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ORIGIN OF DYSPEPSIA.

BEFORE our ancestors colonized the colder latitudes of this planet, the equatorial regions had for ages been inhabited by men or man-like four-handers. The influence of this long abode in the tropics still asserts itself in many peculiarities of our physical constitution. We are but half acclimatized. Wolves are weather-proof; bears and badgers have managed to inure themselves to the miasma of their winter dens: but the primates of the animal kingdom can neither endure cold nor breathe impure air with perfect impunity; and of most of our civilized fellow-men, as well as of savages and all the species of our four-handed relatives who have thus far been wintered in northern menageries, it may be said that the sensitiveness of their lungs contrasts strangely with the tough vigor of their digestive organs.

In proportion to his size, a rhesis baboon eats more than a wolf; between morning and night a ceboo monkey will devour his own weight in bananas, and, where the cravings of a naturally vigorous stomach are increased by the stimulus of a cold climate, it seems almost impossible to surfeit a savage with palatable food; his appetite is the faithful exponent of his peptic capacity, and before the fauces positively refuse to ingest, there is little danger that the gastric apparatus will fail to digest. Manifold and enormous must have been our sins against the dietary code of Nature before we could succeed in making indigestion a chronic disease. Deviations from the chemical standards of her *menu* are insufficient to account for her wrath. With all their unmistakable structural evidences of a frugivorous purpose, our digestive organs have been permitted to adapt themselves, not only to a carnivorous and herbivorous diet and various innutritive substances, but to a considerable number of positive poisons. The Yakoots live on fish and seal-bladder. The Shoshones stick to bull-beef. The Namaqua Hottentots (who cannot plead the exigencies of a cold climate) subsist almost entirely on venison. Several tribes of Northern Brazil eat clay with comparative impunity. Our Saxon forefathers added beer to venison and beef; and when they took to in-door life, the stomach protested only by proxy,—an utterly wrong diet led, not to dyspepsia, but to scrofulous affections. Excess in moderately unwholesome viands has to be carried to a monstrous degree before the after-dinner torpor turns into a malignant disease; the stomach of a nomad seems to acquire a knack of assimilating a modicum of the ingesta, and voiding the rest like so much innutritious stuff. Dr. Robert Moffat saw a Bushman eat twenty pounds of hippopotamus-liver and a bucketful of broiled marrow, besides handfuls of ground-nuts, parched corn, and hackberries—all within twenty-four hours. In the provincial capitals of Northern China, where banquets of forty courses are *de rigueur*, convivial mandarins learn to devour a quantum of comestibles that would torpify a boa-constrictor. Eating-matches of fourteen and fifteen hours did not prevent Vitellius from acquiring distinction as a wrestler.

Daily alcohol-fevers, combined with pepper and mustard inflammations, would ruin the stomach of an ostrich; but in favor of the unfeathered biped, Nature accepts such vicarious atonements as gout and dropsy. Thousands of crapulous

Barvarian beer-swillers, who are hardly able to walk, are still able to digest their food. In-door life and want of exercise then added their quota of provocatives; but where the lungs would have rebelled after seven protests, the stomach forgave seventy-seven times. Mediæval prelates, squires, and aldermen tried in vain to exhaust the patience of the long suffering organ.

But their descendants finally solved that problem. To the alcoholic stimulants of the ancients we have added tea, coffee, tobacco, absinthe, chloral, opium, and pungent spices. Every year increases the number of our elaborately unwholesomely-made dishes, and decreases our devotion to the field-sports that helped our forefathers to digest their boar-steaks.

We have no time to masticate our food; we bolt it, and grumble if we cannot bolt it smoking hot. The competition of our domestic and public kitchens tempts us to eat three full meals a day, and two of them at a time when the exegencies of our business-routine leave us no leisure for digestion. At night, when the opportunity for that leisure arrives, we counteract the efforts of the digestive apparatus by hot stove-fires and stifling bedrooms. Since the beginning of the commercial-epicurean age of the nineteenth century, the votaries of fashion have persistently vied in compelling their stomach to dispose of the largest possible amount of the most indigestible food under the least favorable circumstances.

That persistence has at last exhausted the self-regulating resources of our digestive organs. But even after such provocations the stomach does not strike work without repeated warnings. The first omen of the wrath to come is the *morning languor*, the hollow-eyed lassitude, which proves that the arduous labor of the assimilative organs has made the night the most fatiguing part of the twenty-four hours. The expression of the face becomes haggard and sallow. The tongue feels gritty, the palate parched, in spite of the restless activity of the salivary glands, which every now and then try to respond to the appeals of the distressed stomach. Gastric acidity betrays itself by many disagreeable symptoms; loss of appetite, however, marks a later stage of the malady. For years the infinite patience of Nature labors every night to undo the mischief of every day, and before noon the surfeited organs again report ready for duty. Habitual excess in eating and drinking sometimes begets an unnatural appetency that enables the glutton to indulge his *penchant* to the last, only with this difference, that the relish for special kinds of food has changed into a vague craving for *repletion*, just as the fondness for a special stimulant is apt to turn into a chronic poison-hunger. This craving after engorgement forms a distinctive symptom of *plethoric dyspepsia;* but even in the first stage of asthenic or nervous dyspepsia, the hankering after food is not hunger proper, but a nervous uneasiness, suggesting the idea that a good meal would, somehow, supply the means of relief. The first full meal, however, entails penalties which the sufferer would gladly exchange for the less positive discomfort of the morning. Instinct fails to keep its promise, as a proof that Nature has been supplanted by a deceptive second-nature. Headache, heartburn, eructations, humming in the ears, nausea, vertigo, and gastric spasms, make the after-dinner hour "the saddest of the sad twenty-four;" a dull mist of discontent broods over the whole afternoon, and yields only to tea and lamp-light. The patient begins to fret under the weight of his afflictions, but still declines to remove the cause. To out-door exercise he objects, not on general principles, but on some special plea or other. He has to husband his strength. The raw March wind would turn his cough into a chronic catarrh. The warm weather would spoil his appetite, and aggravate his vertigo. The truth is, that of the large quantum of comestibles ingested, only a small modicum is *digested*, and that the system begins to weaken under the influence of indirect starvation. Business routine prevents the dyspeptic from changing his meal-times. He cannot reduce the number of his meals; people have to conform to the arrangements of their boarding-house. The stomach needs something strengthening between breakfast and supper. The truth is, that the exertions of the digestive organs alternate with occasional reactions, entailing a nervous depression which can be (temporarily) relieved by the stimulus of a fresh engorgement. Business reasons may really prevent a reduction of working hours, and domestic duties a change of climate or of occupation. The daily engorgement in the meanwhile goes on as before.

Nature then resorts to more emphatic protests. Sleep comes in the form of a

dull torpor that would make a nightmare a pleasant change of programme. The digestive laboratory seems to have lost the discretion of its automatic contrivances; the process of assimilation, in all its details, obtrudes itself upon the cognizance of the sensorium, and urges the co-operation of the voluntary muscles. Contortions and pressing manipulations have to force each morsel through the gastric apparatus; the lining of the stomach has become sentient, and shirks its work like a blistered palate. Special tidbits can be traced through the whole course of their abdominal adventures. Undigested green peas roll on like buckshot hot from the smelting-pan of a shot-tower. A grilled partridge crawls along like a reluctant crab, clawing and biting at each step. Nausea and headache strive to relieve themselves in spasmodic eructations. Vertigoes, like fainting-fits, eclipse the eye-sight for minutes together. Constipation, often combined with a morbid appetite, suggests distressful speculations on the possible out-come of the accumulating ingesta. The overfed organism is under-nourished to a degree that reveals itself in the rapid emaciation of the patient. The general derangement of the nervous system reacts on the mental faculties, and impairs their efficacy even for the most ordinary business purposes, till the invalid at last realizes the necessity of reform. He tries to reduce the number of his meals; but the lengthened intervals drag as heavily as the toper's time between drinks. He hopes to appease his stomach by a change of diet, but finds that the resolution has come too late; the gastric mutiny has become indiscriminate, and protests as savagely against a Graham biscuit as against a broiled pork sausage. He tries pedestrianism, but finds the remedy worse than the evil. The enemy has cut off his means of retreat; the necessitous system has no strength to spare for such purposes as an effort of the motive organs. But nine out of ten dyspeptics resort to the drug-store. They get a bottle of "tonic bitters." They try Dr. Quack's "Dyspepsia Elixir." They try a "blue pill"—in hope of rousing Nature, as it were, to a sense of her proper duty.

Now, what such "tonics" can really do for them is this: they goad the system into the transient and abnormal activity incident to the necessity of expelling a virulent poison. With the accomplishment of that purpose the exertion ceases, and the ensuing exhaustion is worse than the first by just as much as the *poison-fever* has robbed the system of a larger or smaller share of its little remaining strength. The stimulant has wasted the organic energy which it seemed to revive. "But," says the invalid, "if a repetition of the dose can relieve the second reaction, would the result not be preferable to the languor of the unstimulated system? Would n't it be the best plan to let me support my strength by sticking to my patent tonic?"

Yes, it would be very convenient, especially in times of scarcity, if a starving horse could be supported by the daily application of a patent spur. It would save both oats and oaths. Even a fastidious nag could not help acknowledging the pungency of the goad. But it so happens that spur-fed horses are somewhat short-lived, though at first the diet certainly seems to act like a charm. For a day or two the drug stimulates the activity of the digestive organs as well as of the mental faculties, but the subsequent prostration is so intolerable that the patient soon chooses the alternative of another poison-fever. Before long the pleasant phase of the febrile process becomes shorter, and the reaction more severe; the jaded system is less able to respond to the goad, and, in order to make up for the difference, the dose of the stimulant has to be steadily increased. The invalid becomes a bondsman to the drug-store, and hugs the chain that drags him down to the slavery of a confirmed poison-habit.

Circumstances may differ. A dyspeptic who intends to make his own quietus within a month or two, and in the meanwhile has a certain amount of work to finish, would be justified in stimulating his working capacities by all means, in order to improve to the utmost whatever chances of mundane activity may remain to him. But he who intends to stay has to make up his mind that recovery cannot be hoped for till he has not only discontinued his drug, but expiated the burden of sin which the stimulant outrage has added to the original cause of the disease. Nature has to overcome the effects both of malnutrition and of malpractice. The drug has complicated the disease.

In childhood, chronic dyspepsia is nearly always the effect of chronic medication. Indigestion is not a hereditary complaint. A dietetic sin *per excessum*, a quantitive surfeit with sweetmeats and pastry, may derange the digestive proc-

ess for a few hours or so, but the trouble passes by with the holiday. Lock up the short-cakes, administer a glass of cold water, and my life for yours, that on Monday morning the little glutton will be ready to climb the steepest hill in the county. But stuff him with liver-pills, drench him with cough-sirup and paregoric, and in a month or two he will not be able to satisfy the cravings of the inner boy without "assisting Nature" with a patent stimulant.

But is it fair to denounce a paliative when the radical remedies have lost their efficacy? What dietetic reform can avail a man to whom oatmeal-gruel has become a poison? How can he invigorate his system by exercise if he is hardly able to support himself on his legs? The asthenic stage of the disease can reach a degree when the mere suggestion of gymnastic enterprises is enough to produce a fit of nervous spasms. I have known of dyspeptics who would not have crossed a room to save a pet bird from the claws of a cat, who would have joined an expedition to the north pole as soon as to the skating ring. Theirs is a sad plight; for a rule that holds good of unnatural habits in general, applies more especially to the chronic establishment of dietetic abuses, namely, that the further we have strayed from nature, the longer and wearier will be the road of reform. Before the invalid can restore the health and vigor of his system, he has to restore his *capacity for exercise*. The first object is to create a healthy demand for nourishment. Under normal circumstances, that demand is proportioned to the amount of the organic expenditure. The nursing females of the mammalia require a larger amount of nourishing diet than the ordinary wants of the system would account for. During the age of rapid growth, children eat and digest as much food as hard-working men. Diabetes, the first stage of consumption and other wasting diseases, is characterized by an exorbitant appetite. Every increase of muscular activity involves an augmented demand for nourishment; *cæteris paribus*, the man who walks a mile from his shop to his home will digest his supper more easily than he who takes the street car. The hotel-boarder who makes it a rule to walk up the four flights of stairs to his attic will sleep sounder, and awaken more refreshed, than he who uses the elevator.—*Dr. Oswald, in Popular Science Monthly.*

TEMPERATURE.

J. MORTIMER GRANVILLE, M. D.

Such expressions as "cool head," "hot-headed," and the like, commonly relate to temperament rather than temperature; but it is essential to full comprehension of the subject before us that the *rationale* of animal heat should be stated, and the laws that govern the phenomenon of temperature, actual and subjective, at least cursorily explained.

Heat and the sensation of heat are two widely different states. When, on a chilly day or after washing in cold water, a man rubs his hands until a glow of heat seems to suffuse them, there is a very slight rise of actual temperature caused by the friction; the feeling is principally due to nerve-excitement, produced mechanically by the rubbing. The blood flows more freely into and through the parts excited immediately afterward, as shown by the redness, but the first impression of heat is mainly one of sensation. The feeling and the fact are not even constantly related. A person may feel hot when not only the surrounding temperature but that of his body is low; or he may feel cold when really overheated. These perverted sensations are occasionally morbid, that is to say, form part of a state of disease, or they may arise from individual peculiarities which perhaps render perceptions of a particular class especially acute. On the other hand, there are conditions of the body, and special sensibilities, in which the sense of heat is dulled, and even considerable elevations of temperature are not perceived. It is easy to see how impossible it must be to form a correct judgment of the actual state of heat either around or within us by simple sensation.

Throughout the world, whether man be placed in tropical heat or arctic cold, the temperature of his body must, to maintain health, be preserved at the same point, about 98.4 to .6 degrees of Fahrenheit. A very small departure from this universal mean standard constitutes or indicates disease. The external heat is comparatively unimportant, or only of secondary moment, in the economy of nature; we cannot rely upon it for the compensation of differences in the heat generated within the body by the organism. Except for the production of a temporary effect, such as to give time for the re-establishment of the normal temperature in a body chilled as by submersion, external heat is useless for vital purposes. The only way in which

it can act is by preventing the loss of more heat, and giving a slight aid to recovery by warming the surface of the body.

If, when a person is cold, he goes into a heated apartment, or sits before a large fire, he receives with advantage just as much heat as will bring the skin of his body up to the normal standard; as soon as that point is reached, the organism will begin to labor to get rid of the superfluous caloric, and by sweating the heat must be kept from rising above the standard. All the heat thrust upon the body above 98.6 degrees is waste and mischievous except so far as it may promote perspiration, which probably helps to work off some of the useless and burdensome, possibly morbid and poisonous, materials that oppress the system. This is how Turkish baths, and "sweatings" generally do good, by exciting increased activity of the skin, and, as it were, opening up new ways of egress for matters which, if retained, might offend.

So far as the heat of the body is concerned, whether in health or disease, every degree of external heat which is above the complement to form 98.6 degrees Fahrenheit with the heat of the body itself at the time, is useless and may do harm. It follows that in fever the surrounding atmosphere should be kept cool; in depressing disease, when the heat-producing powers of the organism are small, the air around should be warm. These are precisely the conclusions to which experience and observations conduct us; and the facts now briefly stated, explain the reason why.

There is no warmth in clothes; the heat comes from the body itself, generated within, or the surrounding atmosphere, or from substances with which the body may be in contact. Of course, clothes, like any other materials, can be charged with heat, and will take up as much thermic or heating property as their specific capacity allows. It is this capability of receiving heat which constitutes the first condition of warmth in the comparative value of different materials of dress. The second condition consists in the physical power of any fabric to hold the heat with which the article has been charged. For example, some materials will become warmer in a given time and retain their heat longer than others under the same conditions of exposure, first to heating and then to cooling influences. The principle of clothing should be to protect the body from external conditions which tend to abstract heat, when the surrounding temperature is lower than that of the body; and to strike heat into the organism, when the temperature of the outside air and of the substances with which the skin may be brought in contact is higher than that of the animal body itself.

Local temperature, that is, the heat in the several regions of the body, is determined by conditions which control the circulation of the blood, and the function of nutrition or food appropriation. If the circulation is free in a part, its temperature is maintained; if, from any cause, the flow of blood is retarded, the local heat will be reduced. Any one may put this to the test by encasing the hands in somewhat tight gloves when the weather is cold. The pressure prevents the free passage of the blood through the vessels, and the temperature falls. There is no warmth of any kind in the gloves; they act simply as non-conductors of heat, and prevent the heat generated within the body from passing off. For example: if a piece of lint or rag be dipped in cold water and laid on the skin, and a sheet of impervious or non-conducting material, such as India-rubber or thick flannel, is wrapped closely round, the heat of the body will raise the cold water to a temperature at which it will be given off as steam the moment the covering is removed. When the extremities are inclosed in thick or dense coverings, their temperature will depend on the amount of heat generated within them, and if the flow of blood through the vessels is arrested or retarded, nothing is gained, but everything lost, by the measures taken to protect them from the external cold.

This is a matter of the highest practical moment, and needs to be thoroughly understood. The feet cannot be kept warm unless the blood circulates freely in the extremities, and that will not be the case if the boots, shoes, or stockings are tight. These last-named articles of clothing are practically the worst offenders. A stocking encircling the foot and leg closely and enveloping every part, with special pressure at the instep, around the ankle, and above or below the knees, must inevitably tend to oppose the circulation, and so reduce the natural heat. The arteries which bring the blood to the extremities are set deeper than the veins that carry it back; and as the latter are provided with valves which open toward the heart, it is too commonly supposed that the "support"

afforded by the stocking will favor the return of blood more than it can impede the deeper supply-currents, and so help the circulation. But practically we know this is not the fact; for a tight stocking insures a cold foot, and the chilliness of which many persons complain is mainly caused by the practice of gartering, and wearing stockings which constrict somewhere or everywhere.

There is a popular notion that if the feet are cold, the head must be hot; and by keeping the extremities warm with wraps the "blood is drawn from the head," and its temperature reduced. Those who have on the one hand studied the phenomenon of fever, and on the other noted the physical condition of races and individuals who habitually leave the extremities unclothed, will know that this theory of the distribution of heat is only partially true. Heat depends on the due supply of nutrient elements to the tissues. It is the expression or result of the process of local feeding. If a part is active, it will be heated. When the feet are left bare, the complex muscular apparatus of the extremity, which in a stiff shoe scarcely works, is called into vigorous action, the arch of the foot plays with every step, and each toe performs its share in the act of progression. This promotes growth and calls for nutrition, whereby the heat is maintained; whereas, if it be simply packed away as a useless piece of organism, no amount of external heat will warm it. Work is the cause and counterpart of heat throughout the body.

The same principle applies to the head. No amount of external cooling will reduce the temperature; no drawing away the blood by artificial expedients will permanently relieve the sense or obviate the fact of heat, if the organ within the cranium is excessively or morbidly active. The brain is a peculiarly delicate and complicated organ, requiring more prompt and constant nutrition than any other part of the body, because the constituent elements of its tissue change more rapidly than those of any other in proportion to the amount of exercise. Moreover, the brain is always acting during consciousness, and even in sleep it is seldom wholly at rest, as we know from the occurrence of dreams. The faculty of nutrition is highly developed in the organ, or it could not so continuously, and on the whole healthily, discharge its functions, even when other parts of the body, or the system as a whole, are suffering from disease. When the head is heated, there is nearly always a local cause for it, and the remedy must be addressed to the seat of the malady. The temporary expedient of "drawing away the blood" by applying heat to the extremities, is useful as far as it goes, and may suffice to enable the organ to rid itself, by the contraction of its blood-vessels, from a surplus charge of this fluid; but in the absence of special causes, the *reason* of the "heat of head" is undue exercise or disturbance of nutrition in the brain itself. Perhaps the seat of the over-work and consequent heating may have been limited to a particular part of the head; for example, the apparatus of sight, or of hearing, as when the head becomes heated by reading too long or in a strong light. The point to understand is that when the head is physically hot, it is the seat of too much or disorderly nutrition; and either the amount of brain or sense-power exercised must be reduced, or the mode of action changed, and the particular part of the apparatus of perception or thought which has been too severely taxed, relieved.

The true condition of health is that in which the temperature of the body as a whole, and of its several parts, is not disturbed by surroundings either of heat or cold. The preservation of a natural and healthy temperature is mainly to be secured by the maintenance of a regular and well distributed circulation of blood charged with the materials of nutrition.

The first condition of a free and continuous flow of blood is a healthy heart, not hampered by irritants, mental or physical. Sudden grief or fright produces cold by arresting the circulation, and the flow may be permanently retarded by anxiety. The mind has a wondrously direct influence on the heart and blood-vessels—on the latter through the nerves, which increase or reduce the calibre of the minute arteries, as in blushing or blanching at a thought. Instead of loading the body with clothes, the "chilly" should search out the physical cause of their coldness. The blood must not only circulate freely; it must be rich in nourishing materials, and not charged with poison. An excess of any one element may destroy the value of the whole. It is too much the habit of valetudinarians and unhealthy people of all kinds, to charge the blood with substances supposed to be "heating" or "cooling," as they think the system requires them. This is a mis-

take. The body does not need to be pampered with cordials, or refrigerated with cunningly devised potions. If it be well nourished, it will be healthy.—*The Chautauquan.*

THE NEWCASTLE APOTHECARY.

GEORGE COLMAN THE YOUNGER.

A MAN in many a country town we know
  Professes openly with Death to wrestle,
Entering the field against the grimly foe,
  Armed with a mortar and a pestle.

Yet some affirm, no enemies they are,
But meet just like prize-fighters in a fair,
Who first shake hands before they box,
Then give each other plaguy knocks
With all the love and kindness of a brother;
  So, many a suffering patient saith,
  Though the apothecary fights with Death,
Still they're sworn friends to one another.

A member of this Æsculapian line
Lived at Newcastle-upon-Tyne.
No man could better gild a pill,
  Or make a bill,
Or draw a tooth out of your head,
Or chatter scandal by your bed.

Of occupations these were *quantum suff.;*
Yet still he thought the list not long enough,
  And therefore midwifery he chose to pin to't.
This balanced things; for if he hurled
A few score mortals from the world,
  He made amends by bringing others into't.

His fame full six miles round the country ran,
  In short, in reputation he was *solus;*
All the old women called him "a fine man!"
  His name was Bolus.
Benjamin Bolus, though in trade,—
  Which oftentimes will genius fetter,—
Read works of fancy, it is said,
  And cultivated the *belles-lettres.*

And why should this be thought so odd!
  Can't men have taste who cure a phthisic?
Of poetry though patron god,
  Apollo patronizes physic.
Bolus loved verse, and took so much delight in't
That his prescriptions he resolved to write in't.

No opportunity he e'er let pass
  Of writing the directions on his labels
  In dapper couplets, like Gay's Fables,
Or rather like the lines in Hudibras.

Apothecary's verse! and where's the treason?
  'Tis simply honest dealing, not a crime;
When patients swallow physic without reason,
  It is but fair to give a little rhyme.

He had a patient lying at death's door,
Some three miles from town, it might be four,
To whom, one evening, Bolus sent an article
In pharmacy that's called cathartical,
And on the label of the stuff
    He wrote this verse,
Which one would think was clear enough,
  And terse,
    When taken,
    To be well shaken.

Next morning early, Bolus rose,
And to the patient's house he goes
    Upon his pad,
Who a vile trick of stumbling had:
It was, indeed, a very sorry hack,
  But that's of course;
  For what's expected from a horse
With an apothecary on his back?
Bolus arrived, and gave a doubtful tap,
Between a single and a double rap.

Knocks of this kind
Are given by gentlemen who teach to dance,
  By fiddlers, and by opera-singers;
One loud, and then a little one behind,
As if the knocker fell by chance
  Out of their fingers.

The servant let him in with dismal face,
Long as a courtier's out of place,
  Portending some disaster;
John's countenance as rueful looked and grim,
As if the potheeary had physicked him
  And not his master.

"Well, how's the patient?" Bolus said.
John shook his head.
"Indeed! hum! ha!—that's very odd!
He took the draught?" John gave a nod.
"Well, how? what then? speak out, you dunce!"
"Why then," says John, "we shook him once."
"Shook him! how?" Bolus stammered out.
  "We jolted him about."

"Zounds! shake a patient, man! a shake won't do."
"No, sir; and so we gave him two."
  "Two shakes! od's curse!
'Twould make the patient worse."
"It did so, sir, and so a third we tried."
  "Well, and what then?" "Then, sir, my master
      died."

INWARD CLEANLINESS.

IT has been for many years a recognized fact that the use of water upon the exterior surfaces of the body to remove filth accumulations is a sanitary measure of the first importance. While it is true that the use of water externally has been carried to excess, and that injury has often resulted from the too frequent use of the bath, no one can doubt, that, living as we do under peculiar conditions imposed by modern civilization, the functions of the skin must be maintained free from all obstructions. As to the interior surfaces of the organs and ducts of the human organization, we have been content to leave those to take care of themselves, feeling that whatever cannot be seen must be but imperfectly understood, and is properly left to the control and guidance of nature's laws.

Quite recently the notion has come into the minds of some experimenters, that we should use water freely as a detergent to

cleanse the mucous surfaces of the alimentary canal and the various important organs connected therewith; consequently the practice of drinking considerable quantities of water in the morning before breakfast, and at other times during the day, is becoming fashionable among intelligent persons. It is assumed that the stomach and intestinal canal need cleansing as well as the cuticular covering of the face and hands, and that water should be applied in the morning inside as well as outside.

There used to be, many years ago, a belief which prevailed extensively among the uneducated classes, that the human stomach often became "clogged" and impeded in its functions, by accumulations of offending matters ("old rowen" it was frequently called), which must be removed by large doses of physic. The spring of the year was the time when "old rowen" became most troublesome; and "bitters" and pills were resorted to for removing the supposed gastric accumulations of the winter months. This has been regarded as a vulgar conceit, the offspring of ignorance.

The view which is now so extensively adopted among the educated, regarding inward uncleanliness, is of the nature of former vulgar conceits; but it differs from these in respect to both the extent of the evil and the remedy.

As regards the free use of water under some conditions of the digestive organs, it may be said that no agent can prove safer or more salutary. Those who have morbid conditions of the stomach and bowels, which do not so far impair the general vigor as to prevent attention being given to the ordinary duties of life, can often use large draughts of water, especially in the morning, with manifest advantage. Obstinate constipation is thereby removed, the normal peristaltic motions of the bowels are restored, and the secretions may be vastly improved. We notice the salutary influence of water-drinking upon many of those who resort to the so-called mineral springs which abound in the country. It is not necessary that these springs should hold abnormal quantities of salts of any kind to effect cures; it is only necessary that the water should be *pure*. Spring waters that are charged heavily with saline ingredients, like some of those at Saratoga, are positively injurious to nearly or quite all that use them freely.

Perhaps the most popular water now in use in the United States is that known as the Poland Spring Water, which is found in Maine, near Portland. This water is distinguished only for its *purity*. It holds a less amount of "salts" than the ordinary pond and river waters of New England. We ascertained by analysis of the water, when the Poland Spring was first "discovered," that it held less than *three* grains of organic and inorganic matter in the imperial gallon, and its character has undergone no change since it became noted. It may safely be said that more than a thousand springs may be found in the State of Maine, or in any of the Northern States, the waters of which are identical in their chemical nature with that at Poland. But this fact does not lead to the conclusion that the alleged "cures" occurring there are unreal or illusory. The water in itself contains no medicinal properties whatever; and the same results would be obtained by invalids, if the waters which are distributed in our cities were used under the same conditions, and with the exercise of the same faith, as at the Maine spring. Ordinary springs, such as are found in every farmer's pasture, are curative springs, if the waters are used freely by those who suffer from certain gastric or renal difficulties. Their use must be supplemented by a plentiful supply of pure air, persistent exercise, and pleasant company, in order that the best results may be secured.

The temperature of water has much to do with its influence upon the system, when drunk in considerable quantities. Many feeble persons cannot drink a tumbler of water at the temperature of 50° F. without serious suffering. Most of our common spring waters have a temperature below 50° F. as they issue from orifices in the ground, or through rocks; and hence it is important that the temperature should be raised by artificial heat before they are largely used.

Water taken in large quantities, in its action upon the system, fulfills in a degree the same office as floods in brooks and rivers. They detach and carry away from the bed of rivers accumulations of vegetable and animal matters which impair the character of the water, and obstruct their flow. It is probably not a vulgar or erroneous idea which assumes that the organs of digestion and assimilation may be "washed," and morbid secretions and feculent matter removed. Water is a remedy of no mean importance, used medicinally; and its employment should be

regulated by intelligent discrimination and care. It is an agent which comes to us without cost; it is a product of nature, indispensable and varied in its adaptations; and its therapeutical employment deserves the attention and study of physicians everywhere.—*Pop. Science News.*

TEMPERANCE A CENTURY AGO.

THE following article is taken from an able paper in the New York *Independent* of January 10, 1884. The writer is Rev. D. Dorchester, D. D., of Natick, Mass. The article will be very interesting to the readers of GOOD HEALTH. Dr. Dorchester says:—

At the opening of this century, the grim monster, intemperance, was completely domesticated in all Christendom, and pre-eminently in American society. Like the viper in the fable, it had been taken into the warm bosom of social life. On all social and festive occasions, at funerals, amid the toils of every-day labor, at the mid-day meal in most families, in the entertainment of the clergy, and in the payment of the most trivial forfeits, intoxicating drinks were freely used. Distilled spirits, the most fiery and destructive of all, were almost as common as bread, and they were generally regarded as nutritious and indispensable.

The following extract from the old *American Encyclopedia*, published in 1830, and written by a gentleman familiar with those times, will forcibly set forth the drinking usages of that period:—

"A fashion at the South was to take a glass of whisky, flavored with mint, soon after waking; and so conducive to health was this nostrum esteemed, that no sex, and scarcely any age, was deemed exempt from its application. At eleven o'clock, while mixtures under various peculiar names—sling, toddy, flip, etc.—solicited the appetite at the bar of the common tippling shop, the offices of professional men and counting-rooms dismissed their occupants for a half-hour, to regale themselves at a neighbor's or a coffee house with punch, hot or cold, according to the season. . . . The dinner hour arrived, according to the different customs of the different districts of the country, whisky and water, curiously flavored with apples, or brandy and water, introduced the feast; whisky, or brandy and water, helped it through; and whisky, or brandy without water, secured its safe digestion, not again to be used in any more formal manner than for the relief of occasional thirst, or for the entertainment of a friend, until the last appeal should be made to them to secure a good night's sleep. . . .

"No doubt there were numbers that did not use ardent spirits; but it was not because they were not perpetually in their way. They were an established article of diet, almost as much as bread; and with many they were in much more frequent use. The friend who did not testify his welcome, and the employer who did not provide bountifully of them for his help, was held niggardly; and there was no special meeting, not even of the most formal or sacred kind, where it was considered indecorous, scarcely any place where it was not thought necessary, to produce them. The consequence was that what the great majority indulged in without scruple, large numbers indulge in without restraint."

It should not be overlooked that intemperance, even in its grossest forms, was not then confined, as it now is rapidly coming to be, to the lowest classes, to vile haunts and slums; but existed in the best circles, among the best statesmen, scholars, philosophers, the literati and the clergy, who furnished some of the worst and most conspicuous cases of hard drinking; and there was little moral sentiment against it.

A few specimen facts will help to reproduce those times. At a funeral in Londonderry, N. H., the following refreshments for the "singers" were provided, as per bill:—

To 5 qts. West India Rum,	$3 20
" 1 pt. Brandy,	40
" 1 gal. Cider,	20
" 16 "Pyes,"	2 00
" 100 "Fried Nuts,"	75
" 5 lbs. Cheese,	63
" 1 bunch Cigars,	13
Total,	$7 31

It was appropriately said:—

"We can easily understand how these singers might be lively and spiritual; but we suspect they were not very solemn."

Sometimes we hear it said that there were not as many drunkards at that time as now, and that the liquors then used did not produce such bad effects as the corrupted liquors of our time.

I have very accurate data, collected

about fifty-five years ago, showing that sots were numerous.

We should not forget that the liquors then drank were chiefly New England rum and whisky and cider brandy, containing from 40 to 55 per cent of alcohol; that many persons drank from a pint to a quart of these fiery liquors per day, and that the effects were most destructive.

I could specify times in which the sots, the absolute drunkards, were one in every forty inhabitants; others, one in thirty inhabitants; others, one in twenty inhabitants; and the standard of the degree of inebriation necessary to make a man a drunkard was not as high then as it now is. Judged by the present standard, the census of intemperance would have shown a much larger number of sots.

Even the Christian ministry was involved in these evil customs. Not to offer liquors to a pastor in his calls, was a gross breach of courtesy. "Ralph," said a mother to her son, one day, as she looked out of the front window, "the parson has come; he is alighting from his horse, and I have no 'spirits' to set before him. Run quickly to the neighbor's and get some, that I may give him before he leaves." As the clergy usually rode horseback, if they made many calls in an afternoon, it was necessary to consult prudence in order to get safely home, which was not always done.

Rev. Mr. T———, pastor at B———, Central Massachusetts, on his way home from Boston, became so badly intoxicated that he found it necessary to wait overnight at Northboro'. When he recovered, feeling a slight sense of improper conduct, he said to friend: "What would my people think if they knew the condition I have been in?" But he jocosely added: "I will preach a smart sermon next Sunday, and they'll think no more about it." This minister went around visiting the public schools when he was grossly under the influence of liquor.

In 1812 the Rev. Dr. Snell, of North Brookfield, preached a sermon on foreign missions, in which he exhorted his people to save money out of their liquor bill to give to the missionary cause, promising himself to save for that purpose $3.00 from his annual expenditure for alcoholic beverages. In the latter part of his life, Rev. Leonard Woods, D. D., said: "I remember when I could reckon up among my acquaintances forty ministers who were either drunkards, or grossly addicted to drinking." He mentioned an "ordination, at which he saw two aged ministers literally drunk, and a third indecently excited." Another gentleman, referring to the same period, said: "A great many deacons in New England died drunkards. I have a list of 123 intemperate deacons in Massachusetts, 43 of whom became sots."

Prof. Calvin E. Stowe, D. D., related the following:—

"In 1825 I entered the seminary at Andover as a theological student. When I first arrived at the Mansion House, which was kept for the exclusive benefit of the students and visitors at the seminary, the first thing I did was to step up to the bar and order a glass of brandy toddy, which Squire ———, a leading supporter of the seminary, mixed with his own hands, and gave me."

Thus had American society invested this evil with the most potent conventional sanctions. Probably in no other country had the vice of intemperance so completely interwoven itself into the entire net-work of social life. Those who withstood this evil were few; the fallen were a great multitude.

In consequence of this state of things, there was much poverty. The buildings, fences, farms, animals, and the furniture of the homes, with few exceptions, in the rural towns, all indicated poverty. Coventry, Conn., was an average town in the period from 1800 to 1820. The Rev. Geo. A. Calhoun, D. D., in his fortieth anniversary sermon, thus described it:—

"Only four floors in the town with carpets on them, but four houses painted white, and not more than ten four-wheeled vehicles. Even whitewash on the walls of the rooms was very seldom used. Nor was the difference in the times merely. Real poverty was the cause. Even in the condition in which they did live, there were few who had money at interest compared with those who were in debt and those whose farms were mortgaged. Property was constantly changing hands, by the foreclosure of mortgages and insolvency. But the expense of living then, as compared with now, was very small. What was the reason, then, for this depression in worldly circumstances? Their gains were consumed, and they were oppressed by the use of intoxicating drinks. At least one man in every score became a drunkard, and not a few women were addicted to habits of intemperance. Forty

years ago there was probably not one in five hundred who did not believe that the use of intoxicating drinks, as a beverage, was absolutely needful."

In the early part of my ministry, an aged parishioner in Woodstock, Conn., pointed out to me farm after farm, which, in the days of which we are speaking, were sold under mortgage, some of them several times, on account of indebtedness incurred by liquor.

These are typical facts, showing the condition in respect to alcoholic drinks early in this century.

EATING BETWEEN MEALS.

THERE comes a time in the household when the head thereof must decide the momentous question as to whether the children shall be allowed to eat between meals or not. The question can be decided; no matter how persistent a child may be, this can be settled, not simply be laid on the table. A woman who has even a very superficial knowledge of the working of the stomach can explain it to her child in such a way that it will make a strong impression upon his mind. To represent to an imaginative child that his stomach is like a man who goes to work upon your breakfast, when you have eaten it, with all his might, and who does not rest until he has ground all the food up, and given the good part to the blood, so feeding each portion of the body, not forgetting fingers and toes even, and who rejects all the bad, keeping you from sickness and pain, will awaken intense interest in the child's mind, and be a great aid to obedience. Put it before him, and ask him if it is not unkind and even cruel to give out another task before the first is finished, and a little time for rest has been given. It will help you greatly in enforcing upon his mind that he must not eat at irregular intervals. A child's digestive organs may be weak; he may need to eat more frequently than a grown person, but it should be invariably at some stated time. I called on a lady once whose little daughter of eight or nine years old, an extremely unhealthy looking child, with the dull eyes and muddy complexion that tell so plainly of indigestion, came into the room and whispered to her that she was hungry. "Go right to the cake-jar, love, and help yourself." As she turned away, and while still within hearing, her mother said: "She is such a delicate child—is never well, in fact—I can refuse her nothing." I thought —perhaps inhumanly—that it is a pity such a child should live to become a burden to herself and to those around her, or to perpetuate the false ideas, or the entire lack of ideas, exhibited in her training. This is a subject upon which I feel very strongly, for I have the best interests of childhood at heart; and the amount of ignorance displayed by those who have charge of children is something which partakes of the nature of a crime; for it is inexcusable. It is terrible to think that a woman who knows no more of the human body than she does of the composition of the sun, has it in her power to ruin the digestive organs of a whole family of children! I wish that public opinion would reach this state; that a woman who starts out with a healthy baby, and in a few years, as the result of her care, has a sickly, diseased child, should be regarded as an object of shame, and not be allowed to sit down in satisfied ignorance, and put her conclusions against those of men and women who have studied these subjects, and who are authorities upon them. There are many mothers who conscientiously use their reason in the management of their children, who avail themselves of all the helps within their reach, and who endeavor to understand and minister to the real needs of both body and mind; but a countless number are no more prepared to deal with the serious problem of how our children ought to be fed, than the little ones themselves.—*Emma W. Babcock, in Household Hints.*

Air.—Human life is chiefly sustained by the oxygen of the air and by food. Exclude either, and life will cease.

Breathing converts oxygen into carbonic acid gas ("choke damp").

Carbonic acid gas, if inhaled, is a deadly poison. Being heavy, it is found especially at the bottom of wells, in deep caverns, in basements, and in all occupied rooms near the floor (if the room is heated, however, some of it will ascend).

This gas, created by breathing the air, destroyed the lives of 123 persons in 11 hours, in the "Black Hole" of Calcutta, in the year 1756.

Forty out of every one hundred die of impure air; of this number it is fair to estimate that twenty die directly or indirectly from the influence of carbonic acid gas, as the result of overcrowding and badly ventilated rooms.—*Dr. F. Hamilton.*

TEMPERANCE AND MISCELLANY.

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

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

CHEERFULNESS TAUGHT BY REASON.

I THINK we are too ready with complaint
In this fair world of God's. Had we no hope,
Indeed, beyond the zenith and the slope
Of yon gray bank of sky, we might be faint
To muse upon eternity's constraint
Round our aspirant souls. But since the scope
Must widen early, is it well to droop
For a few days, consumed in loss and taint?
O pusillanimous heart, be comforted,
And, like a cheerful traveler, take the road,
Singing beside the hedge. What if the bread
Be bitter in thine inn, and thou unshod
To meet the flints? At least it may be said,
Because the way is *short*, I thank thee, God!

—*Mrs. E. B. Browning.*

SKETCHES OF TRAVEL, NO. 10.

MRS. E. E. KELLOGG.

THE COLISEUM.

ONE of the characteristics of the early Roman people was their inveterate love of amusement. Public games and festivals of some sort existed from the earliest times, and were carried on in the open air as a means of propitiating the gods, especially those who were supposed to grant or refuse health to their subjects, and productiveness to their fields and cattle. As time advanced, and the propensity for amusement increased, the number and variety of their diversions increased also, till in the time of Augustus Cæsar, sixty-six days of every year were devoted to public games. Under the later emperors, the duration and number of the festivals were so augmented that in the time of Marcus Aurelius they extended over 135 days, besides which there were many triumphal and even funeral games.

So madly devoted to a love of amusement did the people become, that the law courts were closed, and all ordinary business suspended, upon days when games were to be celebrated. Long before day-break the spectators would begin to gather, for the reason, probably, that although the provision made for their accommodation was by no means meagre, yet the throng of people who came to witness the sports was so vast that only those who were early on the spot were able to secure good positions. Women as well as men attended the festivals, and sat side by side watching the progress of the game. Chariot racing, theatrical performances, and gladiatorial contests were the leading diversions. For the purposes of the first-named game, an immense open circus was provided, lined on all sides with rows of seats to the capacity of two hundred thousand.

The gladiatorial contests probably had their origin in the custom of sacrificing slaves at the tombs of their masters; and either for the amusement of the spectators, or because they deemed it barbarous to sacrifice defenseless men, the slaves were allowed to fight with each other for their lives; and finally large numbers of slaves were kept by men of wealth, who trained them for this purpose, and furnished them to any one who wished to give an exhibition. At first this cruel sport was limited to funerals, and the gladiators fought in the Forum. But as the taste for this kind of amusement increased, and the number of combatants grew larger, the circus was used for the contests, and it became the custom for any who wished to gain political favor with the people to furnish them with an exhibition of gladiatorial strength and valor. The circus, however, was ill-adapted to this game, and for its convenience many ingenious plans were devised. In the time of Cæsar, two semicircular theatres of wood were erected so close together, that, if desired, after the theatrical performances were ended, one of the buildings could be turned entirely around on pivots, while the audience remained in their places, thus forming a circular tier of seats with an arena in the center well suited to gladiatorial contests.

When, however, the Republic was ended, and the Imperial government had collected the tributary wealth into one channel, an immense building, in which the most lavish magnificence was displayed, was erected solely for the accommodation of the gladiatorial shows. Its erection was begun in the year 72, by Vespasian, the first of the Flavian emperors, and hence was called the Flavian Amphitheatre, though in later times it is best known as the Coliseum, probably from the fact that a colossal statue of Nero adorned it during the eighth century. The emperor Titus continued the building of the coliseum after his return from the conquest of Jerusalem, and is said to have employed twelve thousand captive Jews in its erection. In magnitude it is surpassed by the pyramids alone. It is constructed of blocks of traventine, and consists of four stories, the first three being colonades, with pillars adorned with half columns of the Doric, Ionic, and Corinthian order, respectively. Its form on the exterior is an oval, with a circumference of more than sixteen hundred feet. Its height is said to have been 179 feet. The length of the arena is 278 feet, and its width 177 feet. Rising from the arena, one above another, in concentric tiers, intersected by steps and passages, were the seats for the spectators. A por-

tion of these are still distinguishable, the foremost of which, the *Podium*, was designed for the emperor and persons of honor, and was elaborately finished with costly marble and rarest gems. Above these rose three other classes of seats of various degrees of honor, the humbler spectators occupying the last division in a colonade. Near the top it is supposed that sailors of the imperial fleet were stationed for the purpose of keeping a sail cloth stretched over the whole amphitheatre, to exclude the glare of the hot Italian sun. The coliseum was intended to hold about 100,000 people, and the expense of its building, it is said, would have been sufficient to erect a capital city.

Under the arena are numerous chambers, supposed to have been the dens of the wild beasts which were collected in immense numbers from all parts of the empire to assist in the terrible slaughters that were often carried on there.

Although in ruins, not more than one-third of the structure still remaining, it is by far the most imposing monument in Rome, standing as it does a relic of Roman wealth and power, and a memorial of the faith and martyrdom of the early Christians, who, during the days of persecution, often bathed the arena with their life-blood.

The purpose for which the amphitheatre was erected was well indicated in its dedicatory celebration, at which five thousand wild beasts and ten thousand captives are said to have been slain.

The variety of the amusements which were here exhibited was not limited; sometimes wild beasts were urged to fight with each other for the entertainment of the populace; at other times men and beasts fought in fierce conflict; or man with man strove for life and freedom. One of the favorite contests was between a gladiator who had no defensive weapon, but was armed with a net in which to catch his opponent, and a long three-pronged fork with which to spear him should he become entangled in its meshes, and another fully armed and equipped. When a gladiator was disarmed or wounded, the spectators decided his fate; if they desired his release, they signified it by applause and the waving of handkerchiefs; but if they wished to grant him no favor, they pointed downward with the thumbs in silence. Sometimes the arena was flooded with water, and transferred into a lake, when imitations of naval battles were exhibited. At other times large trees, torn up by the roots, were securely fastened and fixed upright, their roots covered with earth, and the arena thus transformed into a forest for a hunting match.

The putting to death, either by the hand of an executioner or by exposure to hungry and savage beasts, of such persons as were under sentence of the law, was not an uncommon pastime. During the reign of Nero, the early Christians were often subjected to this cruelty; and after the conflagration of Rome, which that wicked king most unjustly attributed to the Christians, it became the custom of the people after any public misfortune to cry, "The Christians to the lions." To be a Christian in those days was to be a criminal.

For over three hundred years after the completion of the coliseum, the various emperors, according to their character, encouraged or endeavored to suppress these degrading amusements; but it was not till some time after the introduction of Christianity that they were abolished.

As we walked through the crumbling arches of the massive ruins, climbed the stairs, and looked down upon the arena where the blood of brave men and faithful martyrs has flowed so freely, we could but reiterate the sentiment of Dickens when he says the coliseum is the "most impressive, stately, solemn, grand, majestic, mournful sight conceivable, but, God be thanked, a *ruin*."

Several palaces of modern Rome have been built from material plundered from the coliseum. It owes its present preservation to Pope Benedict XIV., who forbade its further demolition, and consecrated it to the Passion of Christ, because of the martyrs who were sacrificed there.

AN OPEN LETTER TO GIRLS.

BY MARY MARTIN.

THE DIGNITY OF LABOR.

"Honor's won by gun and saber;
Honor's justly due to kings;
But the dignity of labor
Still the greatest honor brings."—*Schiller.*

"Happiness is a roadside flower
Growing on the highway of usefulness."
—*Tupper.*

My dear girls, there are many things having a direct bearing upon your future lives of which I have long desired to speak to you; and none are more worthy of our first consideration than the nobility and dignity of household labor.

It is a fact, patent to even a casual observer, that manual labor is coming to be recognized as decidedly ungenteel for ladies; and it is a pitiable fact that such ideas are even inculcated and fostered by some who claim the sacred badge of motherhood. "I had about as lief my daughters would go to the poor-house as to do housework," said one mother, and she had the satisfaction of seeing those daughters married to men they could not love, but who could furnish a better table and wardrobe than they had been accustomed to. "I have taught my sons that they must support their sister," said another mother; and the daughter sits supinely by, her dainty hands embedded in the floss or worsted from which is to be evolved, perchance a Punch and Judy, or a stork to adorn the mantel, sofa pillows,

or chair. These and many others are defrauded of their God-given rights.

I would not cast an aspersion upon the sacred name of mother. By the memory of one of earth's choicest and best, one who "labored nor fainted," whose patience and fortitude rose equal to the most trying emergencies; by the memory of a marble face serenely sweet in death's repose, a scattered household band, and a white tablet where the snow wreaths gather in a country churchyard,—by all these and many another am I constrained to repeat with reverence the holy name of "mother." Still I must say not all mothers are wise as regards the highest interests of the lives intrusted to their care; and such being the case, I call upon you, my sisters, to see that you have your rights. If your mother should insist that "such hands as yours are only fitted for handling laces," and that "your complexion will be ruined by standing over the cook stove," do you insist upon sharing the toil and triumph connected with neatly fashioning and repairing the garments for the family, the preparation of the daily meals, and the keeping of house and furniture in order.

I know the family of a millionaire whose only daughter was instructed in all the details of housekeeping, while the beautiful daughters of the family a few rods away, with not a spare dollar, studied and planned and resorted to subterfuge to evade the necessity of toil, and still secure a *genteel* appearance.

The young Rothschilds are all taught to work; every girl in Germany is expected to know how to cook, knit, sew, and do general housework. The Princess Royal sets a worthy example by skimming the milk in her dairy, and spending a portion of her time attending to the details of general housework. And what is true of Germany is equally true of a large proportion of European countries. It remains for American women, than whom none more need the benefits accruing from physical exercise, to look with aversion and contempt upon that which would add years to their own lives, and wisely directed, would render them a blessing to others. Queen Victoria has had the good sense to instruct her daughters that no position in life is exempt from the possibility of a reverse of fortune, and insisted that each of her daughters should secure an experience in practical housekeeping. The Princess Louise, it is said, often goes into her kitchen to prepare dishes for some suffering beneficiary with her own hands. Lucretia, the Roman matron, Madam de Stael, Florence Nightingale, and many others whose names are well-nigh immortalized, were as efficient in the kitchen as in the particular spheres which gave publicity to their names. Our own Martha Washington, Mrs. Hayes, and Mrs. Garfield, with many another worthy wife of our Presidents, stand as monuments of industry and good sense, an open rebuke to the would-be fashionable young lady of to-day.

Let me say, my sisters, if God has given you health, you never need be dependent upon others for support. You may be an orphan, or you may be the eldest of a family as large as that of John Rogers, yet your life may be beautiful, useful, and independent. You need not sigh that the skill of Raphael, or the musical genius of Mozart, that you dream has slumbered only because of lack of opportunity for development, are not yours. Much as the world has been and may be benefited by the beautiful in sight and sound, one may live without rare paintings, statuary, or angelic strains, if need be, until the "dark river" is crossed, when all that is soul satisfying shall be invested with the glory of endless ownership. But here, in our preparatory school, the talent will always be in demand that enables us to sweep a room, make a bed, and prepare a meal in a neat, thorough, inviting manner. And you, my sisters, who think these common things so unromantic, and long for more æsthetic spheres, I would refer you, in addition to the examples already cited, to Lydia Sigourney, who, in a tiny, plain, vine-clad cottage, cooked, and swept, and washed, and ironed, and made her home a little Paradise to him who shared it with her, while performing the literary labor that has rendered her name a household word. I would recommend you, too, to read and learn from the lives of the three Mrs. Judsons, of Isabella Graham, and of Mary Lyon, the influence of whose life-work will be felt until time shall be merged into eternity. The latter, in addressing the young ladies of her graduating classes, did not advise them to seek honor nor ease; but said, "My dear girls, in choosing your fields of labor, go where nobody else is willing to go."

I once read a legend of the angel Gabriel, who was found one morning sweeping one of the lowest, filthiest streets, and

singing as he swept; upon being interrogated, he replied that he was simply doing his Father's will, and was equally happy whether his work was to be performed in the streets of heaven, or in those upon earth. And so, whether the path of duty for you lies in the organizing of a chaotic attic, excavating some obscure corner of the cellar, where careless hands have allowed disease germs to accumulate, helping the patient mother in her round of daily duties, or if it be your lot to perform the same outside the sacred precincts of home, if it be done thoroughly and "heartily, as unto the Lord," you will meet with not only human, but divine approval. Hurbert says, "The consciousness of duty performed gives us music at midnight."

THE PUZZLED CENSUS-TAKER.

BY JOHN G. SAXE.

"Got any boys?" the marshal said
To a lady from over the Rhine;
And the lady shook her flaxen head,
And civilly answered, "Nein!"

"Got any girls?" the marshal said
To the lady from over the Rhine;
And again the lady shook head,
And civilly answered, "Nein!"

"But some are dead?" the marshal said
To the lady from over the Rhine;
And again the lady shook her head,
And civilly answered, "Nein!"

"Husband, of course?" the marshal said
To the lady from over the Rhine;
And again she shook her flaxen head,
And civilly answered, "Nein!"

"What's that you say?" the marshal said
To the lady from over the Rhine;
And again she shook her flaxen head,
And civilly answered, "Nein!"

"Now what do you mean by shaking your head,
And always answering, 'Nein'?"
"Ich kann kein Englisch!" civilly said
The lady from over the Rhine.

CULTIVATING THE MORAL SENTIMENT.

In the religious nurture of children we should address ourselves, far more than we do, to the sentiment of beauty in their minds. We are eager to fill our homes with beautiful and costly objects, but are slow to fill our minds and theirs with beautiful thoughts. We are impatient to clothe ourselves and them in the first apparel, but are altogether too patient of repulsive habits and deforming dispositions. We want to see, and make them see, that beauty, taste, and elegance are great things; and that all meanness, ill-temper, fretfulness, falsehood, and wrong are utterly ugly. We need to see for ourselves, and help them to feel, the unspeakable attractiveness of moral beauty, the loveliness of truth, the charm of a sweet, forgiving spirit, and the splendor of self-sacrifice; that every bad habit is a sin against taste and beauty, as well as an offense against the Holy Ghost.—*Sel.*

THE FIRELESS STOVE.

The old Dutch church at Kinderhook, N. Y., where Martin Van Buren attended service when a boy, was once the scene of a fierce conflict. The wall, ceilings, and floor of the edifice were bare. Foot-stoves kept the congregation in winter from freezing, but not from shivering. At last those who saw no connection between true religion and a cold church proposed to buy a stove to warm the meeting-house. Immediately the parish was divided into two hostile factions,—the stove party and the anti-stove party. A writer in the *Christian at Work* tells the result:—

The ladies, vain of the foot-stoves, or warming-pans, which their negro servants were accustomed to carry into their pews every Sunday morning, raised their voices with the anti-stove cabal. But the stove party carried the day, and the stove was purchased, borne triumphantly to the church by the victorious burghers, and set upon a platform in the center aisle.

In the midst of the service on the following Sunday morning, a great commotion was caused by the fainting of two spinsters, overcome by the heat and the closeness of the air. The ladies were at once carried out lying very limp in the arms of two stalwart deacons, and smelling-salts were applied.

"Shut off the heat or we'll faint," said a timid voice.

"Oh, dear, I'm suffocating!" echoed Lucy Holland.

"Oh, oh! we'll roast!" sighed Samantha Best.

A gallant young beau sprang up with a firm step on the platform, and screening his face from the heat with his hand, made a movement to close the draught. But was it a mistake or a horrid joke?

There was no fire in the stove!

—Jealousy dislikes the world to know it.

A HUMOROUS CURE FOR INTEMPERANCE.

THE father of the late earl of Pembroke had many good qualities, but always persisted inflexibly in his own opinion, which, as well as his conduct, was often very singular. His lordship thought of an ingenious expedient to prevent the remonstrances and expostulations of those about him, and this was to feign himself deaf; and thus under pretense of hearing very imperfectly, he could always form his own answers, not by what was said to him, but by what he desired to have said.

Among other servants was one who had lived with him from a child, and served him with great fidelity in several capacities, till at length he became coachman. This man by degrees got a habit of drinking, for which his lady often desired he might be dismissed. My lord always answered, "Yes, indeed, John is an excellent servant." "I say," replied the lady, "that he is continually drunk, and therefore desire he may be turned off." "Ay," said his lordship, "he has lived with me from a child, and, as you say, a trifle of wages should not part us."

However, one evening, as John was driving from Kensington, he overturned his lady in Hide Park. Though not much hurt, when she came home she began to rattle the Earl.

"Here," says she, "is that John, so drunk that he can scarcely stand; he has overturned the coach, and if he is not discharged, he will one day break our necks." "Ay," says my lord, "is poor John sick? Alas, I am sorry for him." "I am complaining," says my lady, "that he is drunk, and has overturned me." "Ay," replied my lord, "to be sure he has behaved very well, and shall have proper advice."

My lady, finding it useless to remonstrate, went away in a passion; and the Earl, having ordered John into his presence, addressed him very coolly in these terms: "John, you know that I have a regard for you, and as long as you behave well, you shall always be taken care of in my family. My lady tells me you are taken ill, and, indeed, I see that you can hardly stand; go to bed, and I will take care that you have proper advice."

John, being thus dismissed, was carried to bed, where, by his lordship's order, a large blister was put upon his head, another between his shoulders, and sixteen ounces of blood taken from his arm. John found himself next morning in a woeful condition, and was soon acquainted with the whole process and the reasons on which it was made. He had no remedy but to submit; for he would rather have endured ten blisters than lose his place. His lordship sent very formally twice a day to know how he did, and frequently congratulated his lady upon John's recovery, whom he directed to be fed only with water-gruel, and to have no company but an old woman who acted as his nurse.

In about a week, John having constantly sent word that he was well, his lordship thought fit to understand the messenger, and said he was extremely glad to hear the fever had quite left him, and desired to see him. When John came in, "Well, John," said his lordship, "I hope this bout is over." "Ah, my lord," says John, "I humbly ask your lordship's pardon, and I promise never to commit the same fault again." "Ay, ay," replied my lord, "you say right; nobody can prevent sickness, and if you should be ill again, John, I shall see it, though perhaps you would not complain; and I promise you that you shall always have the same advice and the same attendance that you have now." "Thank your lordship," says John, "I hope there will be no need." "So do I," says the Earl; "but as long as you perform your duty to me, John, I will do mine to you, never fear."

John then withdrew, and so dreaded the discipline he had undergone that he never was known to be drunk afterward.

Habit.—There was once a horse that used to pull around a sweep which lifted dirt from the depths of the earth. He was kept at this business for nearly twenty years, until he became old, blind, and too stiff in the joints to be of further use. So he was turned into a pasture, or left to crop the grass without any one to disturb him.

But the strange thing about the old horse was that every morning, after grazing awhile, he would start on a tramp, going round and round in a circle, just as he had been accustomed to do for so many years. He would keep it up for hours, and people often stopped to look and wonder what had got into the head of the venerable animal to make him walk around in such a solemn way, when there was no earthly need of it.

But it was the force of habit. And the boy who forms good or bad habits in his youth, will be led by them when he becomes old.—*Sel.*

Popular Science.

—Professor Palmeri announces the discovery in the lava of Vesuvius, of the substance giving the spectrum line of "helium," an element heretofore only recognized in the sun. Efforts will probably be made to isolate it.

Death by Electricity.—The first fatal accident is recorded in connection with the electric light. An employee of the Brush company in New York, while splicing a line wire, received through his body the full current, which was sufficient to furnish forty lights of two-thousand-candle power each. His death was almost instantaneous.

Shoe-Making by Electricity.—According to a scientific journal, the model shoe manufactory, exhibited at the Cincinnati Industrial Exposition, presented the first illustration of the application of electricity as a conveyer of power for driving the Goodyear sewing machines used in the manufacture of ladies' fine shoes. This is believed to be the first time that shoes have been bottomed by electricity.

RULES FOR THE ERECTION OF LIGHTNING CONDUCTORS.

THE almost numberless shams in lightning conductors, by which the public have been victimized during the last few years, have resulted in a general lack of faith respecting the value of lightning conductors as a means of protection. Scientific authorities have tested the matter so thoroughly, however, that there can be no doubt but that efficient protection from lightning is afforded by properly constructed conductors. The following rules for the erection of lightning conductors were prepared by a conference of experts held last year, and may be considered as reliable:—

1. *Material of Rod.*—Copper, weighing not less than 6 ounces per foot run, the electrical conductivity of which is not less than 90 per cent of that of pure copper, either in the form of rod, tape, or rope of stout wires, no individual wire being less than No. 12 B. W. G. (0.109 inch). Iron may be used, but should not weigh less than 2½ pounds per foot run.

2. *Joints.*—Every joint, besides being well cleaned and screwed, scarfed, or riveted, should be thoroughly soldered.

3. *Form of Points*—The point of the upper terminal of the conductor should not have a sharper angle than 90 degrees. A foot below the extreme point, a copper ring should be screwed and soldered on to the upper terminal, in which ring should be fitted three or four sharp copper points, each about 6 inches long. It is desirable that these points should be so platinized, gilded, or nickel plated as to resist oxidation.

4. *Number and Height of Upper Terminals.*—The number of conductors or upper terminals required will depend upon the size of the building, the material of which it is constructed, and the comparative height above ground of the several parts. No general rule can be given for this, except that it may be assumed that the space protected by a conductor is, as a rule, a cone, the radius of whose base is equal to the height of the conductor from the ground.

5. *Curvatures.*—The rod should not be bent abruptly around sharp corners. In no case should the length of a curve be more than half as long again as its chord. A hole should be drilled in string courses or other projecting masonry, when possible, to allow the rod to pass freely through it.

6. *Insulators.*—The conductor should not be kept from the building by glass or other insulators, but attached to it by fastenings of the same metal as the conductor itself is composed of.

7. *Fixing.*—Conductors should preferably be taken down the side of the building which is the most exposed to rain. They should be held firmly, but the hold-fasts should not be driven in so tightly as to pinch the conductor or prevent contraction and expansion due to changes of temperature.

8. *Other Metal Work.*—All metallic spouts, gutters, iron doors, and other masses of meta about the building, should be electrically connected with the conductor.

9. *Earth Connection.*—It is most desirable that, whenever possible, the lower extremity of the conductor should be buried in permanently damp soil. Hence proximity to rain-water pipes and to drains or other water is desirable. It is a very good plan to bifurcate the conductor close below the surface of the ground, and to adopt two of the following methods for securing the escape of the lightning into the earth: (1) A strip of copper tape may be led from the bottom of the rod to a gas or water main—not merely to a leaden pipe—if such exist near enough, and be soldered to it; (2) A tape may be soldered to a sheet of copper, 3 feet x 3 feet x $\frac{1}{16}$ inch thick, buried in permanently wet earth and surrounded by cinders or coke; (3) Many yards of copper tape may be laid in a trench filled with coke, having not less than 18 square feet of copper exposed.

10. *Protection from Theft, etc.*—In cases where there is any likelihood of the copper being stolen or injured, it should be protected by being inclosed in an iron gas-pipe reaching 10 feet, if there is room, above ground and some distance into the ground.

11. *Painting.*—Iron conductors, galvanized or not, should be painted. It is optional with copper ones.

12. *Inspection.*—When the conductor is finally fixed, it should, in all cases, be examined and tested by a qualified person, and this should be done in the case of new buildings after all work on them is finished.

GOOD HEALTH.

BATTLE CREEK, MICH., FEBRUARY, 1884.

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

A HYGIENIST ABROAD.

THE LAND OF THE MIDNIGHT SUN.

SOMETIME we shall try to tell our readers about Baden-Baden, the most famous bathing place in Europe, with its beautiful Trinkhalle, its magnificent Conversation-Haus, its grand Friedrichsbad, its hot springs, its "whey cure," its lovely promenades, charming avenues, enticing rambles, romantic old castles, beautiful scenery,—all set down in the midst of the great Black Forest, the scene of so many stories of thrilling adventure. We should like to tell you, too, of a somewhat sensational carriage-ride we took at night through this same Black Forest. But we must leave these topics for some future time, and take a little run up into Sweden, while waiting for the sailing of the great steamer which is to take us back to our native land. Leaving the balance of our party in Cologne to await our return, we took the cars at eleven P. M. Stockholm, by way of Hamburg. Morning found us in the great shipping port of Germany, and changing cars, we were soon on our way through Schleswig-Holstein. Reaching Kiel before noon, we went on board a small steamer, and after riding six or seven hours across an arm of the Black Sea, threading our way among charming islands, considerably sheltered from the sea, but not sufficiently to prevent our little ship from shifting in a side-wise fashion, producing an epidemic of sea-sickness among the passengers, we were glad to disembark at Korsor. Taking the train again, we reached Copenhagen shortly before midnight, where we found, to our chagrin, that we must wait twelve hours before taking the steamer again, to cross the Great Belt to Malmo.

We improved the time in running about the city, observing its customs, its busy market, its little fleets of fish-boats coming in with their morning "catch," its gaily-dressed flower girls, and its numerous shipping, which seemed to be scattered all over the town. Here is a long row of ships in the very center of the city. How they ever got here is a mystery. At any rate, there seems to be no place for them to get out, for there are stationary bridges on either side of them, coming close to the water. We were much puzzled for some time, but finally discovered that they were simply market-boats which never stir from their moorings from one end of the year to the other. There is a plank walk reaching from each to the shore, and people are going to and fro, purchasing fish, vegetables, and various other commodities, which they carry home on huge trays upon their heads.

Our guide wishes to show us something on the other side of the river, so we must cross a neighboring bridge. Just as the horses' feet are touching the first planks, the bridge suddenly begins to move upward. The driver stops his horses, and in less time than it takes to tell it, the bridge has split in two in the middle, and each half is standing up endwise on its respective shore. A little tug comes puffing along the river with a huge ship behind it, so we must either wait until the performance is over and the bridge has finished its antics, or drive to another bridge not far distant. Our driver adopts the latter plan, when, just as we reach this bridge, its middle begins to rise, and the same performance begins. We conclude to visit some other part of the city, and abandon the idea of crossing by one of these strange, tilting bridges.

Copenhagen is one of the most beautiful cities we have ever visited. It has none of the dilapidated appearance almost universally found in Central and Southern Europe. There is an air of thrift apparent everywhere, even in the hospitals, which are as neat and tidy as any we have ever seen. We found the surgeon in charge very courteous, and ready to give us all desired information respecting methods of treatment employed, etc. Among other things which interested us was a case of typhoid fever, which was being treated by means of a cold bath, in which the patient was placed for five minutes every two hours. We observed that little if any medicine was used in such cases, and that the bath was almost the sole reliance, together, of course, with good nursing.

At twelve o'clock we took the steamer again, and in two hours landed at Malmo, from which, at five o'clock, we took the cars again for Stockholm. A small fee to the guard secured for us a compartment all to ourself; so we made calculations on be-

ing comfortable. After riding for several hours, our road led us through a rolling country not very different from what we were accustomed to see in our Middle Western States, but the houses and the people and everything except the natural landscape, was so different as to afford constant material for interesting observations. Every now and then we passed a quaint old grist-mill, its mill-stones not turned either by water or by steam, but by wind-power, the tall building in which the grinding is carried on being surmounted by four great arms, each furnished with a sail, which, when driven by the wind, drive the machinery at a rapid rate. The mills in Sweden are nearly all constructed in this way.

By and by we grew weary with sight-seeing, and wondered why the sun did not set. It seemed as though it never would go down. We kept looking at our watch, which said eight o'clock, half past eight o'clock, and yet the King of Day was still above the horizon, shining as bright as ever. Just before nine o'clock, however, he reluctantly hid his face behind a hill, and twilight began, but not such twilight as we were accustomed to see in America, which lasts but a few moments, and ends in darkness.

In vain we watched for night to appear. At half past eleven o'clock we could read the finest print with ease. We watched until after midnight for the darkness, but becoming discouraged, as the sky was still as bright as ever, we laid down to rest. At two o'clock the bright daylight woke us up, and at 2.45 the sun shone out again above the hills. We had had the longest day and shortest night we had ever experienced; and began to appreciate the fact that we were in the land of the midnight sun, for, as many of you know, the sun does not set at all on the longest days of summer, in the extreme north of Sweden.

About eight o'clock in the morning we reached Stockholm, and soon found ourself at the Hotel Grand. After relieving ourself of the dust which had accumulated during our long journey, and getting breakfast, we started out in quest of the chief object of our visit, the Swedish Movement establishment, the most famous institution of Stockholm in the medical line. By the aid of a guide, we were soon on the right track, and by ten o'clock had found the proprietor of the largest mechanical movement establishment in the world. Dr. Zander is the inventor of a large number of ingenious machines for the purpose of administering both active and passive movements, which we took pleasure in examining, and seeing in use, and trying ourself. Through Dr. Zander, we were introduced to the central institution for the administration of manual movements, which is under the control of the Swedish Government.

A school for the instruction of persons in the administration of manual movements is held here during the winter, a course of two years being required for graduation. The school had closed just two weeks before we arrived, so we did not see the students, but we found that the President, Dr. Hartelius, was then stopping at Ramlösa, a watering-place on the sea shore, in the south of Sweden. We found, by consulting a map, that we might easily include this famous summer resort in our return journey, by going by a somewhat different route from that by which we came, and, as we were especially desirous of meeting the celebrated professor of Swedish Movements, for the purpose of increasing our knowledge of this improved method of treatment, we spent but a few days in Stockholm, improving to the best advantage, however, our short time, and acquiring as much information as possible respecting the manners and customs of the people, their habits of life etc., all of which, we have not space to speak of here, but shall tell our readers something in the future.

One of the features of Stockholm is its numerous bathing-houses, some of which are among the most extensive in the world. Each bath establishment has six complete bathing apartments,—first, second, and third class bath-rooms for men, and the same for women. A gentleman who acted as guide for us showed us through one of the largest bathing establishments, many parts of which we found interesting. One, particularly, was exceedingly novel and surprising—not to say shocking to our American ideas of propriety. As we entered the door of the bath apartment, a pleasant-faced old lady, in the dress of a bath-woman, met us with a smile, and kindly introduced us to the various departments. At first we supposed that she was stationed at the door simply to take the tickets, but we soon discovered our mistake when she led us directly into a large Russian bath, where half a dozen men were lying on shelves, arranged against the wall, while an ancient dame was administering a cold shower-bath to a fat old man, with mutton-chop whiskers, who stood in the corner, shivering under the cold torrent poured upon him. At this moment the fact dawned upon us that in Sweden the bath-men are all *women*, usually nice, quiet old ladies, with grey hair and spectacles. The most common form of bath is the warm tub bath, or full bath, in which the bather receives a thorough shampooing. Then the old lady gives him a shower bath, rubs him down, drys him with a sheet, and packs him away in blankets to get warm. We received an invitation to enjoy the luxury of a Swedish bath, but politely declined. From the excellent opportunity we had of witnessing the administration of the Swedish bath, however, we acquired a very high opinion of the skill of Swedish bath attendants. In the administration of massage, we have seldom seen so excellent proficiency and thorough attention to the com-

fort and convenience of the persons under their charge was simply perfect.

We could learn no reason for the employment of women exclusively in this capacity, but were informed that it had been the custom from time immemorial, though we believe it is not practiced in any country except Sweden. Perhaps it may be considered as a sort of compensation for the male bathmen employed in the female department of some of the bath institutions we visited in Germany.

Swedish bread is a curiosity. You do not see the huge, round loaves so common in America, nor long, slender sticks, with which the visitor in Paris and Vienna soon becomes familiar. The common bread of the country is made in loaves—or rather plates or discs—not more than a quarter of an inch thick and eight or ten inches in diameter. A large round hole, a little more than an inch in diameter, penetrates each disc a little one side of the center, by means of which a lot of them may be strung together on a string, and suspended from the ceiling, in which condition they are kept indefinitely. The common bread is made of rye meal with perhaps a little wheat meal added, together with a considerable quantity of caraway or anise seed. One of these flat cakes is sold for twelve *ore*, which is equivalent to between three and four cents, American money. A somewhat finer quality of bread, made in still thinner cakes with a large proportion of wheat flour, sells at fourteen *ore* per cake, while a wafer loaf of graham bread is sold at sixteen *ore*. The bread is fermented and rather slightly baked, and is so hard that considerable exercise is required in eating it. From the amount of rough usage safely encountered by the few loaves which we brought away with us as curiosities, we should judge that one of them might be used some time in a game of quoits, without suffering any material damage. We managed to make one meal of this curious bread, by supplementing it with a bottle of milk, but should not like to be obliged to depend upon it as a staple article of diet for subsistence. Besides being dry, hard, and tough, it is almost tasteless, or would be but for the great quantity of flavoring seed it contains, which, however, rendered it none the more agreeable to our palate.

Soothed to Death.—A Brooklyn mother gave her infant a teaspoonful of soothing syrup, and in the morning found it dead, though it was not seriously ill; and yet the advertisers continue to extol the virtues of this mischievous nostrum as a perfectly harmless remedy. Every mother ought to know that it is a compound of opium and other narcotics, and that of all drugs, opium is one of the most dangerous to infants.

ERRORS ABOUT SALT.

A CORRESPONDENT sends us the following extract relating to the use of salt as an article of food, desiring our opinion concerning the same:—

"Among the follies of the day, some indiscreet persons are objecting to the use of salt, and propose to do without it. Nothing could be more absurd. Common salt is the most widely-distributed substance in the body; it exists in every fluid and in every solid; and not only is it everywhere present, but in almost every part it constitutes the largest portion of the ash when any tissue is burned. In particular, it is a constant constituent of the blood, and it maintains in it a proportion that is almost wholly independent of the quantity that is consumed with the food. The blood will take up so much and no more, however much we may take with our food; and, on the other hand, if none be given, the blood parts with its natural quantity slowly and unwillingly. Under ordinary circumstances a healthy man loses daily about twelve grains by one channel or the other, and if he is to maintain his health, that quantity must be introduced. Common salt is of immense importance in the processes ministering to the nutrition of the body; for not only is it the chief salt in the gastric juice, and essential for the formation of bile, and may hence be reasonably regarded as of high value in digestion, but it is an important agent in promoting the processes of diffusion, and therefore of absorption. Direct experiment has shown that it promotes the decomposition of albumen in the body, acting, probably, by increasing the activity of the transmission of fluids from cell to cell. Nothing can demonstrate its value better than the fact that if albumen without salt is introduced into the intestines of an animal, no portion of it is absorbed, while it all quickly disappears if salt be added. If any further evidence were required, it would be found in the powerful instinct which impels animals to obtain salt. Buffaloes will travel for miles to

reach a 'salt-lick;' and the value of salt in improving the nutrition and the aspect of horses and cattle is well known to every farmer. The popular notion that the use of salt prevents the development of worms in the intestines has a foundation in fact, for salt is fatal to the small thread-worms, and prevents their reproduction by improving the general tone and the character of the secretions of the alimentary canal. The conclusion, therefore, is obvious, that salt, being wholesome and indeed necessary, should be taken in moderate quantities, and that abstention from it is likely to be injurious."

The above extract is a curious tissue of erroneous and exaggerated statements. Almost every sentence contains a statement which cannot be substantiated by scientific facts. We will notice the most important of these misstatements.

Error No. 1.—Common salt is not more widely distributed in the body than many other salts, and certainly no more widely than water and most of the various soluble elements found in the body. Its wide distribution is wholly due to its great solubility, and not to its wide usefulness. In a smoker's tissues aconite will be found as widely distributed as is salt in the tissues of a salt-eater.

Error No. 2.—It does not constitute any considerable portion of the ash when any tissue is burned. It is a fact noted by every physiologist that chloride of sodium is found in the solid tissues of the body only in very minute quantities. Even the bones, the most solid structures of the body, contain but a mere trace of salt. It is found almost wholly in the blood, through which it is in transit to the skin, kidneys, and other excretory organs for elimination.

Error No. 3.—The blood will take up a larger or smaller amount of salt according to the amount taken in the food, just as it will take up any other soluble substance. If it be true that the blood parts with its necessary amount of salt very slowly, or not at all, and maintains the proper proportion independent of the amount taken, it is very clear that the constant use of salt is unnecessary, and that it is simply imposing the extra labor of elimination upon the emunctories.

Error No. 4.—Salt is not necessary to the absorption of albumen or any other constituent of food. We have maintained health for years without it, and have known others to do so. It is undoubtedly a stimulant, and may stimulate the process of absorption, but is not necessary to its proper performance.

Error No. 5.—Only a very few of the numerous classes of animals are fond of salt; and in some parts of the world even these are known to live without it, and thrive as well as those which eat it. This is the case in South Africa.

Error No. 6.—Cattle which have never eaten salt do not suffer for the want of it.

Error No. 7.—Salt is a good remedy for worms. It destroys small animal life, and prevents fermentation. Keeping the bowels free and regular, and taking proper food, will prevent the occurrence of these parasites.

We seldom advise the total disuse of salt, as it involves so many difficulties that few people have the courage to make the effort necessary. We do, however, insist that the article shall be used in very small quantities, and only on such articles as are deemed unpalatable without it, as certain vegetables. The scientific evidence on the subject is indisputable, that the use of salt as an article of food is a habit not based upon any physiological demand on the part of the system.

—One of the scientific attractions of Berlin is an exhibition by Prof. Koch of all the various apparatus connected with the study of Germs, together with preserved specimens showing the ravages of the tubercle bacillus, the microscopic cause of glanders, and other similar germs.

HARD-WOOD FLOORS VS. CARPETS.

SANITARIANS have long condemned carpets as unhealthful for reasons so obvious that they hardly require mention. Any person who has ever taken up a carpet, or been present at the operation, knows that underneath the beautiful patterns is hidden an accumulation of most miscellaneous dirt, which has sifted through the meshes of the fabric, and which is stirred up at every sweeping, and sends into the air clouds of germ-laden dust whenever the little folks indulge in a playful romp. Carpets ought to be discarded. Instead, have hard-wood floors, well waxed, and partially covered with large rugs which can often be taken up and thoroughly cleansed, by beating or otherwise, as may be required.

The only serious objection to this plan which we have ever met, is the difficulty of keeping a hard-wood floor in good condition. In a quite extensive tour through continental Europe, we never once saw a carpeted room. Hard-wood floors are universal, and they always look well, and seem to require very little care. Since returning home, we have experimented somewhat, and with very satisfactory results, with the following preparation, which we found in common use in Europe: —

Spirits Turpentine,	2 lbs.
Yellow Wax,	13 oz.
White Soap,	3¼ oz.

Put in a tin vessel, and set in a kettle of boiling water, keeping it over the fire till the wax is melted. Then apply to the floor with a flannel cloth, and after two hours rub with a heavy bristle brush. A brush we brought from Germany for this purpose weighs fifty pounds.

These directions should be followed closely, as there is danger of explosion.

The following remarks on the care of hard-wood floors we quote from *The Decorator and Finisher*:—

"The finish and care of hard-wood or parquet floors has been, and is now, a source of great trouble and annoyance to housekeepers, except in cases where the owners have taken the trouble themselves to look the matter up, or have instructed their architects to be particular about that item. It is too bad that where beautiful floors have been laid, in so many cases they have been left to be finished by persons who have not troubled themselves with finding out the best method of finishing. The usual way such persons do is to treat them with shellac or varnish which is all wrong, as a moment's thought will convince any one that a surface that is constantly walked over needs something different from the coating of gum that is left on the surface after the spirit used in dissolving the shellac or varnish is evaporated.

"This coating becomes, then, brittle, and is ground up into minute particles by the nails in the boots, and swept away, leaving the wood bare right where it is most exposed to view. As a matter of course, the beauty of the floor is soon gone, and instead of being an attractive part of the furnishing, the sanitary consideration very often is about all that keeps one from nailing a carpet over the whole floor. Others use linseed oil, and everybody knows that an oil finish is one of the best methods of finishing wood; but the objection to that method is that each time the oil is applied it darkens the wood, and in a short time the different kinds of wood are of the same color. Now the question arises, Which is the true and only way of finishing floors properly? and the answer is, By the use of wax.

"The writer has tried many things and found this wax to be the most satisfactory in its results. It is so simple that when once the floor has been properly filled and finished with it, any servant can renew and keep the floors fresh and bright as long as the wood lasts, and it does not materially change the color; the wood always retains its beauty. An application about once a year is all that is necessary, if the floors are rubbed over, when a little

dull, with a weighted brush or cloth, unless there is more than an ordinary amount of wear upon the floor. In repolishing old floors that have been in use for a length of time and become dull looking, it is only necessary after they have been cleaned to rub on a thin coat of the hard wax finish with the brush or cloth, as stated before. If the floors have been varnished, and the varnish is worn off in places, as mentioned above, the best way is to have the varnish scraped off, and then a thin coat of the hard wax should be applied and treated as the new wood after it is filled. But if it is inconvenient to have the floor scraped, or the expense too much, the main object being to restore the color in those places which are worn and defaced, the following mixture is recommended: One part linseed oil, one part liquid drier, and two parts turpentine. A cloth should be dampened with this, and applied to the worn and defaced places, which will have the desired effect. After being wiped off clean, it ought to dry twenty-four hours, and then be polished with the hard wax finish. It is very important never to use the wax over oil that is not thoroughly dry, as the floor would invariably be sticky. Finally, it would be well to mention that hard-wood or parquet floors should never be washed with soap and water, as it raises the grain and discolors the wood.

"After the floors have been properly filled and finished with the hard wax, dirt will not get into the pores, but stays on the surface, and consequently can be removed with a brush or cloth; if necessary, dampen the cloth with a little turpentine. This will take off any stain from the finish."

Communication of Consumption.—A German medical journal records the death of two children from tuberculosis, the disease being contracted from their mother, who was suffering with the disease, and also subsequently died of it. In feeding the infants, the mother usually chewed the food herself, and then gave it to them in a spoon. By this disgusting procedure she communicated to them the germs of the disease which were communicated to her own mouth by the germ-laden matter she was expectorating. In the case of the children, the disease made its first appearance in the mouth.

PIE-PLANT AN UNWHOLESOME FOOD.

It has long been known that pie-plant, or rhubarb, contains in its stalks and roots, particularly in the former, a considerable amount of oxalic acid. According to a recent analysis made by B. W. Damon, Ph. C., as reported in the *Physician and Surgeon*, the fresh stalks of rhubarb contain 0.19, or nearly one-fifth per cent of free and combined oxalic acid.

A year or two ago we undertook some experiments at the Sanitarium for the purpose of determining the effect of this vegetable upon the system when used as food. As the article was used upon the tables of the Sanitarium two or three times a week, we first directed that it should not be used for a week, then made careful examination of the urine of some thirty patients. Crystals of oxalate of lime, the form in which the acid is usually found when present in the urine, were found in a few specimens only. We then allowed the use of rhubarb in the form of sauce for one meal, and made another examination of the urine of those cases in which the oxalate had not been observed in the previous examination. Oxalate of lime crystals were found in abundance in almost every case.

This experiment proves that the oxalic acid found in pie-plant is a substance which cannot be used as food, and must be eliminated. It is also well known that calculi are sometimes formed from oxalate of lime crystals in the bladder, and that the presence of this abnormal element in the urine is often associated with grave disordors of the general system. These facts seem to us to be sufficient to condemn the use of the article as food. Dur-

ing the coming season we shall make still further investigations of this subject, and at some future time report the result.

Germs in Brick Walls.—The following paragraphs from the *San Francisco Chronicle* contain some very patent technical errors but furnish facts for sober thought nevertheless :—

"Having occasion to examine a brick that was taken from an old ruined and forsaken building which was being torn down, I was somewhat startled, upon adjusting a microscope upon a fragment, to see each pore of the brick inhabited by a peculiar rod-like animalcule of the genus *bacilli*. These insects cannot be seen except by aid of the microscope, even when they live in the human system and prey upon our vitality; neither are they visible in the soil or substances in which they live and hive, except through a powerful glass.

"Their motions, when they were agitated by blows, were as the links of a chain, reminding one of a system of joints to be extended and contracted. They were semi-transparent, with a light, scintillating column nearly two-thirds their length, extending from near their heads to their pointed tails, probably their spinal column. As this brick was from the foundation, and being underground and next to the street sidewalk, it illustrates forcibly the fact that, however hard burned and well made, porous substances should not be put underground for foundations or sewers. Solid rock or concrete or terra cotta are the only proper building materials below the level of the sidewalk.

"If we wish a healthful city, we must have healthful homes, healthful business houses, and healthful apartments. It has been said that the fetid breath of any person disseminates the floating germs of the disease that caused that foul breath; and if so of a person, the same will be true of any porous building material where the dampness of any soil or subsoil has sufficient moisture to generate the germs, and there is putrescent matter floating and dropping about continually to keep the germs in active principle. Buildings should have stone foundations where exposed to any possible seepage from any drainage or from sewers.—*W. W. Goodrich.*

A Sensible Suggestion.—Every privy vault or cesspool is a reservoir of filth which gradually leaches through the porous walls of the containing cavity, and contaminates a circle of earth many yards or even rods in diameter, and of various depths, according to the nature of the soil. Every well within this contaminated area is liable to become a source of disease and death. Privy vaults and cesspools are not to be recommended; but if they must be tolerated, the attendant danger may be greatly lessened by rendering them waterproof. Ordinary brick or stone and mortar are not sufficient for that purpose; but by simply coating over the inside of the vault with asphaltum or tar laid on hot, an ordinary stone or brick wall may be made impervious; or, as suggested by the *Sanitarian*, the inside course of brick in the wall of a vault may be laid in hot tar or asphaltum.

—Several years ago the law-makers of England issued an edict prohibiting vivisection, though against the protests of many eminent medical men, who considered this a necessary means of investigating the cause of disease in human beings, and the means by which human maladies may be cured. Singularly enough, however, the inhuman sport of shooting trapped pigeons has continued unmolested until a short time ago, when a law was made prohibiting this cruel diversion. We fear that many noble English lords will find hard work to occupy their time, now that their favorite sport is gone.

—The schools in Girardville, Pa., are closed on account of the general prevalence of small-pox.

DOMESTIC MEDICINE.

Best Artificial Food for Infants.—The great amount of study and experimentation on the preparation of food for infants when reared by hand, has produced very diverse results, and a long list of patented foods, which resemble each other chiefly in their practical worthlessness. The experience of the best physicians has uniformly been that cow's milk is the best of all substitutes for mother's milk, but its composition differs in some particulars from mother's milk to such a degree that some modification is necessary to render it acceptable to the feeble stomach of the infant. The chief points of difference between cow's milk and mother's milk are the following :—

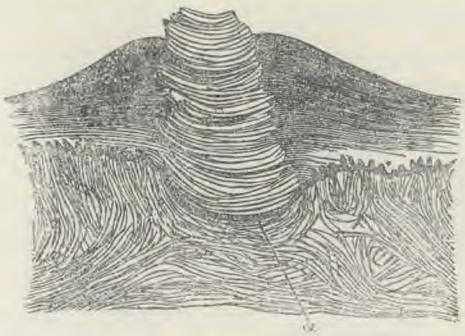
1. Cow's milk contains nearly three times as much caseine as mother's milk, but only two-thirds as much fat and three-fourths as much sugar ; 2. Cow's milk is usually slightly acid, while mother's milk is alkaline ; 3. The caseine of cow's milk forms large, hard curds, while that of mother's milk forms fine and soft curds.

These differences are important, and are the chief causes of the frequent disagreement of cow's milk with infants who are deprived of their natural food. Dr. Meigs, of Philadelphia, suggests a method of making an artificial food for infants, which will be free from objectionable features, and which he has found by an extended experience to be best suited to the wants of the infant. Dissolve in one-half pint of water one ounce of sugar of milk. Shake small pieces of quick-lime in a bottle with water, filter carefully and put in a bottle ready for use. When it is desired to feed the child, make the following mixture : Two tablespoonfuls of cream, one of milk, two of lime-water, and three of sugar-water. This is the proper quantity for an infant under six weeks. As the child advances in age, increase the quantity of food, preserving the same proportions. The milk-sugar can be obtained at any drug store, and for convenience may be put up in ounce packages. If the bottle of sugar-water is kept in a cool place, a larger quantity may be made at a time, say a pint. Before filling the bottle with a new solution, it should be thoroughly scalded, and care should always be exercised that it does not become sour. The milk used should be that of ordinary cows, as fresh as possible, and the cream should be of that consistency generally used for tea.

Moist Tetter, or Salt-Rheum.—This disease is essentially catarrh of the skin. Its characteristics are too well known to require description. It is a scaly disease of the skin, usually attended by intense and persistent itching. The itching is generally most thoroughly relieved by hot bathing of the parts. If the hands or feet alone are affected, they may be soaked in water as hot as can be borne, several times a day, for ten or fifteen minutes, and on removal, a little olive-oil or cocoa-nut-oil should be applied, so as to protect the surface from the air. Sponging the parts with water in which bi-carbonate of soda has been dissolved in the proportion of one large teaspoonful to the pint of water, is a good means of affording relief. In advanced cases in which the skin has become dry and thickened, with a tendency to crack, the use of an unguent of equal parts of zinc ointment and tar ointment is probably the most effective application which can be made. This preparation is much used in the skin hospitals of New York City and by specialists.

Bleeding Piles.—Piles, or hemorrhoids, is a disease in which the veins of the rectum, through obstruction of the portal circulation, have become varicose. The tumors or hard bunches which protrude from the rectum are dilated veins, the distended walls of which frequently become so thin as to rupture, thus causing hemorrhage. This may vary in degree from a small streak of blood upon the passage to so great a quantity as to endanger the patient's life. A cure consists in removing the cause, which may be a congested liver or habitual constipation of the bowels, and in most cases removal of the hemorrhoidal tumors by some one of the various approved methods is necessary. Sufferers from this disease will find great mitigation from their inconveniences by the adoption of a few simple measures of treatment which, though not curative, sometimes afford so great a measure of relief as to render the patient unwilling to submit to any severer methods for the purpose of effecting a radical cure. When the movement of the bowels is accompanied by very great pain, the patient will experience great relief by sitting over a vessel filled with very hot water, the steam arising from it causing

the irritated parts to become relaxed. When there is much bleeding, the use of a decoction of hamemelis, or witch hazel, made by adding two ounces of the fluid extract to one pint of water, is beneficial. One-half pint of this decoction should be used by enema after each movement of the bowels and at night just before retiring.



How to Cure Warts.—The following is copied from the "Home Hand-Book":—

Warts are due to excessive growth of the papillæ of the skin. (See cut.) They occur most frequently upon the hands of young persons. They are occasionally seen upon the face. The idea that warts are contagious has little foundation. Warts of the face are liable to degenerate into cancers.

Treatment.—After thoroughly oiling the skin about the wart, touch it with the end of a stick dipped in nitric acid. Acetic acid may also be used for the same purpose. The application should be repeated every few days until the wart is destroyed. Warts sometimes disappear very suddenly, which has given rise to the idea that they may be driven off by various maneuvers supposed to possess the power of dispersing them in a magical manner. It is possible that in these cases the imagination may be instrumental in effecting a cure.

Granular Sore Eyelids.—This very common affection is many times the outgrowth of a scrofulous habit of the system, but is not infrequently the result of repeated inflammations of the eyes. It sometimes results from a single attack of granular conjunctivitis. It ought to be known that the disease is sometimes contagious. It is often communicated through the medium of a common towel in families and boarding-schools. It cannot be contracted, as many people suppose, by simply looking at a person suffering with sore eyes.

One of the most efficient remedies is hot water spray applied locally, or laving the eye with hot water. The temperature should be as hot as can be borne without discomfort, the application being continued ten or fifteen minutes, and should be made twice a day. We have cured, by this treatment alone, some very obstinate cases of many years' standing, which had resisted many other methods of treatment.

How to Take a Wet-Sheet Pack.—Two or three comfortables or thick blankets, one woolen blanket, and a large linen or cotton sheet, are the articles necessary. It is important to be certain that the sheet is sufficiently large to extend twice around the patient's body. More blankets are required in cool weather and by weak patients. Spread upon a bed or straight lounge the comfortables, one by one, making them even at the top. Over them, spread the woolen blanket, allowing its upper edge to fall an inch or two below that of the last comfortable. Wet the sheet in water of the proper temperature, having gathered the ends so that it can be quickly spread out. Wring so that it will not drip much, place its upper end even with the woolen blanket, and spread it out on each side of the middle sufficiently to allow the patient to lie down upon his back, which he should quickly do, letting his ears come just above the upper border of the sheet, and extending his limbs near together. Wrap the patient carefully first with the sheet and afterward with the blanket, taking care to exclude air. After the bath give the patient a cool or tepid sponge bath or a wet sheet rub.

For a hot pack a flannel blanket should be used wrung from water as hot as can be readily borne.

Nettle Rash, or Urticaria.—This is a nervous affection of the skin in which blotches resembling those of the nettle-sting appear upon the surface, accompanied by itching and burning sensations. Disturbance of digestion is the usual cause. For immediate relief, bathe the parts with a solution of soda or saleratus, a teaspoonful to the pint of hot water. Simple sponging with hot water, or hot salt and water, a tablespoonful to the quart, is in some cases still more effective. The exciting cause must be removed to effect a permanent cure.

—Prof. Winckel recommends the prolonged hot full bath as the best means of preserving the lives of very weakly infants. The hot-air bath has been successfully used for the same purpose. The proper temperature is 100°.

Talks with Correspondents.

Vaseline.—H. C. F., of Minn., asks the following question :—

Is vaseline, made by the Chesebrough Manufacturing Co., N. Y., what they claim,—good for oil baths, and an article you would recommend instead of olive or cocoa-nut oil ?

Ans. Vaseline is useful for medical purposes, though we cannot say that the claims made for it by the manufacturers are not somewhat overdrawn. We have used it in the administration of oil baths, but much prefer olive or cocoa-nut oil. It is, however, the best of any fatty material with which we are acquainted for use in unguents.

Food for Babies.—F. M. B. B. inquired some time ago for a description of the best prepared nourishment for infants prior to their ability to digest ordinary foods. The reply to this question will be found in the department of Domestic Medicine, of this number.

Lumbago.—A New York correspondent who has suffered for some years with a pain in the back, which the doctors say "will have to have time to effect a cure," but have failed to cure, desires a prescription. We would recommend the following :—

Hot fomentations to the parts, with rest in bed for a few days. The fomentation should be applied for one-half hour as hot as can be borne, and two or three times a day. A thick roll of cotton batten, covered with oiled silk or muslin, should be applied over the affected parts in the intervals between the fomentations, so as to prevent taking cold, and to continue the effect of the fomentations from one application to another. The patient should take little or no animal food, and a liberal supply of fruits, grains, and milk.

How to Construct a Sun Bath.—All that is required is a room with a long window in the roof. It is preferable that the window should slope toward the south, especially at this season of the year, when the sun's rays strike the earth quite obliquely, even at noon. Means should be provided for properly heating and ventilating the room, as this is quite as essential in the winter as in the summer. The patient's head should be protected when the sun's rays are very intense. It is an excellent bath for a disease accompanied by impaired nutrition.

Hot Drinks for Consumptives.—The same correspondent inquires, "Don't you think hot drinks would be injurious to consumptives, especially to those suffering from bleeding at the lungs, even though it were hot milk and water ?"

Ans. We have never seen ill effects from the use of either hot milk or water, although we have employed both very freely in such cases.

Blood Blister.—H. E. inquires, "Can blood settled under the skin, of several years' standing, be removed without injury to the skin or nerves of the face ?"

Ans. It is probable that in the case referred to, there is something more than the simple effusion of blood under the skin, probably distended blood-vessels, or a stain produced by a deposit of blood pigma. If it is nothing more than an effusion of blood, as is stated by our correspondent, its treatment is very simple; simply pierce the skin with a sharp instrument and remove the blood by pressure. Red color in the skin, produced by distended blood-vessels, requires the performance of a surgical operation, or the use of electrolysis.

A cure can usually be effected by proper treatment.

Dyspepsia, Emaciation, etc.—"A Canadian" describes his case as follows, asking advice :—

"Digestion, very bad; heart-burn ; sour stomach ; thin in flesh. No tonic or medicine does any good. What must I do to get built up ? How may I get used to being out of doors without taking cold ? Bowels constipated."

Ans. Eat two meals a day. Avoid vegetables, raw fruits, butter, tea, coffee, pastry, sugar, meat, salt-fish, and all articles hard of digestion. Let the diet consist of hot milk, dry toast, made of whole-wheat or graham flour, eggs cooked soft, a little rare broiled or scraped steak once a day. You should take two or three glasses of hot milk at each meal, and a liberal quantity of sweet cream. You would find our grenola or wheatena an excellent article of food. Would be especially benefited by the use of whole-wheat wafers and charcoal crackers. Take two or three glasses of hot water one hour before each meal and on going to bed at night.

On retiring wrap around the body a wide towel, about two yards in length, wet in cold water and wrung dry as possible. Cover this with three or four thicknesses of dry flannel. In the morning bathe the parts covered with the towel with tepid water, rub thoroughly, and dry with a coarse towel, then wrap around the body two thicknesses of dry flannel, to be worn through the day. Take a hot fomentation to the stomach and liver every other day, and hot and cold applications to the spine on the alternate days. Rub the body with coarse table salt and water three times a week. Take a thorough soap and water bath three times a week. Take an oil bath every day, using olive or cocoa-nut oil. The oil bath may be taken after any other bath. This course of treatment will render you less susceptible to cold, so that with ordinary care you will not be likely to take cold.

Cod-Liver Oil in Scrofula.—H. H., of D. T., inquires whether cod-liver oil is good as a blood purifier.

Ans. We have never yet seen any evidences that the blood could be purified by the use of cod-liver oil. The essential difference between cod-liver oil and other fats, is that cod livers contain a little more bile in addition to the ordinary animal fats. We are quite unable to understand how anybody could possibly be ben-

efited by the use of an article contaminated with cod-fish bile.

Quinine as a Remedy for Ague.—A patient inquires, "What do you think of quinine in cases of ague attended with fever?"

Ans. That quinine is not an antidote for malaria, though it will interrupt the malarial paroxysm, is a fact well known.

If the alternative lay between allowing the patient to suffer week after week with chills and fever, and taking a few doses of quinine, we should recommend the quinine by all means. It is unquestionable, however, that under ordinary circumstances, malarial poison can be eliminated and the paroxysm interrupted without the use of medicine of any sort. We have proven this many times by actual experience. There are sometimes cases, however, in which the most effective non-medicine remedies cannot be employed, or are not available for other reasons. Under such circumstances we consider quinine entirely rational. A small dose of quinine may be used, after giving the patient other treatment to bring the system into proper shape to take the quinine, which is then thrown off the system, and the chances are ten to one that the case will be permanently relieved.

Urates and Bright's Disease.—A patron inquires, "Does the finding of urates in urine denote Bright's Disease? If not, what does it denote?"

Ans. The whitish or pinkish sediment which settles in the vessel containing the urine and appears in numbers after the urine is cold, is usually composed chiefly of urates. This is not a characteristic symptom of Bright's Disease, though it may occur in connection with that disease. It indicates that there is insufficient action on the part of the liver, in consequence of which it does not convert the uric acid of the urea into the normal excretory element of the urine. Excessive use of animal food, indigestion, and torpid liver are the usual causes of this.

The urates will usually disappear very readily if the patient will lessen the quantity of meat and other forms of animal food, and will drink six or eight glasses of hot water in the course of twenty-four hours.

Hunger and Sleeplessness.—A patient inquires, "When a gnawing hunger at night seems to produce sleeplessness, would it not be better to take a light supper?"

Ans. A "gnawing" hunger is not an indication of the necessity for food, but of a diseased condition of the stomach. A healthy stomach which has already received two good meals between light and dark, will not be subject to gnawing hunger, even if the third meal is omitted. It is true this sometimes is relieved by eating, and when a patient cannot sleep without obtaining relief, and cannot secure such relief by sipping a glass of cold or hot water, it will be better for him to take a glass of hot milk, or some equally simple and easily digested food, than to lose a night's rest; but such a practice should not be continued as a habit. The condition of the stomach should receive attention, and the true cause for the gnawing hunger should be removed.

Neuralgia.—A friend asks, "What causes neuralgia? and can it be cured when deeply established in the system?"

Ans. A popular author has well said that neuralgiac pain is the demand on the part of the nervous system for healthy blood. Impoverished or impure blood is undoubtedly the chief cause of neuralgia, although there are special forms of the disease which arise from other than systematic causes. The disease can hardly be regarded as "seated in the system," except so far as it is dependent upon the impoverished condition of the blood and nervous system. There are few cases of neuralgia which will not yield to rational treatment.

Hot Water Drinking.—A patron inquires, "How long before eating should hot water be taken?"

Ans. When so large a quantity as from one to three glasses of hot water is taken at once, at least an hour should elapse before taking food.

Slow Digestion.—A dyspeptic asks whether a person with slow digestion must eat sparingly.

Ans. Common sense teaches us that a feeble horse must be lightly loaded; so a weak stomach, suffering with slow digestion, must have as light and easy work as possible. A person suffering in this way, should, of course, take enough food to supply the wants of the body; but it should be remembered that a small quantity of food, perfectly digested, would be of much more use to the system than a much larger quantity imperfectly digested.

One Meal a Day.—A patient inquires, "Would you advise a dyspeptic to eat but one meal a day?"

Ans. This depends entirely upon the case. The number of meals a person should take in a day depends somewhat upon the activity of his digestion. A young child has a very active digestion, and disposes of its simple food in a very short time. A person whose digestive powers have been overtaxed for years by overeating, or by the habitual use of indigestible articles of food, has a very sluggish digestion. The digestion may be so slow that the patient cannot digest satisfactorily but one meal a day, and in such a case, but one meal a day should be taken. However, cases of this sort are very rare. We do not recommend this practice more than once in a year, notwithstanding the fact that we have under treatment seven or eight hundred cases of dyspepsia during that time. The use of hot water an hour or two before eating, by emptying and washing out the stomach, renders the person whose digestion is very slow capable of taking two meals a day with comfort, when without it he would be unable to eat more than once, without putting fresh food into his stomach before the previous meal had been satisfactorily digested.

THE COOKING SCHOOL.

Conducted by MRS. E. E. KELLOGG,

A DINNER OF EIGHT COURSES.

BREAD.

BREAD is one of the products of the cuisine, which, if palatable, most people consume without stopping to marvel at it; yet if made in a proper manner, and from nutritive material, it is, with the exception of milk, the article best fitted for the nourishment of the body, and can, if need be, supply the place of all other foods. In nearly all the ancient languages the etymology of the word "bread" signifies *all*, showing that the article was intended to be what it has been most fittingly termed, the "staff of life," though much that in these days is called bread might more properly be styled a "broken reed."

Bread of some kind has been the food of mankind from the earliest times, though it is probable that the earliest form of the article was simply whole grain moistened and then heated. Afterward, the grains were roasted, and ground or pounded between stones, and unleavened bread was made by mixing the flour thus made with water, and baking it in an oven or pan. Among the many ingenious arrangements used by the ancients for baking this bread, was an oven in shape something like a pitcher, in the inside of which they made a fire, and when it was well heated, applied to the outside the paste made of flour and water. Such bread was baked almost instantly, and was taken off in small, thin sheets like wafers. Flat cakes of some kind was the common form in which most of the bread of olden times was baked; and being too brittle to be cut with a knife, the common mode of dividing it was by breaking, hence the expression so common in Scripture of "breaking bread."

Various substances have been and are employed for making this needful article. Until the last few decades, barley was the grain most universally used for this purpose. The Thracians make bread from the flour of the water-coltron, a prickly root of triangular form. Chestnuts, mulberries, and rice are used by different nationalities in the preparation of bread. In many parts of Sweden, bread is made from dried fish, using half fish flour and half barley flour; and in winter, flour made from the bark of trees is added. But the substances in most universal use among civilized nations at the present time are barley, rye, oats, maize, buckwheat, rice, and wheat, of which the latter has acquired a preference, and become an almost exclusive article for bread-making purposes.

Chemical analysis shows that wheat contains just the required amount of each of the food elements necessary for perfect nutrition. These elements are found, however, in different parts of the wheat berry, and not uniformly distributed through its structure. The central portion is chiefly starch, while the gluten or nitrogenous portion is found just inside the outer husk; consequently, flour from which the outer portion of the grain has been removed does not contain the requisite bone-and-muscle-building material needed for the maintenance of the body in perfect health. The fine white flour in most common use is made of the inner part of the grain, and is composed almost entirely of starch, which, alone, will not sustain life.

Notwithstanding the important part bread was designed to play in the economy of life, it is a fact that the article which will answer all the requirements of good, wholesome bread, is seldom found. Besides being palatable, good bread must contain as many as possible of the elements of nutrition; it must be light and porous, so that it can be easily insalivated and digested, and it should contain no ingredient which will be in any way injurious if taken into the system.

For general use, the most convenient kind of bread is doubtless that made of wheat flour, leavened or raised by fermentation, though in point of nutritive value and healthfulness it does not equal light, unfermented bread made without soda or baking powder. Fermentation is a decomposing process, so that the best yeast bread is deprived of a part of its nutritive qualities. To make good fermented bread, three things are absolutely necessary; viz., good flour, good yeast, and good care. Without these, good bread cannot be produced by any effort of art.

Good flour will be sweet, dry, and free from acidity or musty flavor. To secure these requisites, the flour should be prepared from grain which has been fully matured, and which has suffered no deterioration from rust, mold, or exposure, and has been thoroughly cleansed before grinding. It should not be deprived of any of its nutrient elements, nor be too coarsely ground.

YEAST AND FERMENTATION.

Yeast is a plant belonging to the order of fungi which, when surrounded by the proper material for food, and aided by warmth and moisture, begins to grow and multiply itself by sending out millions of minute spores, each of which, under proper conditions, in turn becomes a parent plant to assist in propagating the yeast family. This process of growth excites fermentation. Such fermentation occurring in a mass of dough made of flour and water or milk, causes the starch of the flour to be converted into sugar, and then into carbonic acid

and alcohol. If the dough is baked at this stage, a light, porous loaf will result; but if the fermentation is allowed to proceed still farther, acetic acid is formed, and the whole mass becomes sour. If, however, when the fermentation has reached the carbonic acid stage, new material be added, the yeast will continue its activity, and the fermentation proceed as before. A combination of flour, water, and salt, without the introduction of yeast, if left by itself in a temperature between 70° and 90°, will ferment. This fact is often utilized by house-wives in making what is termed salt-rising bread. Scientists assure us that the fermentation, even in this case, is occasioned by a certain species of the yeast family, the spores of which are continually flying about in the atmosphere and getting into the flour, so that upon the proper conditions of warmth and moisture being supplied, they at once begin to grow and multiply and excite fermentation. This process of fermentation is more lengthy and uncertain than when yeast is added to the mixture. Doubtless the most convenient yeast for bread-making purposes, when it can be obtained fresh, is the compressed yeast; but this is not always obtainable, and unless fresh it is not reliable, so that it is often necessary for the house-wife to prepare yeast herself.

The following are two excellent and simple methods of preparing home-made yeast:—

No. 1. Put a small handful of dried hop blossoms, or an eighth of an ounce of the pressed hops (put up by the Shakers and sold by druggists,) into a stew-pan; pour over them a quart of boiling water, and let them simmer about five minutes. Meanwhile stir to a smooth paste in a tin basin or another saucepan a cup of flour and a little cold water. Line a colander with a thin cloth, and strain the boiling infusion of hops through it on to the paste, stirring continually. Boil this thin starch a few minutes, until it thickens, stirring constantly that no lumps be formed and that all portions may be of the same consistency. Turn it into a large earthen bowl, add a tablespoonful of salt and two spoonfuls of white sugar, and when it has cooled to blood heat, add a half tea-cup of lively yeast, stirring all well together. Place it in a moderately warm temperature, or cover very closely with several folds of flannel blanket, and leave it to ferment. Examine it every few hours, and as it becomes light, give it a good stirring. Continue to do this for twenty-four hours, when it should be "quiet" enough to cover and put away in a cool place till needed.

No. 2. Peel four large potatoes, and put them to boil in two quarts of cold water. Tie two handfuls of hops securely in a piece of muslin, and place in the water to boil with the potatoes. When the potatoes are tender, remove them with a perforated skimmer, leaving the water still boiling. Mash them, and work in four tablespoonfuls of flour and two of sugar. Over this mixture pour gradually the boiling hop infusion, stirring constantly that it may form a smooth paste, and set it aside to cool. When lukewarm, add a gill of lively yeast, and proceed as in the preceding recipe.

If started with good yeast, that made by either of the above recipes should keep good for a fortnight in summer and longer in winter. Compressed yeast, a half cake dissolved in a little warm water, is sometimes recommended for use in starting a new yeast; but we have found in our own experience that yeast thus started does not retain its activity so long as when other yeast is used.

Yeast should always be kept in a clean, tightly-covered jar; glass is best since it is less porous than stone and more easily cleansed. The jar should always be cleaned and scalded with scrupulous care every time new yeast is put in it, since even the smallest particle of sour or spoiled yeast will destroy good yeast. Yeast should be kept in a cool place—the cellar or refrigerator is best. Even a half hour in a hot kitchen may spoil it.

The first step in the process of bread-making is the preparation of a "rising" or "ferment." For all bread-making purposes a large earthen bowl is much preferable to either tin or wooden utensils, since it protects the sponge from the cold air much more effectually than tin, and is much more easily kept clean and fresh than wooden ware. The bowl should be kept exclusively for the purpose of bread-making, and should never be allowed to contain any sour substance, and must be thoroughly scalded and aired after each using.

For preparing a ferment, scald a quart of wholewheat flour with an equal quantity of boiling water, pouring the water on very gradually that no lumps be formed. When this has cooled to lukewarm, add a half-cup of home-made yeast, or a half-cake of compressed yeast dissolved in a little lukewarm water, and leave it to rise. The time required for it to grow light will vary according to the strength of the yeast and the amount of warmth supplied. Great care must be taken to keep it of an equable temperature, not lower than 70° nor higher than 90°, F. An occasional chill followed by a warming up process will be quite as depressing to bread as are chills and fever to a person's health. For this reason the bowl should be wrapped very closely in several folds of woolen blanket, and left in a warm room or placed in a warming oven of equable temperature. The more elevated the temperature between the limits named, the more rapid the fermentation. At a temperature below 30° fermentation will be arrested, and will proceed slowly at 50°. These facts are very important ones for the house-wife, since by arranging to keep her ferment at a temperature of about 50°, she can set her bread in the evening, and find it light and ready for further attention in the morning.

When the ferment is light, which will be shown by its being a mass of white substance like sea-foam, rather than by its having greatly risen, add to it sufficient warm sifted flour to make a very thick batter; and having beaten it well, leave it to rise again. Some cooks recommend adding only small quantities of flour at a time, and allowing the sponge to rise several times, beating it back and adding new flour each time till it becomes thick enough to be

molded. Flour should always be warm when added to bread, in order that it may not arrest the fermentation.

When thick batter or sponge is well risen and cracked over the top like "crazed" china, sufficient flour to make it of the proper consistency must be added, and the dough thoroughly kneaded. The exact amount of flour necessary cannot be stated, since the quantity varies with the quality of the flour; but three quarts of flour to one of wetting will usually be sufficient for the entire process of bread-making. When the dough clings together, and works away from the side of the bowl, enough flour has been added. Bread should always be kneaded as soft as it can be handled, and only sufficient flour added to prevent its sticking to the board Stiff bread is close in texture, and after a day or two becomes dry and hard. Bread should be kneaded till it works clean of the board and will rebound like India-rubber after a smart blow with the fist in the center of the mass. If it will not thus resent the blow, it is not sufficiently kneaded. Its elasticity is the surest test of its goodness; and when perfectly developed, it can be molded into any shape, rolled, twisted, or braided with perfect ease. When molded, it should be divided into loaves, and placed in sheet-iron bread-pans,—those about twice the size of a brick are the most desirable,—and put in a warm place to rise. It rises much more evenly, and does not have a stiff, dried surface, if covered closely with a blanket to keep it of the necessary temperature, rather than if placed in a warming oven, or some other warm place where it will be exposed to air.

The most important point in the whole preparation of the bread is to decide when it is sufficiently light after having been placed in the pans. The length of time cannot be given, because it will vary with the temperature, the quality of the flour, and the quantity added during the kneading. At a temperature of 75°, an hour or an hour and a half is about the average length of time. A loaf should nearly double its size after being placed in the pan before being put in the oven, although it is better to begin the baking before it has perfectly risen than to wait until it has become so light as to have begun to fall. Lightness is by no means the only property required in good bread; and if the fermentation proceeds too far, the sweetness of the grain will be destroyed, and the bread tasteless and innutritious.

For the baking of the bread the oven should not be too hot. If the bare arm cannot be held inside it with comfort while thirty is being counted, it is too quick. It should be hot enough to arrest fermentation, but not hot enough to brown the crust within ten or fifteen minutes.

The rising of bread is the result of the attempt of the carbonic acid, formed during the process of fermentation, to disengage itself and escape; and in the struggle upward it lifts the elastic mass of dough, which is thus raised, and at the same time filled full of little air-cells formed by the escaping gases. The heat of the oven at first causes the further expansion of the gases, but it soon checks the process of fermentation altogether. The sooner, after the arrest of the fermentation, the air-cells are fixed by the heat, the more light and porous will be the bread. Consequently, though the heat should not be greatest when the bread is first put into the oven, it should increase for the first fifteen minutes. After the bread is half baked it may gradually decrease during the remainder of the baking. If the heat is too great, the bread will bake on the outside before it has risen properly, and consequently the center will be heavy. Be careful that no draft reaches the bread while baking; open the oven door very seldom, and not at all for the first ten minutes. From three-fourths to an hour is usually a sufficient length of time for an ordinary-sized loaf to bake. The common test for well-baked bread is to tap it on the bottom with the finger; if it sounds hollow, it is well done. A thoroughly baked loaf, when removed from the pan and lifted in the hand, will not burn it.

When done, remove the loaves from the tins, and tilt them upon their edge so that the air may reach all sides of them and prevent "sweating." When perfectly cold, wrap in a clean, thick cloth, and put into a tin bread-box. In the next number we will give some directions for making unfermented breads of various kinds.

Literary Notices.

THE January number of that most excellent household journal, *Arthur's Home Magazine* begins its fifty-second volume, and opens with a fine portrait of its editor, T. S. Arthur, the well-known author of many excellent works on temperance and other social reforms. The number is, as usual, full of attractive information on a large number of interesting topics, is beautifully illustrated, and contains many articles especially adapted to home culture and family reading. Its pages are exceptionally free from articles of a sensational character, and its numerous departments would render it a valuable acquisition to every household.

Subscription price, $2.00 per annum. Published by T. S. Arthur & Son, 920 Walnut St., Philadelphia, Pa.

THE POPULAR SCIENCE MONTHLY, always so replete with interesting and instructive articles, opens the February number with an exposition of "The New Toryism," by Herbert Spencer, followed by articles on "College Athletics," by Prof. E. L. Richards; "Defenses of the Lower Animals," by Prof. Glaser; "How we Sneeze, Laugh, and Stammer," "The Causes of Earthquakes," and a curious collection of "Last Wills and Testaments." There is another installment of the interesting articles on the "Chemistry of Cooking," by W. Mathew Williams, and a continuation of Dr. Oswald's "Remedies of Nature."

Subscription price, $5.00 per year. Published by D. Appleton & Co., 1, 3, and 5 Bond St., New York, N. Y.

Publisher's Page.

☞ Absence from home for a few days occasioned such an accumulation of work that we have found it impossible to prepare the promised article on the subject of catarrh. The article, which will be the first of a series, will appear next month.

☞ Work has already begun on the addition to the Sanitarium. At the present time the two main buildings of that institution and more than a dozen cottages are filled to their utmost capacity with patients. Persons expecting to come as patients must apprise the managers some days in advance of their expected arrival, in order to secure accommodations.

☞ A Hygienic Normal, the first of the kind ever held, convened in this city from Jan. 28 to Feb. 1, under the auspices of the Michigan Woman's Christian Temperance Union. The design of the Normal was to give instruction in the various branches of hygiene. Lectures were given on the subjects of Ventilation, Exercise, Clothing, Food, Cookery, Household Hygiene, Heredity, Pre-natal Influences, and many other important topics. Blackboard Illustrations, Experiments, Models, Charts, and Stereoptican Views made the lectures exceedingly interesting and valuable. The delegates from abroad comprised many of the most influential and philanthropic ladies of the State; and the enthusiasm on the subjects studied, on the part of those in attendance, was such as to show that the Normal was a most decided success.

TWO PLEASANT DAYS AT THE SANITARIUM.

At an annual meeting of the stock-holders of the Sanitarium, a dinner was given to the entire body, consisting of about 150 persons. We do not think this number of more philanthropic men ever sat down to dinner together anywhere. These men are stock-holders in an institution which devotes all its dividends to the treatment of the sick poor, and the extension of the principles of Health and Temperance Reform. The dinner was a plain one, a feast of reason, or at least a reasonable feast, rather than a banquet of unwholesome viands. Nothing which required the taking of animal life, appeared upon the bill of fare. Every dish was simple, nutritious, wholesome, and palatable.

After dinner a tour of the building was made, which ended in the parlor, where a pleasant half-hour was spent in listening to the remarks of many of those present, some of whom had been among the few enthusiastic friends of reform who joined their interests in the fitting up of this noble enterprise more than seventeen years ago. Great satisfaction was expressed at the progress which had been made in the various departments of the institution since that time, and gratitude to the kind Providence whose blessing has seemed to attend this effort to relieve and elevate suffering humanity.

A New Year's dinner was given to the old friends and patrons of the institution residing in the city. The dinner was of the same strictly vegetarian character as the one already described, and yet was pronounced "*good.*" Some declared it the best dinner they had ever eaten. After dinner the company spent a half-hour in visiting the various departments. Such remarks as "Why, I didn't know there was so much to it," and "How many years have you had these things here?" etc, were occasionally overheard, which suggested the thought that perhaps some of those living nearest the institution knew really less about its internal workings than persons at a considerable distance; however, this was exactly what the managers anticipated, and one reason why it was desired that those who had been friends to the institution in its infancy should renew their acquaintance with it in its more mature form. While waiting for the coming of the large sleighs, which had been provided to convey the visitors to their homes, the company gathered in the parlor, and a half-hour was pleasantly spent in remarks by a few of those present, some of whom were veterans in health reform. Eld. U. S., the only one of the original incorporators of the institution present, and one of the few who still survive the ravages of time and disease, expressed gratification at the contrast between the simple beginning and the present prosperous condition of the institution. Prof. V., recently from England, had been a hygienist for eight years, having been led to adopt healthful modes of life by the advice of an American physician, and as the result of which he had recovered from an almost useless condition to his present excellent state of health. He is now a very radical reformer, and more thoroughly established in the principles of reform than ever. J. G. W. said that he came to the institution some fifteen or sixteen years ago completely broken down in health. A few months' treatment made a new man of him. He enjoyed excellent health. Had seen many new and interesting things, some of which he believed he might yet want to try for his own benefit.

H. M. had been a health reformer for thirty-two years, his attention having been called to the matter at that time by Dr. Beaumont, of Virginia. He believed he owed his life to rational medical treatment and hygienic diet.

O. D. adopted the hygienic mode of living in 1843, and believed he owed his life to the benefits derived from the healthful, unstimulating diet, as he had recovered from difficulty which had threatened his life at the time he changed his mode of living. Interesting remarks, which we have not space to report, were made by others. A vote of thanks was tendered the managers of the Sanitarium for the entertainment, and the sleighs being reported at the door, the company departed for their homes, leaving behind them their best wishes for the success of the institution.