illustrated Circular. **HYGIENIC WATER-SEAL COMMODOE CO.,** Como Bldg., CHICAGO.

12 Pieces Sheet Music Free.
25 Cts. Join our Music Club. 25 Cts.

Twenty-five cents pays for One Year's Membership. You receive one piece of New Sheet Music each month (12 pieces in all) which sell for 40 to 50 cents each, mailed post paid. Also, you receive a \$1.00 Magazine one year free. Address

MUSIC CLUB, 325 Dearborn St., Chicago, Ill.

HEALTH FOOD CAN BE BEST PREPARED

BY USING OUR STOVES and RANGES

We
Guarantee
All Goods

You can buy the highest grade Cook Stove, Cast or Steel Range, Heating Stove of any kind, including Round Oaks and Hard Coal Base Burners AT FACTORY PRICES.

We sell a single stove or range Direct to the User as cheap as dealers buy in quantities.

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| \$10.00 Oak Heating Stove, | \$4.40 |
| 15.00 Cook Stove, | 8.40 |
| 30.00 Cast Range, | 17.65 |
| 40.00 Steel Range, | 18.70 |

Send for Free Catalogue.

We show the largest and best line offered by any concern in the United States.

Consumers Carriage and Manufacturing Co.,
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GOODRICH SURGEONS' RUBBER GLOVES

In Regular Glove Sizes.
A Perfect Fit.



Made of Thin, Pure, Fine
PARA RUBBER, which Does
Not Interfere with the Sense
of Touch.

The surface of the rubber used on these gloves is of a peculiar finish, and allows of a firm hold on ligatures and ligaments.

Made by THE B. F. GOODRICH COMPANY, Akron Rubber Works, Akron, Ohio.

TO SKEPTICS.

Ruptured? Discouraged? We mail free literature describing the new

Huston-Woodward Automatic Truss.



HUSTON BROS

113 E. Adams St.
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REAR VIEW.

PATENTED SEPT. 7, 1897.

Really satisfactory. Easily adjusted. May be worn night and day.

Sold on a positive guarantee.

PRICE, \$5.50.

Money refunded if desired.

Once adjusted, this Truss can not be displaced by any motion of the body. Correspondence solicited.

HUSTON BROTHERS,

Makers of Trusses, Deformity Apparatus, Etc., Etc.,

113 Adams St., CHICAGO.



...This...

Elegant Phaeton

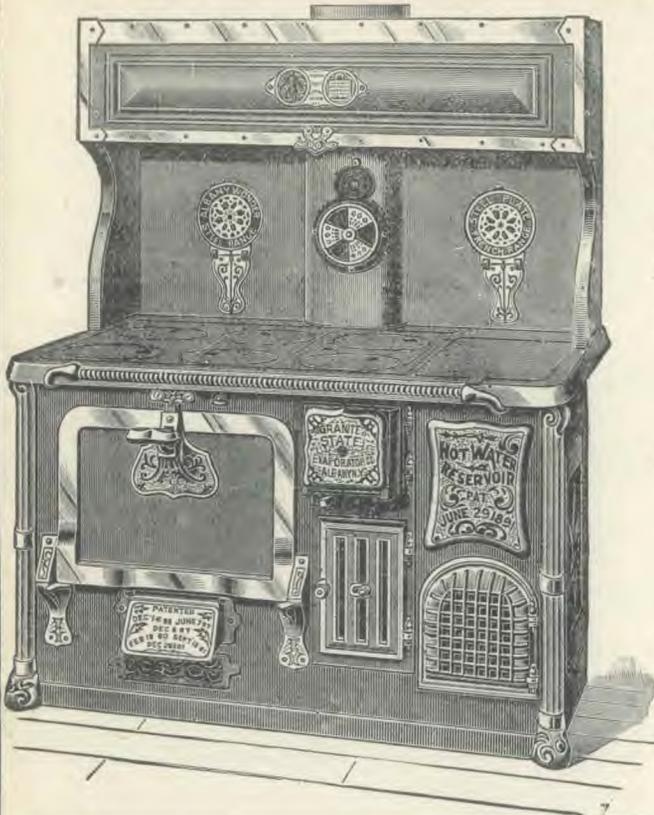
If bought from your local dealer
would cost you about \$175.
We can sell it to you for
\$100 because

**WE SELL VEHICLES AND HARNESS AT LESS
THAN WHOLESALE PRICES.**

It is strictly high-class in every particular—full leather top, extra wide roomy seat, upholstered with hair, spring seat, best broadcloth trimmings, latest wing dash, long-distance axles, new short bend fenders and best white hickory wheels. We ship this and all our goods anywhere subject to purchaser's inspection. If not as represented and entirely satisfactory, return at our expense. Illustrated catalogue of entire line of goods. Send for it.

KALAMAZOO CARRIAGE & HARNESS CO.,
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WONDER STEEL PLATE RANGE.



WE SELL THIS RANGE DIRECT TO YOU AT ABOUT ONE-HALF DEALER'S PRICES, AND WE PAY THE FREIGHT.



Send for Catalog and complete price list. The range here illustrated is within the reach of every home. Write to-day for prices. You will be astonished at the small amount of money required.

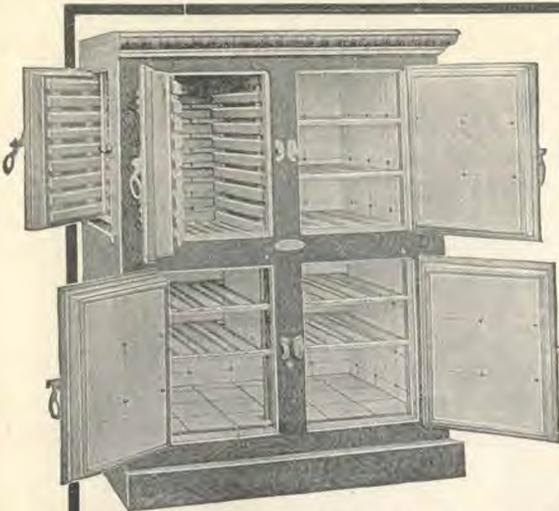
We make Sheet Steel Heating Stoves for parlor, bedroom or office; Feed Cookers for poultrymen and stock raisers; Sprayers for gardeners, fruit growers and florists. Ask for circulars.



THE WONDER STEEL PLATE FRENCH RANGE is sold direct at about $\frac{1}{2}$ dealer's prices. Has 6-8 in. cooking holes. Oven 20x21 $\frac{1}{2}$ x13 in. Top cooking surface 30x45 $\frac{1}{2}$ in. Cast iron hot water reservoir, enameled or copper coated. Balanced oven door with malleable frame. Removable oven bottom. Drop and swing feed door for wood or coal. Double steel asbestos interlined body. Fire box, brick or iron lined. Reversible wood or coal grates. Cast back flue. Rotary closet door. Hot closets. Plain or fancy nickel trimmings and polished end panels. It is the best range at any price you ever saw or heard of. **FROM FACTORY TO YOU AT MAKER'S PRICES.** We **SAVE YOU** all the profits that usually go to wholesale and retail dealers and give you a better range than you can buy elsewhere for twice the money. Prices, twenty-seven dollars and up.

This range is **FULLY EQUAL** in every respect to the ranges usually sold by agents from wagons or by stove dealers for double our prices. It is made of the best material money can buy, by the most skillful mechanics we can employ. Is the handsomest, most highly ornamented, and **BEST BAKING AND BURNING RANGE EVER MADE.** WE **GUARANTEE** every range to work properly. Illustrated circulars and personal letter with complete prices on all sizes sent upon request.

GRANITE STATE EVAPORATOR CO.,
P. O. BOX 100, ALBANY, N. Y.



McCray Refrigerators

BUILT TO ORDER.

**For Residences, Clubs,
Hotels, Public Institutions,
Markets, Grocers, Etc.**

The illustration shows a refrigerator built to order. It is tile lined, and has plenty of shelf space. Arranged to be iced from a rear porch.

ZINC LINED REFRIGERATORS ARE DANGEROUS.

The corroding zinc and imperfect circulation of air generates poisons which are absorbed by the foods and cause disease. Milk and butter are especially susceptible to odors and poisonous gases.

STYLE NO. 215. BUILT TO ORDER.

The McCray Tile Lined Perfect Ventilating Refrigerators are made to order in all sizes, from the smallest to the largest, and for any purpose required. A complete line of stock size Refrigerators also.

ALL WORK GUARANTEED ABSOLUTELY SATISFACTORY.

Send for Catalogues and Estimates.

CATALOGUES—No. 35 for Residences; No. 45 for Hotels, Clubs, and Public Institutions; No. 50 for Grocers and Meat Markets.
MCCRAY REFRIGERATOR & COLD STORAGE CO., 105 Mill St., KENDALLVILLE, IND.

BRANCH OFFICES:

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SEND us a sketch and description of your invention, and ascertain, free of charge, whether it is patentable. All communications are strictly confidential.

Patents taken through our office will receive a special illustrated notice in the *American Inventor*, a handsomely illustrated journal, devoted to the latest developments in the arts and sciences, and read by capitalists and others interested in the promotion of invention. Send for a sample copy.

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AND PATENT LITIGATION.

WALTER R. HENSEY,

Successor to

HENSEY & ROBINSON,

Burche Building,

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A New Form Medical Battery

With a Dry Cell.

Complete with one large foot plate, nickel plated; two metal shell electrodes, two silk-covered cords, two wood handles, and two sponge-covered disks.

PRICE, \$6.00.



The apparatus is encased in a highly hand polished mahogany box.

The MANUAL accompanying this battery is compiled by the highest authority on the benefits derived from the application of the Faradic Current, and is of inestimable value for the self-instruction of patients and reference for physicians. Extra copies furnished at 25c each.

SHARP & SMITH,

Deformity Apparatus, Elastic Stockings, etc.,

92 WABASH AVE., CHICAGO.

When ordering, mention GOOD HEALTH.



In one operation on your kitchen stove,

**It Filters,
Purifies,
Sterilizes,
Destroys
the Germs
of Disease**

and removes them, eliminates the poisonous gases, and aerates the water automatically.

The Hon. Hilary A. Herbert, Sec'y of the Navy under President Cleveland's last administration says:—

"THE SANITARY STILL has been used with success in my family, and I consider that the use I have made of it shows that it will afford a good supply of absolutely pure water for drinking and cooking purposes."

The Battle Creek Sanitarium Supply Dep't recommends the Sanitary Still.

Only Still recognized by the U. S. Government. Six styles; \$10.00 up. Send for catalogue and testimonials.

THE CUPRIGRAPH CO.,

156 N. Green St., Chicago, Ill.

**Automatic
STEAM
PUMPS
and
Receivers**

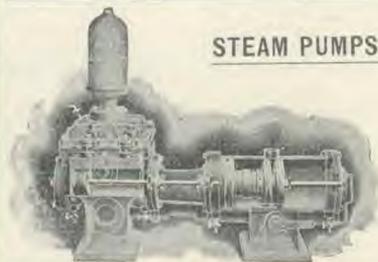


For draining Radiators and Coils.

THE UNION STEAM PUMP CO.,

Battle Creek, Mich., U. S. A.

STEAM PUMPS FOR ALL DUTIES.



Send for Catalogue.

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THOROUGHLY**

BEFORE YOU PURCHASE A TYPEWRITER.

THE SMITH PREMIER

Will merit your approval as it fully meets requirements at every point.

ART CATALOGUE FOR THE ASKING.

THE SMITH PREMIER TYPEWRITER CO.

SYRACUSE, N.Y. U.S.A.



DETROIT OFFICE, 105 Griswold St.



**A Marvel of
Strength and Lightness**

The Carriage of the
NEW MODEL

Remington
Standard Typewriter.

It moves steadily—that promotes lasting good alignment. It moves quickly—that means an easy touch and great speed. SEND FOR CATALOGUE.

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327 Broadway, New York.

REMINGTON STANDARD TYPEWRITER CO.,
24 LAFAYETTE AVE., DETROIT, MICH.

Represented by Review and Herald,

BATTLE CREEK, MICH.



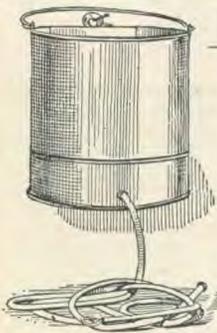
COMBINATION
**WATER
 BOTTLE AND
 FOUNTAIN
 SYRINGE**



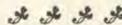
This is a First-class Fountain Syringe, which may be quickly changed to a Water Bottle by detaching the tubing and substituting the metal Cap.

WE have recently arranged for the manufacture, for our special trade, of this convenient combination in an improved form. It consists of a substantial water bottle with funnel neck, a safe and durable cap, and six feet of fine improved tubing, with suitable attachments for connecting with the bag. An outfit of the usual syringe tubes is supplied with the syringe, and the whole is packed in a neat and substantial wooden box.

Price, complete, postpaid, - - - - - \$2.00
 Fountain Syringe only, postpaid, - - - - - 1.75



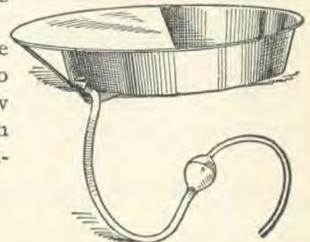
Perfection DOUCHE APPARATUS



THIS apparatus consists of a pail for water, with a long rubber tube, and a convenient bed-pan. It is made of tin, and is light, durable, and easily cleaned and disinfected.

It is especially useful for giving douches in cases of confinement, and to feeble patients who can not be removed from the bed. It can be adjusted under the hips without moving the patient, on any form of bed or mattress.

Any amount of water can be used, the water running out as fast as it runs in. To start the water running, close the rubber tube by folding it below the bulb, and then squeeze the bulb, which will at once fill with water when released. Then open the tube, and the stream will continue to flow till the pan is empty.



Price, complete, - - - - - \$2.00
 Douche Pan, without fountain or tubes, 1.00
 Sent by express.

Address **GOOD HEALTH PUB. CO., Battle Creek, Mich.**

Medical authorities agree that chronic rheumatism and gout are due to flesh eating, or rather to the animal poisons which are usually present in flesh meats.

Sanitas Nut Foods

THE DIETETIC WONDERS
OF THE CENTURY

do away with these risks, and furnish greater nourishment than animal meats.

Send us 10 cts. for samples, or write us, and we will send you our Recipe Book and the NUT CRACKER free.

Ask your grocer for our foods.

SANITAS NUT FOOD CO., Ltd.,

100 Washington Ave.,

BATTLE CREEK, - - MICH.

ROYAL BLUE

CANNED GOODS

Are canned by the BEST CANNERS in the LOCALITY where each article grows THE BEST.

- Corn in Maine.
- Peas in Wisconsin.
- String Beans in New York.
- Fruits in California, New York, and Michigan.

We give you any day in the year the best foods nature provides, canned in a way that preserves the natural delicacy and flavor of the fresh.

Insist on your grocer keeping these goods. The price is not high.

W. J. QUAN & CO.,

49 and 51 Michigan Ave.,

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Muresco

Is a durable, economical, sanitary, and fire-proof coating for interior use.

It requires only boiling water to mix it, covers well, is easily applied, will not rub off, crack, or peel.

Muresco

Is adapted to the finest decorations in Residences, Hotels, Schoolhouses, Halls, etc., and is used on many of the large Public Libraries, Sanitariums, Hospitals, and Public Buildings throughout the country.

Muresco

Is made in white and fourteen beautiful tints.

Manufactured only by—

BENJAMIN MOORE & CO.,
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Chicago address: 208-210 West Lake Street.

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NAME <i>Hawthorn Mfg. Co.</i>		SEE <i>Watahska</i>							
PRODS <i>Y Z X 4 5</i>		FLIERS <i>W 6 C D E F G H J K L M N O P Q R S T V W X Y Z</i>							
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<i>7-18-98</i>	<i>56</i>	<i>01</i>	<i>5-15-98</i>	<i>16846</i>					
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Catalogue and Sample Cards Free. Write us.

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YAWMAN & ERBE MFG. CO.,

Successors to OFFICE SPECIALTY MFG. CO.

Factories and Main Office, ROCHESTER, N. Y.

FOLLOW UP YOUR INQUIRIES.

THE "Y. & E." CARD INDEX SYSTEM

Affords an up-to-date and convenient method of keeping track of prospective customers.

When an inquiry is received, a card is made out, showing name, address, etc., and these inquiries are followed up by means of stock letters called "Pro's." and circulars called "Fliers," which are sent at regular intervals and checked off from card as mailed.

ADAPTED TO ANY FORM OF RECORD.

Printing Presses

For all Classes of Letterpress Work.

The Miehle

High-Speed, Four-Roller, Front Delivery, Table Distribution Book and Job Press. Made in eleven sizes, from 26 x 36 to 48 x 65. This press is built to do the finest class of printing, and is specially adapted for half-tone work both in black and in colors. It is the standard Flat-Bed Press of the world to-day, as the producer of a greater quantity and finer class of work than any other press on the market.

The Miehle

High-Speed, Two-Roller, Front Delivery, Table Distribution Book and Job Press. Made in six sizes, from 30 x 42 to 45 x 62. This press is designed for a little cheaper class of book and job work than our Four-Roller, differing only in the number of form rollers, having two instead of four; otherwise it is similar in all its other features, and is faster.

The Miehle

High-Speed, Two-Roller, Rear Delivery, "Rack and Pinion" Distribution Job and News Press. Made in five sizes, from 30 x 42 to 43 x 50. Its method of distribution is "rack and pinion cylindrical" instead of "table." The class of work to which this press is more specially adapted is newspaper and poster work. Felt packing used. It is very fast.

The Miehle

High-Speed Pony Press, Two-Roller, Rear or Front Delivery, "Rack and Pinion" or "Table" Distribution. Made in two sizes, 25 x 30 and 26 x 24. This press has a well-earned reputation for remarkable speed and the superior quality of work it does.

Our New Sheet Delivery

Which delivers the sheet PRINTED SIDE UP OR DOWN, as may be desired, we put on all our presses with the exception of the "Job and News" and the smaller sized "Pony." This adds but little to the cost of the press to the purchaser, and is a great convenience.

For prices, terms, and other particulars address

The Miehle Printing Press & Mfg. Co.,

Main Office and Factory, Cor. Clinton and Fulton Sts.,

South Side Office,

274 Dearborn St.

CHICAGO, ILL., U. S. A.

Twenty Dainty Summer Dishes

Each with a new flavor, refreshing, dainty, and appetizing, any one of which can be made on a moment's notice with—

Granose Flakes

OR

Granose Flakes Biscuit

These delicate, crispy foods are made from the entire wheat, each kernel is rolled into an almost transparent flake, and is so cooked and prepared that you get the real nutty flavor of the wheat.

GRANOSE FLAKES can be used in so many ways to make good things to eat, with so little trouble, that they are fast becoming a household staple.

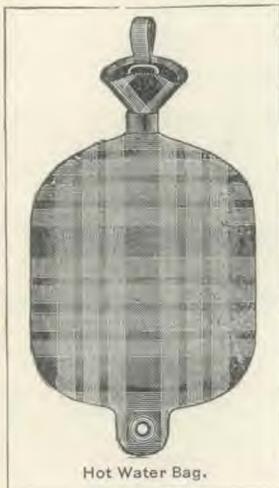
Send two 2-cent stamps for illustrated booklet and a sample of Granose Flakes or Granose Flakes Biscuit, to—

THE ORIGINATORS OF THE PURE
FOOD MOVEMENT IN AMERICA,

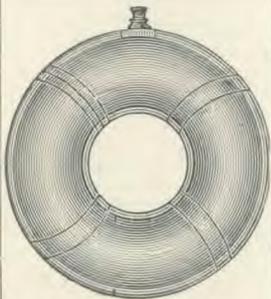
BATTLE CREEK SANITARIUM FOOD CO.

Battle Creek, Mich.

Send us your orders for
**Sanitary
 Supplies**



Hot Water Bag.



Invalid Air Cushion.



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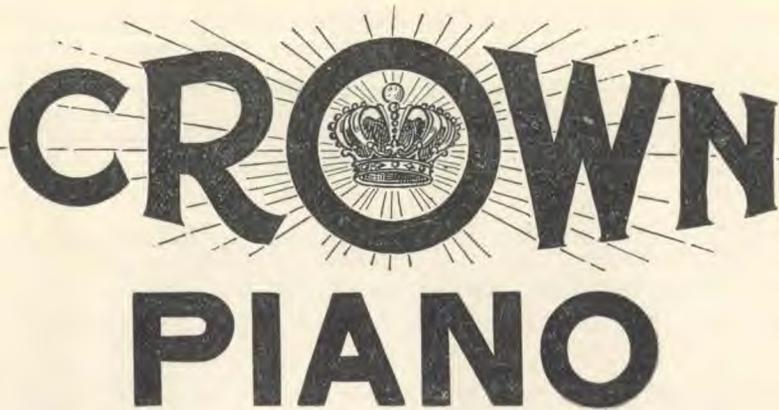


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| Invalid Air Cushions, 9-inch in diameter, postp'd | 1.70 |
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| Air Pillows, No. 1, sateen cover, 9 x 13 “ | 1.75 |
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| Ear Syringe, postpaid | .20 |
| Breast Pump, postpaid | .64 |
| Rubber Bed-pans, round | 3.35 |
| “ “ oval | 4.35 |
| “ “ oval, with outlet tube | 4.85 |
| Stomach Tubes, postpaid | 1.60 |



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|---|------------|
| Natural Flesh Brush, postpaid | .30 |
| Wet Abdominal Girdle, postpaid | 1.75 |
| Carriage Cushions, sateen cover, 14x16, postp'd | 5.50 |
| “ “ “ “ 16x16, “ | 6.50 |
| Invalid Chair Cushions, | |
| No. 1, sateen cover, 16x16 | 16x16 7.50 |
| No. 2, “ “ 16x16 | 16x18 7.75 |

GOOD HEALTH PUB. Co.,
 BATTLE CREEK, MICH.



CROWN PIANO

Is the culmination of more than a century's efforts to make the piano an instrument of many and varied tones. Ever since the introduction of the piano, the attainment of this end has been regarded as the highest possible achievement in the development of the piano. From the CLAVICHORD to the many-toned "CROWN" PIANO is a long step, embracing centuries of continuous and painstaking effort, which slowly but surely wrought out the development of the piano class of musical instruments, until there was evolved the piano of many tones — the "CROWN."

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Progressive physicians, who have for years been looking for a meat substitute for use in cases of chronic rheumatism, Bright's disease, diabetes, and the long list of nervous affections, are using Protose with marked success.

The London *Lancet*, London, England, one of the highest medical authorities, having made an elaborate analysis of Protose, published the following unsolicited report in its issue of Aug. 26, 1899:—

"Our analysis of Protose was as follows: Moisture, 64.22 per cent; proteids, 21.30 per cent; fat, 10.23 per cent; mineral matter, 1.40 per cent; carbohydrates, 2.85 per cent. **Chemically, therefore, it presents the composition of animal tissue, beef or mutton.** The fat exhibited a low melting point, and was easily saponified, so that it would probably be readily digested. The flavor of the preparation is not unpleasant, and somewhat meaty. Protose is unquestionably a food of some merit."

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**Burlington
Route**

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Couple this with these facts—

That the climate of Colorado is simply delightful.

That the dry, pure air is wonderfully healthful and invigorating; and that the hotels are of unusual excellence.

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Colorado is not far away. The Burlington Route runs "one night on the road" trains from both Chicago and St. Louis to Denver, and they are luxuriously furnished. Sumptuous library smoking cars and dining cars *à la carte* make the trip seem very short. Then during the summer months tourist tickets are sold at greatly reduced rates, so the expense is not great.

Let me send you maps, time tables, ticket rates; and if you want to know more about the country enclose six cents in postage for our *book on Colorado*. It is a beautiful work, of literary excellence and profusely illustrated.

P. S. EUSTIS, GENERAL PASSENGER AGENT, C. B. & Q. R. R., CHICAGO, ILL.

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In effect June 21, July 7 to 10 inc., July 18 and August 2. One fare for the round trip from Missouri River to Denver, Colorado Springs, Pueblo, Ogden, and Salt Lake City. Return limit October 31, 1900.

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Over new road recently built from Tara, Iowa, through Rockwell City, Denison and Council Bluffs in connection with the Central's Western line from Chicago through Rockford, Freeport, Dubuque, Independence, Waterloo, Webster City and Fort Dodge.

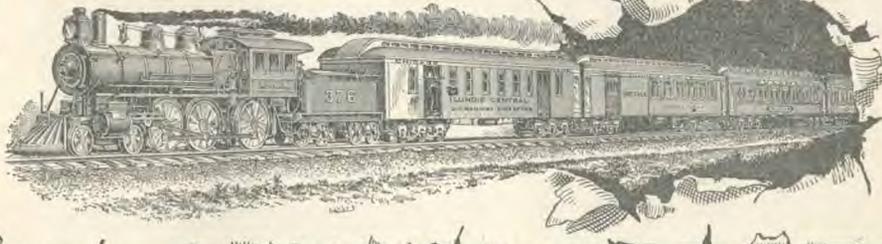
"The Limited" Fast, daily, few stops, buffet-library-smoking car, sleeping car, free reclining chair car, dining car.
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 runs through between Chicago and

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MICHIGAN CENTRAL

"The Niagara Falls Route."

Corrected June 17, 1900.

EAST	8	12	6	10	14	20	36
	*Night Express	†Det'r it Accom.	Mail & Express	*N.Y. & Bos. Sp.	*East'n Express	*J'n Accom.	*Atl'tic Express
Chicago	pm 9.35		am 6.45	am 10.30	pm 8.00		pm 11.30
Michigan City	11.25		8.45	pm 12.08	4.40		am 1.20
Niles	am 12.40		10.15	1.00	5.37		2.30
Kalamazoo	2.10	am 7.30	pm 12.10	2.08	6.52	pm 6.00	4.10
Battle Creek	5.00	8.10	1.00	2.42	7.28	6.45	5.05
Marshall		8.38	1.80	3.09	7.51	7.10	5.30
Athlon	4.00	9.00	1.50	3.30	8.11	7.30	5.32
Jackson	4.40	10.05	2.35	4.05	8.50	8.15	6.40
Ann Arbor	5.55	11.10	3.47	4.58	9.44		7.45
Detroit	7.15	pm 12.25	5.00	6.00	10.45		9.15
Falls View					am 4.57		pm 4.13
Suspension Bridge							5.17
Niagara Falls							5.30
Buffalo				am 12.20	6.14		5.30
Rochester				3.73	10.00		5.40
Syracuse				5.15	12.15		10.45
Albany				9.05	pm 4.50		am 2.50
New York				pm 1.30	6.15		7.00
Springfield				12.16	6.15		7.40
Boston				3.00	9.00		10.34

WEST	7	17-21	3	5	23	13	37
	*Night Express	*N.Y. & Ch. Sp.	†Mail & Express	*News Express	*W'st'n Express	†Kat. Ac'm.	*Pacific Express
Boston		pm 2.00			pm 3.30		pm 6.00
New York		4.00			5.00		am 12.10
Syracuse		11.30			am 2.00		pm 12.25
Rochester		am 1.20			4.05		2.25
Buffalo		2.20			5.20		3.50
Niagara Falls					6.02		4.32
Falls View					6.34	4.25	5.05
Detroit	pm 8.30	8.25	am 7.15		pm 12.40	4.35	11.20
Ann Arbor	9.43	9.28	8.40		1.38	5.45	am 12.30
Jackson	11.15	10.20	11.05	am 3.30	2.40	7.30	1.55
Battle Creek	am 12.40	11.84	pm 12.25	4.55	3.50	9.98	3.00
Kalamazoo	1.40	pm 12.10	1.30	5.15	4.25	10.00	3.35
Niles	3.15	1.23	3.25		6.05		5.05
Michigan City	4.24	2.20	4.45		7.05		6.01
Chicago	6.30	4.00	6.40		8.55		7.50

* Daily. † Daily except Sunday.

Trains on Battle Creek Division depart at 8.05 a. m. and 4.10 p. m., and arrive at 12.40 p. m. and 6.15 p. m. Daily except Sunday.

O. W. RUGGLES, General Pass. & Ticket Agent, Chicago. R. N. R. WHEELER, Ticket Agent, Battle Creek.

The Cincinnati Northern Railroad Co.

TIME TABLE NO. 3.

IN EFFECT SEPT. 24, 1890.

Trains Pass Battle Creek as follows:

WEST-BOUND.

No. 21, Mail and Express	6.58 P. M.
No. 23, Accommodation	2.07 P. M.
No. 27, Local Freight	8.25 A. M.

EAST-BOUND.

No. 22, Mail and Express	8.25 A. M.
No. 24, Accommodation	1.45 P. M.
No. 28, Local Freight	5.30 P. M.

Direct connections are made at Toledo with all roads diverging. Close connections for Detroit and Cincinnati.

J. L. READE, Ticket Agt., Battle Creek.

E. R. SMITH, City Pass. Agt., 6 West Main St.

E. W. Meddaugh and Henry B. Joy, Receivers.

Chicago & Grand Trunk R'y.

Trains arrive and leave Battle Creek.

Time Card in Effect June, 1900.

WEST-BOUND FROM BATTLE CREEK.

No. 9, Mail and Express, to Chicago	12.15 P. M.
No. 1, Chicago Express, to Chicago	8.30 A. M.
No. 3, Lehigh Valley Express, to Chicago	3.50 P. M.
No. 5, International Limited to Chicago, with sleepers	2.15 A. M.
No. 75, Mixed, to South Bend	8.30 A. M.
Nos. 9 and 75, daily, except Sunday.	
Nos. 1, 3, and 5, daily.	

EAST-BOUND FROM BATTLE CREEK.

No. 8, Mail and Express, to Pt. Huron, East, and Detroit	3.45 P. M.
No. 4, Lehigh Express, to Pt. Huron and East	8.27 P. M.
No. 6, Atlantic Express, to Pt. Huron, East, and Detroit	2.25 A. M.
No. 2, Lehigh Express, to Saginaw, Bay City, Port Huron, and East	6.50 A. M.
No. 74, Mixed, to Durand (starts at Nichols yards)	7.15 A. M.
Nos. 8 and 74, daily, except Sunday.	
Nos. 4, 6, and 2, daily.	

D. M. HOWIE, Ticket Agent,

BATTLE CREEK.

Mexican Central

..... RAILWAY

In reading and seeking "GOOD HEALTH," do not overlook Mexico, and the fact that the Mexican Central Ry. is not only the best but the most popular route through that country.

Passengers via this line avoid the annoyances incidental to transfer at the border, secure through Pullman Buffet Car Service, and more comfort than could possibly be the case otherwise.

Mexico is one of the very few combination summer and winter resorts on the continent.

Call on any Mexican Central Agent for further particulars, or address,

T. R. RYAN, General Agent,
236 S. Clark St., Chicago.

W. D. MURDOCK,
Ass't Gen'l Pass. Agent,
MEXICO CITY, MEX.

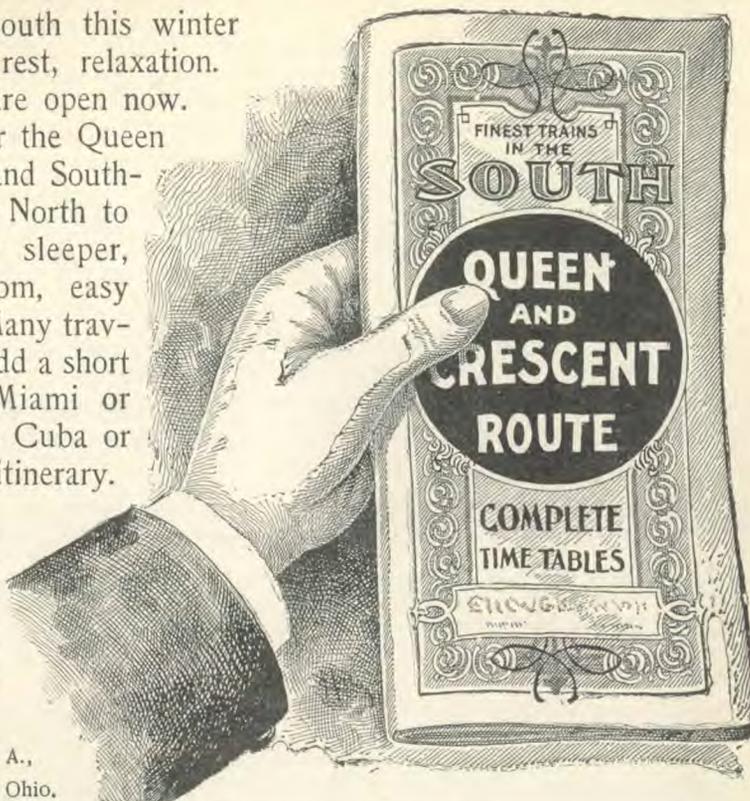
Pullman Buffet Car Service.

YOU are going south this winter for recreation, rest, relaxation. The winter resorts are open now.

You can ride over the Queen & Crescent Route and Southern Ry. from snowy North to sunny South, your sleeper, diner, smoking room, easy chair, all at hand. Many travelers will this year add a short sea voyage from Miami or Tampa for a visit to Cuba or Porto Rico to their itinerary.

Tickets through to Havana on sale via the Queen & Crescent Route, Southern Ry. and connecting lines, include meals and berth on steamers. We have a very interesting booklet on Cuba and Porto Rico now in press. We will gladly send it to you.

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Cincinnati, Ohio.



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DRIVES



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Four regular physicians, thirty trained nurses, forty assistants; skilled operators for application of massage, Swedish movements, and all kinds of electric and water treatment; classified dietaries. Infectious and offensive patients not received.

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BY J. H. KELLOGG, M. D.

INDEX OF SYMPTOMS, referring to over 3,000 subjects, furnishes a key to the vast fund of useful knowledge which this book contains, by enabling the user to discover at once the nature of his malady a feature which is wholly unique, and which is found in no other work of the kind.

No Household is Complete Without a Copy.

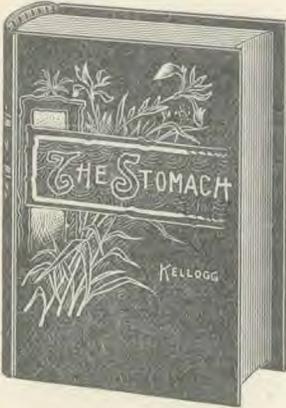
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Its Disorders, and How To Cure Them.

BY J. H. KELLOGG, M. D.

A brief, practical treatise on the most common of human ailments, in which the cause and cure of the functional disorders of digestion are dealt with in a clear and concise manner.

The work is illustrated with more than 130 cuts, including eleven full-page plates. This work ought to be in the hands of every dyspeptic.

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SCIENCE IN THE KITCHEN.

—BY— Mrs. E. E. Kellogg, A. N.,

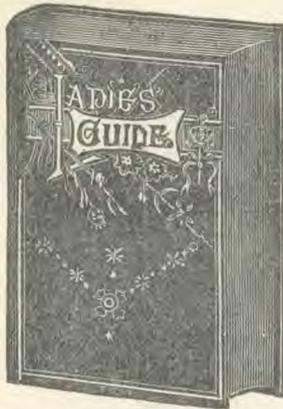
Superintendent of Mother's Work for the National W. C. T. U., Chairman of the World's Fair Committee on Food Supplies for Michigan, Author of "Science in the Kitchen," etc.

A FINE book of nearly six hundred pages, printed on excellent paper, finely illustrated, and gotten out in a style at once popular, highly attractive, and substantial. As to its subject-matter, while it is thoroughly scientific, it is yet as thoroughly practical in presenting the best methods of preparing food, and the work gives over 800 carefully tested recipes for the same. The book is written in a style bright and entertaining, although concise, and is the embodied result of the patient and almost continuous research and experimentation carried on by Mrs. Kellogg during the last ten years, in the Experimental Kitchen connected with the Battle Creek Sanitarium. It ought to be in every family.

PRICE, OILCLOTH, POSTPAID, \$1.90.

AGENTS WANTED IN EVERY COUNTY.

GOOD HEALTH PUBLISHING CO., Battle Creek, Mich.



.... THE

Ladies' Guide

In Health and Disease

BY J. H. KELLOGG, M. D.

THIS work admirably meets a want that has long been recognized by intelligent women in all parts of the land. Having devoted many years to the study of the diseases to which the sex is peculiarly liable, as physician-in-chief of one of the largest health, medical, and surgical institutions in the United States, and in the treatment of thousands of women suffering from all forms of local disease, the author has brought to his work in the preparation of this volume a thorough education and a rich experience, which have enabled him to produce a volume eminently practical in character, and calculated to fill the place in the practical education of women for which it is intended. It tells mothers *just what they ought to know*, in language they can not fail to understand; and daughters who value

their health, and the happiness which follows health, can not afford nor to know what this book teaches them.

This book is divided into seven parts, or sections. It graphically describes the great mystery of life,—the anatomy and physiology of reproduction. Four of the sections bear respectively the following headings: "The Little Girl," "The Young Lady," "The Wife," and "The Mother." A most thorough discussion is given concerning the special dangers incident to puberty in girls, the physical and mental training of young ladies, the evils of improper dress and how to dress healthfully, the education of young ladies, personal beauty, courtship and marriage; the duties, rights, and privileges of the wife, the dangers of health incident to the matrimonial state, the prevention of conception, how to predict and regulate the sex of offspring, criminal abortion, and the *special means* which wives may adopt for the preservation of their health. Due consideration is given to the perils of motherhood and how they may be avoided, including instructions by following which child-bearing may be made painless in most cases, and greatly mitigated in all. The management of pregnancy is also fully treated, and a large amount of new and invaluable instruction given on this important subject, which makes the "Guide" a very valuable book for midwives, nurses, and physicians. One section of the book is devoted to the diseases of women, together with their proper treatment, the latter subject being treated differently than in any other work extant, and embodying the various methods in use by the author, and by the best specialists in this and foreign countries, which bring about such remarkable results when intelligently employed. The directions given are so simple, and the means to be employed in treatment so readily accessible, that the treatment can be carried on successfully in most cases at the home of the patient without the assistance of a physician, thus saving many a doctor's bill. The concluding section of the work is an Appendix, where is found rational home treatment for diseases of childhood, such as croup, diphtheria, whooping cough, convulsions, measles, scarlet fever, etc., etc.; also full instructions for baths of various kinds, Swedish movements, postural treatment, electricity, massage, diet for invalids, many invaluable recipes, medicinal recipes, and *prescriptions* for the various diseases treated in the work. A Glossary and Alphabetical Index follow the Appendix.

The work contains 672 octavo pages, and is illustrated by means of thirty-five chromo-lithographic plates, cuts, and colored plates. For the purpose of removing a possible objection which might be raised, a few of the plates are printed on a sheet by themselves, are carefully concealed in a little pocket in the cover of the book, and may be removed at pleasure.

Girlhood
Maidenhood
Wifehood
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Cloth, embossed in gold and jet, postpaid,	\$3.00
Half Buffing, marbled edges,	3.50
Leather (library style),	3.75
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60,000
Copies Sold.



Man, the Masterpiece;

By
J. H. KELLOGG, M. D.

Or, Plain Truths plainly told about
BOYHOOD, YOUTH, and MANHOOD.

A BOOK FOR EVERY MAN.

THIS work is to gentlemen what the "Ladies' Guide" is to ladies, and a good idea may be gained of its contents by reading the above description of the "Guide." It contains about the same number of pages, cuts, etc., having similar bindings, and selling at the same prices. It should be read and studied by every boy and man in the country.

Descriptive circulars and testimonials of the above works furnished upon request. Address—

GOOD HEALTH PUBLISHING CO., Battle Creek, Mich.

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50 % PROFIT



The Midsummer Number of GOOD HEALTH has met with general favor wherever it has been circulated. It contains just the information that people are looking for at this season. This number has already had a much wider circulation than was at first anticipated by the publishers. Its contents and make-up are of such a character as to warrant the extra large edition which we had printed. This extra edition bears no date other than Midsummer Number, and hence will be appropriate to sell for some weeks yet. Orders are coming in rapidly, but we are prepared to fill even a larger number. This number is an easy seller at 10 cents per copy, and we will furnish copies, in lots of ten or more, at 5 cents each, postpaid, thus allowing a commission of 50%. Address

Good Health Publishing Co.,
Battle Creek, Mich.

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THE MAGIC POCKET VAPORIZER

Is recommended for catarrhal throat, its use, the brought to bear upon the diseased surfaces. If you are in search of an instrument that will cure your catarrh as thoroughly as anything can cure it, you will find it in the



by leading physicians affections of the nose, lungs, and ears. Through germ-growth is destroyed and curative processes of Nature bear upon the diseased surfaces. If you are in search of an instrument that will cure your catarrh as thoroughly as anything can cure it, you will find it in the

VAPORIZER.

PRICE, \$1.00:

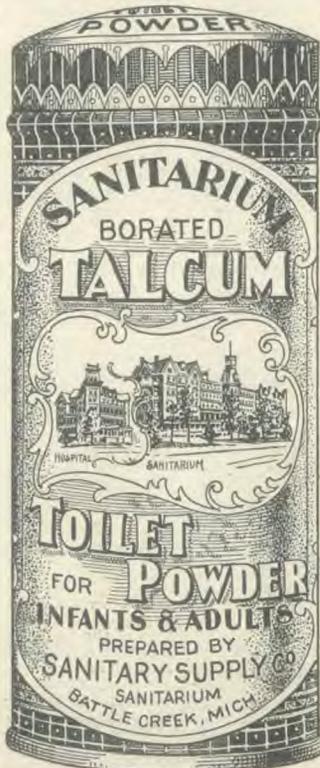
with bulb for ear treatment, \$1.50.

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The Superior Quality of this Powder makes it one of the best for the treatment of—

Prickly Heat,
Nettle-rash,
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etc., etc.

It is an excellent remedy for PER-SPERING FEET and is especially adapted—

For Infants.

Delightful After Shaving.

Price, post-paid, 25c per box.

Agents Wanted.

THE BEST FOOD FOR SUMMER

NOT A WORD ABOUT Washburn-Crosby Co.

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Appears on any of the premiums in our list. They are absolutely free from our advertisement.

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We also have a large assortment of children's books, published by the best house in the country. These contain colored plates and pages in text profusely interspersed with pictures. The covers are in full lithographic colors and gold. The assortment includes popular children's stories, such as, "Visit of St. Nicholas," "A B C of Comic Animals," "Jack and the Beanstalk," etc.

We also give away beautiful reproductions in colors of any of the following famous paintings now on exhibition in the Metropolitan Museum, New York City: "The Balloon," by Julien Depre, "The Defense of Champagne," by Edouard Detaille, and "The Horse Fair," by Rosa Bonheur.

In addition to the above, our list includes beautiful gold-filled Elgin and Waltham Watches. Also, knives, scissors, carving set, children's set of knife, fork, and spoon, and kitchen utensils, including a Royal Steel Double Boiler of the most approved pattern.

Any one or all of these first-class articles can be obtained by you. It is only necessary to eat our Perfect Wheat Food, **YUCO**, save the labels, and send for the article selected.

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