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INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D.

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33.— Patagonia.

JUST about two hundred years ago a military expedition, under the command of Pedro Sandoval, crossed the southern border of Chiloe, and attempted to explore the sterile table-land stretching from the valley of the Rio Ganado toward the icy cliffs overhanging the Straits of Magellan.

Thus far the explorers had encountered no foe worthy of their Toledo steel, and the colonists of Chiloe, only a short distance northwest, had reported an easy conquest of the scattered tribes of starved and shivering islanders; but about forty Spanish leagues south of the Ganado the scouts of Don Sandoval were attacked by a horde of athletic savages, who speedily broke their ranks, and rushing forward with brandished clubs, routed the main body of the invaders at the first onset.

Only one third of the explorers recrossed the border alive, and from that day the most extravagant stories about the physical powers of the warlike barbarians discouraged the Chilian colonists from a repetition of the ill-fated invasion. On their way to Europe these rumors were exaggerated by the myth-loving propensity of the Spanish adventurers, and the author of the *Mundo Occidental* (published about 1720) gravely informs his readers that "the attempts to increase our knowledge of the southernmost America have been baffled by the irresistible strength of the hostile savages, who reach a height of two *varas* and a half (nearly three yards), and can overtake a galloping horse as easily as a fleet-footed boy would run down a sheep. Their limbs are so gaunt that at a distance their uplifted arms have often been mistaken for flourished halberds; and though lean in proportion to their size, they are so strong that they can break a man's skull, helmet and all, by a blow of their clenched fists."

Fifty years later these reports were still in the main credited; and Mons. Moreau de Maupertuis, the "Perpetual President" of the Berlin Academy, actually proposed to solve the secret of the human soul by selecting well-developed specimens of Patagonian giants and dissecting the fibers of their brains. "What an excellent idea," mischievously comments Voltaire; "all we have to do is to engage an eloquent Patagonian interpreter and persuade our giant to surrender his war club, and sacrifice his skull to the interests of science."

The success of the proposed negotiation might, however, have failed to answer the purpose of the Perpetual President; for even before the end of the eighteenth century, it became pretty well known that the panic of Sandoval's followers had distorted their vision, and that in Patagonia men of "two *varas* and a half" were as rare as elsewhere. The fact, though, remained that certain tribes of the Patagonian savages far exceeded other natives of South America, both in stature and strength, and it puzzled many ethnographers of the last century to reconcile that fact with the undoubtedly correct reports concerning the atrocious dietetic habits of the unconquerable savages.

It was conjectured that the climate of the far South American table-lands must be most invigorating, and more than once the advocates of natural hygiene

discussed a project of establishing a sanitarium in some border-valley of the modern *Zotun-heim* (frost-rimmed, like the giant land of the Edda), where the natives might be induced to sell or lease a small tract of their territory.

Others preferred to believe that the Western sons of Anak must be in possession of some miraculous specific efficacious enough to counteract their unsanitary food and the vicissitudes of their long winters; but when the reports of the traveler Guinnard at last solved the secret, it was found that civilized nations must, on the whole, renounce the hope of profiting by its application. That report, confirmed by the state-

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ments of subsequent explorers, makes it probable that the main explanation of the Patagonian puzzle can be found in the result of a thorough and merciless system of artificial selection, practiced for a long series of generations. About three weeks after childbirth, Patagonian mothers submit their infants to the inspection of the sachem of the tribe, who (unless his judgment be biased by a liberal bribe) decides the youngster's fitness for survival by a code of traditional rules, and in about three out of ten cases concludes that the welfare of the community requires a veto of the maternal request. Misshapen and puny babies, and often also children of weak mothers or of parents already overburdened with progeny, are carried to the next ravine, and abandoned to the beasts of the wilderness.

The Araucanian nomads, the next neighbors of those South American Spartans, occasionally visit the Patagonian *pueblos* in summer time, and volunteer to adopt such outcasts on condition of preventing their return to their native land. That chance of redemption may defer the execution of the sachem's order for two weeks, but in ordinary cases the sentence of destruction is carried out within forty-eight hours.

It may well be imagined that a custom of that sort, enforced for a long series of generations, must tend to eliminate the physical defects of almost any race; but moreover, the Patagonians have a rough and very effective method of insuring the athletic proficiency of their young men. After the completion of their tenth year, boys accompany their elders on their hunting expeditions, and at first are put in charge of the mayoral, or commissary chieftain, of the tribe, as we might translate him. At the end of a day's march, these cadets have to carry wood and water, pitch the tents, and generally fag for the comfort of the senior wranglers; but after a boy has once established his reputation for superior prowess, he is soon promoted to the rank of a regular hunter, and permitted to enjoy all the privileges of that position. In midsummer, when hunting is slack, the youngsters are encouraged to wrestle and run races before the tent of the superior chieftain, who keeps a mental record of their capacities, and gives them a chance to confirm their prestige in the field, on border raids, or *vicuna* hunts, which, according to Mr. Guinnard, are often kept up in full-moon time for two days and two nights without an hour's intermission.

Besides, the climate, though very vigorous, is far superior to that of the ever-dripping Chiloe archipelago. On the main island of Chiloe there are hardly a dozen dry days in the year, and in four out of five times, heavy rains turn into sleet storms. On the Patagonian table-lands, on the other hand, the bitter cold winters are at least dry, and the short summers almost as pleasant as those of southern Chili. And while the Chiloe savages carry their hardiness, or rather shiftlessness, to the extreme of braving the sleet storms in thickets and caves, the Patagonians have hide tents, double in many cases, and almost as weatherproof as log cabins. They also wear fur mantles, at least in winter, and cradle their young ones, "those sentenced to live," as the pessimist Guinnard expresses it, in fur-lined wicker baskets.

The traditions of the Patagonians make it probable that their race has inhabited the southern extremity of the American continent for a long series of centuries; and that fact involves a curious ethnological problem: How can it be explained that a climate very similar to that of the Scandinavian peninsula, has failed to turn the natives into "pale-

faces"? The complexion of the Patagonian is a dusty olive-brown, a little lighter than that of the Tunisian Bedouins, but considerably darker than that of any South European Caucasians, the natives of southern Sicily perhaps alone excepted. Are the distinctions of the white and brown races really those of what naturalists call a "true species," holding their own under all changes of climate and mode of life? It is true that the gypsies have bleached in certain parts of Europe (northern Hungary, for example), till they can hardly be distinguished from the natives, but their forefathers may, after all, have been true Caucasians, immigrants of Hindustan, as well as of Europe; for, on the other hand, we find that the Mongol kindred Laplanders have preserved their dusky complexion in the coldest climate of Europe. The philosopher Schopenhauer, indeed, goes so far as to doubt the existence of a white "race," and suspects that the ancestor of the pale Caucasian was a sort of albino, whose abnormal characteristics, — flaxen hair and pale blue eyes — became perpetuated under altogether exceptional circumstances, and always tend to revert to the normal type of the species. So much is certain, that the palefaces are far more apt to get tanned by a tropical or semi-tropical sun than certain darker races are to be bleached by any climate. The swarthy Spaniards are descendants of the fair-haired Visigoths, the Sicilian aristocrats of the conquering Normans; and Teuton tribes have been metamorphosed into the half-negroes of Northern Africa — the Zouaves, for instance, being the lineal descendants of the Swabian adventurers who accompanied the Vandal Genseric on his African campaigns. "Andalusia," by the way, derives its melodious name from those same Vandals.

The Patagonians, on the other hand, retain their Moorish hue even under a latitude where a Norwegian hunter would complain of the excessive frosts. Patagonian captives have been carried to the mines in the *Alturas* or lofty table-lands of eastern Chili, but their complexion still held its own. Like the Turkish-red rags which our paper-mills are obliged to turn into blotters, their skins are unchangeable.

Their habits, too, are ingrained to a degree that resists all attempts at civilization. From the reservations which the Chilian government has established along the northern frontier, the Patagonian exiles sooner or later find means to escape to their native hunting grounds, even at the risk of having to cross the famine region of the upper Andes and run the gauntlet of vigilant military patrols. Once back to the western foothills, they run no risk of starvation. In summer they will find berries and edible roots where casual explorers would see only a scant film of vegetation, and in winter an equally thin sprinkling of snow enables them to trace rabbits and hares to their hidden dens. Like the Balearic Islanders of old, they kill hares by means of clubs, flung with unerring aim to a distance of eighty or ninety yards. At the first encampment of their countrymen they can be sure of assistance. Charity is a child of natural dependence, and the most sympathetic races on earth are those who in a winterless clime like that of Papua, can rely on a fair chance to subsist upon the unaided bounty of nature. The constant risk of becoming dependent upon the fellow-feeling of their neighbors makes frost-land nations wondrous kind, and a Patagonian will share his scant provision even with the stranger whom he half suspects of visiting his camp as a spy of the northern palefaces.

"Those fellows are going to fire upon us, I think," said the traveler Orbigny, when his Patagonian host called his attention to a group of strangers on a neighboring hill. "I hope so," said the chieftain, "for that would give us an excuse to drive them away. If they come in peace, we shall have to find them a supper, and our comestibles are fearfully short." The very captives kept in the man-cages of Colonel Garcia during the last Chilian border war, made it a point of honor to offer their jailors a share of their dried-beef rations. Perhaps the naturalist Brehm is right, that *tall* nations, like the Albanians, the Kafirs, the Circassians, and our Kentucky backwoodsmen (in spite of their family feuds), are generally good-natured; while puny tribes, like the Bushmen and Aztecs, are apt to be distinguished by the opposite characteristic. The most ill-natured race on earth is probably that of the dwarfish Negritos in the interior of the Philippine Islands, who receive a stranger with a volley of poisoned arrows.

Since the arrival of the Spaniards, a few tribes of Patagonian border nomads have established squadrons of mounted warriors, and it is a suggestive circumstance that those Centaurs are surpassed, both in vigor and longevity, by their foot-roving kinsmen. As an alternative of indoor work, horseback exercise may serve a good purpose; but as a radical system renovator, a protracted foot tour is out and out preferable to what a Texas physician of my acquaintance used to call "sedentary life in the saddle."

(To be continued.)

THE SECRET OF YOUTH.

A CONTEMPORARY writing of the secret of youth says: "People are apt to attribute haggard looks to mental activity, and to counsel repose and tranquillity as a cosmetic.

"To the thoughtful traveler, the falsity of this theory is obvious. It is in the country village, where the mail is the only excitement, the days weeks, and one can hear the cows breathe in the stillness, that the greatest number of sunken cheeks, wrinkled brows, leaden complexions, and lifeless expressions are to be seen among the women yet in their thirties. In the seething metropolis, where there is a constant demand upon both mind and body, are to be found scores of women — mothers or perhaps grandmothers — possessing all the vitality, freshness, and much of the bloom of early youth."

In regard to this, a writer in the New York *World* thus remarks: "It is not activity, but drowsiness — the presence of sleeping or dead thought in the soul — that is aging. Unvaried scenes, the repetition to-morrow of to-day, to-day of yesterday, this week of the preceding one, the inevitable clock-like routine of conception, the monotony of existence, the utter weariness of an empty mind, — it is this that saps the vernal springs of life and creates decay in the face.

"Past grief, old angers, revenges, even past pleasures constantly dwelt upon, — all dead, decaying, or decayed thought, — make a weather-beaten monument of the face. This is age.

"The women who never grow old are the student women, those who daily drink in new chyle through memorizing, thoroughly analyzing, and perfectly assimilating subjects apart from themselves. Study is development — is eternal youth. The student woman who makes wise use of her acquisitions has no time to corrugate her brow with dread thought of the beauty-destroyer leaping fast behind her. Not considered nor invited, Old Age keeps his distance.

"Brain culture, based on noble motive, means sympathy, heart gentleness, charity, graciousness, enlargement of sense, feeling, power.

"Such a being cannot become a fossil. She has found the elixir of life, the fountain of eternal youth.

"There is no doubt that the culture of the mind is helpful in continuing the youthful face. It may not be under all circumstances, but in the majority of cases it will have a tendency toward freshness, the enjoyment of life enlarged, and the growth of soul and body together. The culture of the mind does not mean a routine of books or close study, making life know nothing but what is found in books. It means the enjoyment of study, the thorough assimilation of whatever comes up in life throughout the existence. If one were simply to sit down and study books, and not to go out and study nature, and breathe the air with the full enjoyment and satisfaction of having it to breathe, there might be another phase of the case to present. There is the condition of mind which enjoys itself, which is of such existence that it is always wide awake, full of life, and so content that it is always young. This kind of mind can be acquired if one has the misfortune to be without it. Study to become cheerful whatever may surround you, and you will be well on the road to good health. The body takes after the mind, and the mind is influenced by what is put before it. Let this be healthful, something that will build it up, and the effects on the body will well repay all the trouble."

THE BEST THINGS.—Remember, my boy, the good things in the world are always cheapest. Spring water costs less than whisky; a box of cigars will buy two or three Bibles; a State election costs more than a revival of religion; you can sleep in church every Sabbath morning for nothing, but a nap in a Pullman car costs you $2 every time; the circus takes fifty cents, the theater $1, but the missionary box is grateful for a penny; the race horse scoops in $2,000 the first day, while the church bazar lasts a week, works twenty-five or thirty of the best women in America nearly to death, and comes out $40 in debt.—*R. J. Burdette.*

Dr. Gruff (to fashionable patient)—"It's merely the same old ailment, my dear madam, isn't it?"

Mrs. Style—"Oh, no, doctor; I really am ill now!"

Dr. Gruff—"H'm! If that really is so, I'll have to change the whole course of treatment!"

Wife—"I wish you'd tell the nurse to wash baby's face and hands and put on his clean clothes."

Husband—"Why, my dear, are you going to take the baby out in this kind of weather?"

Wife—"No; but I thought I'd let him play with Fido for awhile!"

A VICTIM OF TEA-TASTING.

A PHYSICIAN of eminence who was led to observe the symptoms induced by tea-tasting, gives his valuable experience concerning one of the cases observed, as follows : —

"The immediate effects upon him are as follows : In about ten minutes the face becomes flushed, the whole body feels warm or heated, and a sort of intellectual intoxication comes on, much the same in character, it would seem, as that which occurs in the rarefied air of a mountain. He feels elated, exhilarated, troubles and cares vanish, everything seems bright and cheerful, his body feels light and elastic, his mind clear, his ideas abundant, vivid, and flowing fluently into words. He has found from experience that the workings of his intellect are really more clear and vigorous than at any other time. This is not a delusion on his part, for at this time he can "talk a man over," and make a more advantageous bargain than at others.

"At the end of about an hour's tasting, a slight reaction begins to set in ; some headache comes on ; the face feels wrinkled and shriveled, particularly about the eyes, which also get dark under the lids.

"At the end of two hours this reaction has become fully established ; the flushed, warm feeling has passed off, the hands and feet are cold, a nervous tremor comes on, accompanied with great mental depression. And he is now so excitable that every noise startles him ; he is in a state of complete unrest and mental exhaustion ; he has no courage to do anything ; he can neither walk nor sit down, owing to his mental condition, and he settles into a complete gloom. His body in the meanwhile does not feel weary. Copious and frequent urination is always present, as also certain dyspeptic symptoms, such as eructations of wind, sour taste, and others of a like nature.

"The above-described immediate effects follow a single afternoon's tea-tasting. They may be summed up briefly ; as, excited circulation, intellectual intoxication, with actual increased vigor of mind power, increased urination ; then a period of collapse indicated by cold extremities, tremulousness, mental irritability and anxiety. It will be several days before this condition of affairs is amended. And at this time the temptation to take alcoholic stimulants is very strong.

"The chronic effects are few and decided. Headache is frequent, principally frontal and vertical ; a ringing and buzzing in the ears is very constant ; black spots often flit before the eyes, and he sees flashes of light. Vertigo is also very persistently present ; he cannot look up at a clock on a steeple without staggering. Insomnia exists to a considerable extent ; he seldom has a good night's sleep, and he dreams much, but his dreams are of a pleasant character ; he sometimes sees visions when not sleeping. Dyspepsia is more troublesome than any of the foregoing three symptoms. This the patient assigns strictly to tea-tasting, since it is made worse by tea, and improves when he abstains from it, though now becoming confirmed. His appetite is captious ; he feels heavy at the epigastrium ; he has eructations and a sour taste, and finds that certain kinds of food distress him. He has frequent gurgling, and is in the habit of 'working' his whole chest and abdomen to make the gas pass on.

"His mental condition is peculiar. He lives in a state of dread that some accident may happen to him ; in the omnibus, fears a collision ; crossing the street, fears that he will be crushed by passing teams ; walking on the sidewalk, fears that a sign may fall, or watches the eaves of the houses, thinking that a brick may fall down and kill him ; under the apprehension that every dog he meets is going to bite the calves of his legs, he carries an umbrella in all weathers as a defense against such an attack. He often dreads entering his office for fear of being told that some business friend has failed ; and in short, lives in a state of constant foreboding of some impending evil. At times his left leg drags and feels numb, and he is conscious of an unsteady gait. He has also often a twitching of the muscles of the face and eyelids."

BY an effort of the will, thought is withdrawn from its accustomed channels, and allowed to trifle with fancies that come and go like soft clouds in a summer sky, like the lapse of an indolent tide upon the beach or the breathing of a slumbering infant. In fact, to let thought drift upon any one of them has a somnific influence. There must be a passive determination to follow these gentle undulations out into space, and lose one's self there. It is a cultivable tendency, and becomes a habit. — *Sel.*

THE men who kept alive the flame of learning and piety in the Middle Ages were mainly vegetarians. — *Sir William Axon.*

SMALL LUNG CAPACITY AND CONSUMPTION.

AT the last meeting of the British Association for the Advancement of Science, held at Cardiff, in August, 1891, Dr. G. W. Hambleton, president of the Polytechnic Physical Development Society, gave an address, reporting the result of extended investigations which he has been making within the last few years, for the purpose of discovering the possible relation between chest capacity and consumption. His researches seem to show very conclusively that consumption is produced by the conditions that tend to reduce the breathing capacity below a certain point in proportion to the remainder of the body; and he contends that consumption can be prevented, and when acquired, recovered from, by the adoption of measures for the development of the chest and the breathing capacity. The fact may not be accepted by those who hold the view that consumption is an infectious disease, due to the reception into the organism of specific microbes, since it is well known that the germs of consumption are constantly found in the air of densely settled countries, and hence are continually being taken into the lungs; yet all persons do not suffer from the disease, evidently because the system is in some cases able to defend itself against the attacks of these microbes. It is evident that a person whose lungs are too small for his body, and hence not able to keep his blood in a pure condition, and the general vitality of the system at a high level, must be more apt to take the disease than one with large lung capacity, well aërated blood, and high vitality. Dr. Hambleton asserts that his researches show a complete series of types of chests and breathing capacity, exhibiting on the one hand extreme consumption, and on the other the finest type of health, and he also observes that these types are directly produced by the conditions of life to which the individuals have been subjected.

His remarks upon the practical value of these observations are extremely interesting and significant. We quote the following paragraphs to give our readers a knowledge of the facts presented by this investigator: —

"At the Birmingham and Manchester meetings of the association, in 1886–1887, I read papers giving the results of a series of investigations on consumption and chest types. At that time the evidence was mainly derived from experiments, although I had some most valuable and significant practical experience, and I found the general opinion was that it would be extremely difficult, if not impossible, to practically apply that knowledge. Since then, however, the practical evidence of the relationship between conditions and types of chest has been irrefutably established at the Polytechnic. By the application of that knowledge in the ordinary routine of daily life, the members of the Polytechnic Physical Development Society, although engaged for many hours daily in all sorts of trades and occupations, some of them under very unfavorable conditions, have shown how greatly the chest girth, its range of movement, the vital capacity, and the power of inspiration and expiration, can be increased.

"Last year, at Leeds, I gave the measurements of one hundred members. If you will refer to that report, you will find the average increase of the chest girth was 1¾ inches, that of the third class being 1¼ inches, the second, 2⅜ inches, and the first class, 3⅜ inches. At a subsequent examination for the Society's gold medals and certificates, the first three members had obtained an increase of 6½, 5, and 4⅜ inches respectively; and although some of our best members are constantly leaving the Polytechnic, and new ones joining us, I am glad to say there has been a further average increase of one quarter of an inch in all classes. Many of the members are engaged in the trades that have a high rate of mortality from consumption, and not a few of them would have long ago been in the ranks of the consumptives had it not been for the efficacy of the directions given them by the Society,—that is to say, the practicability and certainty of the measures that are necessary to secure the prevention of consumption have been fully demonstrated.

"While one part of the work has been pratically applied at the Polytechnic, the practical application of the other has been equally successful in the amelioration, and, where the disease was not too extensive, the cure of consumption. I cannot enter into medical details here, but I may state that by the cure of consumption I mean the possession and appearance of sound health, natural breathing from base to apex, a well-formed and fairly developed chest, a good range of movement, and vital capacity that have stood at least a twelve months' test. The cases that were referred to at Manchester in 1887 as having completely recovered, remain well, and those that have subsequently recovered, went through last winter without giving the slightest indication of a relapse. There has been no relapse in any of these cases of cure, and no failure. Up to the present the mor-

tality of all the cases has been under ten per cent, and has been limited to those who were most extensively diseased, and who were, in fact, *in extremis*. There are others who have derived great benefit, and some of them will ere long take their places in the ranks of the cured. One of the latter has stolen a march upon me. He presented himself for life assurance, was accepted as a first-class life, and obtained a reduction in his premium. He is unquestionably well, but he would not allow me my twelve months' test. . . .

"What steps are to be taken to secure the great benefits of this advance in knowledge? Let me, in the first place, remind you that consumption is a disease of civilization, a part of the process of evolution, by which an adjustment is made between the body and the work it has to perform under the ever-changing conditions of advancing civilization, by the removal of those who have a body incapable of that work, and that it is directly produced by the habits and surroundings that tend to reduce the breathing capacity below a certain point in proportion to the remainder of the body. Obviously, the first thing to be done is to prevent the production of this disease, and for that purpose we must see that the body is used to the extent its size demands, and that the work it has to perform is carried on under conditions that are favorable to the body,— that is to say, we must so arrange our habits and surroundings that their tendency as a whole is to develop the lungs. Each act of man, each factor in his environment, tends either in his favor or against him. We must avoid as far as possible — and where that is not practicable, we must counteract their action — those that tend to reduce the breathing capacity. Close, badly-ventilated, or hot rooms, the inhalation of any kind of dust, the habit of taking small quantities of alcohol (termed 'nipping'), stooping, positions that cramp or impede the full and free movement of the chest, the corset or tight-fitting clothes, overloading the body with clothes, etc., are examples of such conditions.

"We must place ourselves as far as possible under the conditions that tend to develop the lungs. We should spend as much time as possible in some form of active exercise in the open air, live in rooms that are in direct free communication with the external air night and day, summer and winter, and keep their temperature down. We ought to have the clothing quite easy over the chest at full inspiration, wear wool next the skin, take a tub daily, hold the body erect with the chest thrown well forward and the shoulders held well back, get into the habit of taking deep inspirations followed by full expirations, and breathe through the nose.

"We should go in for singing, swimming, gymnastics,— Ling's system by preference,— and for one or, better still, several forms of athletic sports, rise early, and maintain the temperature of the body by muscular exercise. I have briefly indicated the conditions that are favorable or unfavorable to lung development, and to that I will only add that measurements by the tape, the spirometer, and the manometer should be regularly taken, recorded, and compared with the standards that indicate a fully developed chest, and that it is the plain duty of each one of us to see that he stands well in that respect; for we can protect ourselves from the possibility of an attack of consumption by securing and maintaining a lung capacity far above the point at which the disease originates.

"The second direction in which we must take action, if we mean to remove this curse of civilization from our midst, is to recognize early, and that promptly and adequately, those who have the great misfortune to be its victims. This is the state with which we have to deal here. The lungs are being progressively destroyed by a process of irritation caused by more work being thrown upon them than they are able to effect, and this inability has been produced by their having been and still being subject to conditions that tend to reduce their capacity; and, further, during the progress of these events, the other organs have become involved by attempting to perform compensatory work, with the result that the general health is more or less seriously compromised. Consequently, in order to deal adequately with this state of things, we must treat consumption upon the following principles: To establish an equilibrium between the amount of interchange required to be effected and that effected, to enable the other organs of the body to perform their ordinary functions, to restore to the lungs their power of adjustment to their external conditions, and to obtain the above without producing indications of friction. That is, in other words, we must arrest this process of irritation, restore the general health, and develop the lungs to the required amount, in order to effect the cure of consumption. I will now briefly indicate the method of applying the principles above laid down. We must, to arrest this process of irritation, remove the conditions that impede the effecting of those interchanges by placing the patient under conditions that tend to develop the lungs, and make good any deficiency that may remain, by causing compensatory action by one or more of the other organs. We shall

proceed with measures for the restoration of the functions of any organ that may have been deranged, and when we have obtained the arrest of the disease and effected an improvement of the general health, we shall begin to develop the lungs. . . .

"It is easy to cure consumption at the commencement, even when both lungs are affected. It can be cured when there is a large amount of disease, and it may at least be ameliorated when both lungs are extensively diseased. I speak from practical experience, and I for one will not attempt to place a limit upon the great power of nature when all her forces are called forth and aided by the great and ever-increasing resources of science."

THE ancient Gauls, who were a very brave, strong, and hardy race, lived very abstemiously. Their food was milk, berries, and herbs. They made bread from nuts. They had a very peculiar fashion of wearing a metal ring around the body, the size of which was regulated by act of Parliament. Any man who outgrew in circumference his metal ring was looked upon as a lazy glutton, and consequently was disgraced.

THAT the popular idea that beef is necessary for strength is not a correct one, is well illustrated by Xenophon's description of the outfit of a Spartan soldier, whose dietary consisted of the very plainest and simplest vegetable fare. The complete accoutrements of the Spartan soldier, in what we would call heavy marching order, weighed seventy-five pounds, exclusive of the camp, mining, and bridge-building tools, and the rations of bread and dried fruit which were issued in weekly installments, and increased the burden of the infantry soldier to ninety, ninety-five, or even to a full hundred pounds. This load was often carried at the rate of four miles an hour, for twelve hours *per diem*, day after day, and only when in the burning deserts of Southern Syria did the commander of the Grecian auxiliaries think prudent to shorten the usual length of the day's march.

AN OBSERVATORY ON MT. BLANC. — M. Vallot has recently established a meteorological observatory on the side of Mt. Blanc, at a height of 4,400 meters, at which he has organized a system of continuous observations in meteorology and physical geography. The observatory is connected with two others, one at the Grands-Mulets, the other at Chamouni. M. Vallot has contemplated the addition of the fourth station at the summit of Mt. Blanc. His plans have, however, been forestalled by M. Janssen, who, by the assistance of M. Eiffel, the eminent French engineer, has undertaken the erection of an observatory at the very summit of this famous peak. The greatest difficulty which presents itself to the construction of the observatory on the top of Mt. Blanc, is the fact that the summit is wholly made up of ice of unknown thickness, which is continually forming at the top and floating down the sides. The workmen have already begun the work of tunneling the ice for the purpose of ascertaining its thickness. At a depth of thirty-six feet they found a prune stone, which had evidently been dropped by some traveler, and which affords evidence of the correctness of the statement previously made respecting the character of the summit. At a depth of forty-five feet no evidence of rock had yet been found. It is evidently possible to construct an observatory at this height, but how it shall be secured to *terra-firma* is a question which has not yet been solved.

DIET OF TRAINERS. — The following are a few of the restrictions and rules laid down by experienced trainers: —

Little salt. No coarse vegetables. No pork or veal. Two meals a day, breakfast at eight and dinner at two. No fat meat is allowed, no butter or cheese, pies or pastry.

WAKEFULNESS. — Continued wakefulness is a crying call to review one's habits and see what is wrong. There is, perhaps, mental unrest, irritation, or overwork, in which case laziness is to be assiduously cultivated. We may depend upon it, there is some want of balance. One chord is played upon too much, others are silent, and so the mental mechanism is all out of tune. Wisdom, then, dictates a reconstruction of habits. At all events, the wise person will not resort to opium, chloral, or any other sedative that steals away life while soothing it, and fixes habits which cannot be overcome.

Much depends upon the power of dismissing thought and becoming almost a blank. Napoleon had this faculty, and many another noted person. The late Lord Napier was believed by the British officers to owe his immense strength and power of endurance to the faculty of going to sleep at any moment when not particularly engaged. One of the famous politicians of Massachusetts, now an old man, yet with the vigor of a boy, has the same gift. In all these and in similar cases there is both concentration and determination.

AN ARISTOCRACY OF HEALTH.

THE tendency of man is to separate, according to natural affinities, into clans and classes. We have had, from time immemorial, aristocracies of military glory, of political power, of landed estates, of wealth, of illustrious ancestry, of empty titles, of "old families," and of many other distinctive claims. Even the most rural localities are not altogether free from persons who have pretentious aspirations to aristocratic exclusiveness and privileges. To say that this is all wrong, would be, perhaps, to make an attack upon human nature in general. We only want to point out not only a harmless but vastly beneficent channel into which this tendency of our nature may be diverted. We wish to propose the establishment of an aristocracy of health. What a grand thing it is to be well-born — to come into this world with a sound physique and an unclouded intellect! What a splendid ambition it is to live so that the integrity of the body may remain unimpaired, and the power of the mind may increase until advanced age!

Imagine in the distant future the account of a marriage in "one of our most select circles." The perfect symmetry and exquisite complexion of the bride and the manly strength and bearing of the groom sustain their claims to descent from families that for many generations have been free from the slightest taint of syphilis, scrofula, tuberculosis, insanity, nervous debility, rheumatism, and all organic weakness or constitutional tendencies to disease, but the members of which always die of old age; families whose rosy-cheeked women never wore corsets or tight shoes, never suffered imprudent exposure at the menstrual epoch, nor indulged in unwholesome forms of social dissipations; whose men never weakened their nerves with tobacco, fired their tissues with alcohol, or clogged their systems by gormandizing or indolence; whose husbands and wives did not spend their physical capital faster than it accumulated, but reserved their vital forces to contribute to more perfect health and higher and nobler forms of mental activity.

What a blessed promise such a union gives! Who would not like to marry into such an aristocracy! Who would not be proud to be a descendant from it! What a power such a race would have among their fellows — far beyond that conferred by wealth!

And yet such a desirable condition of things is not at all impossible or even difficult of attainment. Simply a little intelligent study and daily attention to plain laws of health will accomplish the object. Each husband and wife may begin now, and resolve that henceforth their daily lives shall contribute to this glorious cause. Each young person may prepare to become a partner in establishing an illustrious family in this wonderful new aristocracy. And each victim of incurable disease may at least resolve to spare himself the pain of seeing a group of sickly children around his hearthstone.

By joining in this movement you do not stint and deny yourselves, like the miser, to leave an inheritance for your heirs to fight over and squander after your death; you enjoy the full rich benefit of it yourself, and leave them a wealth that no man can take from them.

Then all hail and all hasten the glorious new order — the aristocracy of health, whose escutcheon shall be the erect, athletic form, the blooming cheeks and ruby lips, the pearly teeth and gleaming eyes of a happy race of healthy men and women! — *Medical World.*

ACCORDING to Xenophon, Cyrus, king of Persia, was brought up on a diet of water, bread, and cresses, until his fifteenth year, when honey and raisins were added; and the family names of Fabii and Lentuli were derived from their customary diet.

MRS. LE FAVRE, President of the New York Vegetarian Society and author of "Mother's Help and Child's Friend," is doing most commendable work by lecturing to the working classes upon "What to eat that is cheap and nutritious." She is going into the slums, to tell the people how intemperance may be largely prevented by abstaining from the use of flesh meat.

THE *Journal of Inebriety* calls attention to the fact that the use of tobacco and alcohol by railroad employees is liable, unconsciously to themselves, to produce color blindness.

"To be sure, it is a shocking thing," Dr. Johnson writes, "the blowing smoke out of our mouths into other people's mouths, eyes, and noses, and having the same thing done to us."

Sympathetic Friend — "Your health appears to have improved greatly of late."

Convalescent — "Yes; I've been off among strangers who didn't eternally talk about it!"

SELF-CONTROL.— An expert and experienced official in an insane asylum said a little time since that these institutions are filled with people who have given up to their feelings, and that no one is quite safe from an insane asylum who allows himself to give up to his feelings. The importance of this fact is altogether too little appreciated, especially by teachers. We are always talking about the negative virtues of discipline, but we rarely speak of the positive virtues. We discipline the schools to keep the children from mischief, to maintain good order, to have things quiet, to enable the children to study. We say, and say rightly, that there cannot be a good school without good discipline. We do not, however, emphasize as we should the fact that the discipline of the school, when rightly maintained, is as vital to the future good of the child as the lessons he learns.

Discipline of the right kind is as good mental training as arithmetic. It is not of the right kind unless it requires intellectual effort, mental conquests. The experienced official referred to above, was led to make the following remark by seeing a girl give way to the "sulks." "That makes insane women," she remarked, and told the story of a woman in an asylum who used to sulk until she became desperate, and the expert said, "You must stop it. You must control yourself;" to which the insane woman replied, "The time to say that was when I was a girl. I never controlled myself when I was well, and now I cannot."

The teacher has a wider responsibility, a weightier disciplinary duty, than she suspects. The pupils are not only to be controlled, but they must be taught to control themselves, absolutely, honestly, completely. — *Sel.*

THE SENSE OF SAFETY. — The sense of safety is a sense which cannot be over-estimated. In actual danger of death it is often a saving cause. Let two men be subjected to a prolonged fast; let one feel that he has nothing at command for sustenance except water, and that there is no reasonable escape from the ordeal; let the other be subjected to the same process, but with the knowledge that he can, at any moment, have any food he may please to call for, and the supremest difference will be shown. The man under the sense of safety will outstrip his less fortunate fellow, one, two, or three times in endurance. To come nearer home, let two persons be suffering from the same disease in the same intensity, and let one be visited by a physician who encourages the sense of fear, the other by one who dispels that sense, and the difference is as marked as night from day. The first physician may have all the knowledge, the other, the mere tact that gives confidence, and in the end the knowledge will often fail where tact will win. This is not a plea in favor of placing tact before knowledge; for some in physic who are tacticians pure and simple, may in their very success be the most contemptible of human beings, quacks, bare quacks, in nature, if not in name. So when we hear the people say too emphatically of a man, that they have faith in him, it turns out, too often, that they have no suspicion on what their faith is founded. But the ignorance of a man does not destroy the fact of faith in him as an element of cure, and the man of knowledge ought never to wipe off his slate the memorandum that knowledge which gives no sense of safety is like a meal at the mouth of a sepulcher.— *B. W. Richardson, M. D.*

Lady (to applicant) — "What wages will you expect as nurse?"

Applicant — "How ould is the babby, mum?"

Lady — "Six months."

Applicant — "Wid laudanum, mum, two dollars a wake; widout laudanum or soothin' syrup, three dollars."

THE thoughts and feelings which the food we partake of provokes, are not remarked in common life, but they, nevertheless, have their significance. A man who daily sees cows and calves slaughtered, or who kills them himself, sees hogs "stuck," hens "plucked," etc., cannot possibly retain any true feeling for the sufferings of his own species. . . . Doubtless the majority of flesh eaters do not reflect upon the manner in which this food comes to them, but this thoughtlessness, far from being a virtue, is the parent of many vices. . . . How very different are the thoughts and feelings produced by the non-flesh diet! —*Gustav Von Struve.*

Doctor — "You noticed, you say, a marked increase in your appetite?"

Patient — "Yes."

Doctor — "Sleep longer and more heavily than usual?"

Patient — "Yes."

Doctor — "Feel greatly fatigued after much exercise?"

Patient — "Yes."

Doctor — "Ahem! very grave case. But the researches of science, sir, enable us to cope with your malady, and I think I can pull you through."— *Harper's Bazar.*

PURE AIR VERSUS "COLDS."

A LATE writer in the *Popular Science Monthly*, having, by a habit of constantly breathing pure air, brought himself into a condition in which he finds it almost impossible to "take cold," gives to the public the benefit of his experience in the following paragraphs, which we quote: —

"I remember some curious facts of my own experience in the army in 1862 and 1863. I was not strong, and indeed was hardly fit to be in the army at all. And when I found myself exposed all day long to a steady rain, and at night to the outdoor air, with no fire, no change of clothing, no shelter but a canvas covering open at both ends, through which the rain dripped constantly, it seemed certain that the 'death o' cold' so often predicted must surely follow. Why it did not follow was more of a mystery then, however, than it is now; for I was in a place where the art of man no longer excluded one of the prime principles of health. I breathed pure air because I could not help it. During a service of fifteen months, with severe exposures, but fresh air constantly, the same immunity from colds prevailed. I remember, too, that when I came home from the army, the blessings and the curse — at least one of the curses of civil life — came back together. I had comfortable rooms to eat, breathe, and sleep in, on the one hand, but very soon colds, sore throats, and related troubles, on the other. This was the second count in the argument for pure air.

"Finally, after nearly twenty years of suffering according to the common lot of man, I resolved to try the pure-air cure, and from that time to this the windows of my room have been open almost constantly day and night. The result was immediate and striking, and for the last seven years I have not had one serious cold. My sore throats are wholly a thing of the past, and certain other physical derangements not usually associated with colds, have also disappeared.

"Like others, I have often to spend hours in crowded rooms. It sometimes happens after such an 'exposure,' as I prefer to call it, that I suffer for a day or two from a 'head cold.' But in every case so far it has proved to be entirely superficial — a natural and easy throwing off of the poison contracted in such crowded rooms, followed by no serious effects whatever.

"At this very moment in the house where I live there are twelve persons, every one of whom, except myself and one other, is suffering from the effects of a 'cold.' It certainly does look as if the exemption I enjoy is due to the exceptional privilege of the pure air to which I constantly treat myself. Perhaps it would help the argument to state that nearly all of my father's large family died of consumption.

"It should be borne in mind that the difference between the air of an ordinary room in which people live and that of the open air outdoors, is far greater than is generally supposed. Do but think of the emanations that constantly proceed from every object in such a room — carpets, walls, and draperies! People say, 'O yes, we believe in ventilation. We open the windows in the morning and let the air draw through; and at night we open the doors of our sleeping-rooms. We believe in pure air.' And I feel like saying to them: 'My dear friends, you know no more of really pure air than the blind mole down in the ground knows of sunlight.'

"I would not by any means advise persons who have been living in a close atmosphere suddenly to sit or sleep in the draught of an open window. It is only by degrees that such changes can be made with safety. But by degrees they *can* be made, and why might not most people at least begin to make them?"

Doctor — "Well, my little fellow, you have got quite well again! I was sure that the pills I left you would cure you. How did you take them, in water or in cake?"

Little boy — "Oh, I used them in my blow-gun." — *Fliegende Blätter.*

A REMARKABLE FOOD PLANT. — Von Humboldt, the great traveler, estimated that thirty-three pounds of wheat and ninety-three pounds of potatoes required as great an area of ground for their production as two tons of bananas. The banana plant seems to possess the ability to extract from the ground and the air a larger proportion of nutriment than any other plant. It has been aptly termed the "tree of Paradise." Its great importance as a food product is made apparent by the fact that three or four good-sized bananas are equal in nutritive value to a pound of bread. The amount of albumen contained in a pound of bananas is about the same as that found in a pound of rice; and the total nutritive value of a pound of bananas is only a trifle less than that of an equal quantity of best beefsteak.

HEALTH, GRACE, AND BEAUTY. — THIRTEENTH PAPER.

Why Stair-climbing is Injurious.

That climbing stairs injures a large number of women and young girls, is a fact to which thousands of weak-backed women are willing to testify; nevertheless we have long maintained, and still adhere to the proposition, unreasonable as it may seem, that stair-climbing is healthful. Thousands of people are injured by eating, and yet it is a very necessary and very healthful exercise of the organs of mastication. The injury comes from the improper exercise of the organs, which, when properly used, contribute to the maintenance of health and strength. We propose to sustain the same proposition in reference to stair-climbing. As an exercise, it is wholesome and healthful, calculated to develop strength of limb, symmetry of figure, and grace of movement. But it must be admitted that, as commonly practiced, stair-climbing often leads to mischievous consequences. These consequences should not, however, be so directly attributed to stair-climbing itself, perhaps, as to the unfitness of the stair-climbers for such vigorous exercise. A young woman who is scarcely able to move herself along on a horizontal plane, and cannot engage in even such gentle exercise as walking along a level country road for half an hour without being compelled to go to bed by a sickening pain in the back, is utterly unfit to undertake such violent exercise as lifting her body along a rapidly ascending and inclined plane,— in other words, for stair-climbing. She would, of course, be even still more unfit for such vigorous exercise as mountain climbing, unless in a stage coach or some other form of hoisting apparatus.

FIG. 1. — THE WRONG WAY.

The reason why the stairs of our modern school buildings "ruin so many school-girls," as mothers and many teachers and some physicians declare, is not, as the denouncers of our modern school structures assert, due to the stairways, but to the weakness and muscular good-for-nothingness of the stair-climbers. The Swiss peasant girl who has been reared among mountain crags, thinks nothing of carrying upon her head half a hundred pounds while tripping nimbly from rock to rock along the steep mountain paths of her Alpine hills, and could ascend, two steps at a time, a dozen flights of ordinary school-house stairs twenty times a day without the slightest physical injury. The writer has seen some bare-armed, bare-headed, bare-footed, broad-shouldered, and large-waisted young women skipping along in country roads among the Swiss rocks, with loads upon their heads which indicated their ability, not only to ascend, many times a day without injury, the easy

stairways of our American school-buildings, but, if necessity demanded, to take up one or two of our puny complainers of side-aches and back-aches as the result of climbing these same stairs, and carry them along with her. Yet these same Swiss damsels

FIG. 2. — THE RIGHT WAY.

are straight as arrows; their ruddy cheeks, red lips, and bright eyes are beaming with the highest health, and if questioned, they would assert that they never experienced, and had never heard of, such a thing as a back-ache, or any of its kindred aches.

Back-aches were born, not of stair-climbing, but of neglect of symmetrical muscular development of the body from early childhood. A young girl who has from early years been accustomed to such exercises as are calculated to develop the muscles of the trunk, especially those of the back and lower abdominal region, finds no occasion to complain of back-ache from stair-climbing. These complaints come from young ladies who spend a good part of their lives sitting in a relaxed, tumble-down fashion in a luxurious rocker or easy-chair, or poised upon a piano stool, propped up by the bones or steels of a fashionable corset. Such young women do not habitually use the muscles of the trunk, except in an inefficient and desultory way. If you notice them standing at recitation or doing blackboard work, they never stand squarely or in good poise, but are lop-sided, throwing their weight first upon one foot, and then upon the other, swaying from one side to the other with uncertain poise, evidently unable to maintain an erect and dignified attitude. It is, indeed, physically speaking, sad to observe the weak, awkward, and one might almost say, pusillanimous physical expression presented by a large share of the young women, and many of the young men as well, in the high schools and academies of the country, as they rise for recitation, or stand preparatory to the order to march to their seats. The projecting chin, round shoulders, posterior curvature of the back, flattened chest, forward position of hips, — all give to the individual not only a "cheap expression," but an air of weakness and inefficiency which is verified by the complaints which these individuals make of the disastrous effects following any attempt at such active exercise as climbing two or three flights of

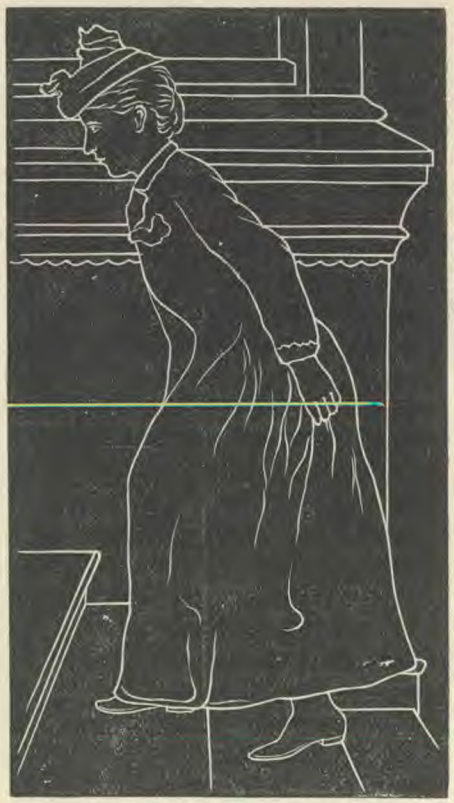

FIG. 3. — ANOTHER WRONG WAY.

stairs at a moderate pace, or doing a half-hour's work in the gymnasium.

It is high time that our fault-finding mothers discovered the fact that the responsibility for their daughters' "broken backs" lies not with the archi-

tects who design our school-houses, nor with the school-trustees who erect them, but with those who have neglected to secure for their daughters that most important part of the education of our young men and women,—proper physical training. It is the weakness of young women, and not the steepness of the stairs, that works the mischief.

Nevertheless, there is something further to be said respecting the mischiefs arising from stair-climbing. A feeble woman may ascend a stairway in such a manner as to suffer no injury to the muscles, or any injury to the back or trunk. Much of the evil arising from stair-climbing, is due to the fact that those who climb stairs do not know how to use their muscles in such a manner as to elevate their bodies along an inclined plane with the least expenditure of energy, and the least exposure to unnatural and harmful strain. In walking on a level surface the outlay of energy is made chiefly upon the legs; the arms swing easily by the sides, moved by the momentum of the body as it is alternately raised and thrust forward, first upon one limb and then upon the other. The trunk, if properly carried, will be balanced in such a manner that a line passing through the center of the body will vary but little from the perpendicular. In walking on a level surface, even bad walkers do not deviate so very greatly from a correct attitude, although one seldom sees a person who does not present opportunity for great improvement in his style of walking as regards physical carriage. But in stair-climbing there is one, serious and almost universal fault,—the upper part of the body is thrown forward so far as to bring a most unnatural and damaging strain upon the muscles of the back. Figure 1 illustrates our meaning. This picture is a reproduction from an instantaneous photograph, and fairly represents the attitude which one almost universally sees assumed in stair-climbing, though not always to quite so extreme a degree. Women and girls who have reached an age at which they have adopted long dresses, are almost certain to assume this attitude in ascending a flight of stairs.

The damage which arises from this awkward and unnatural position is not confined to the internal muscles of the trunk. There are internal muscular structures connected with the support of various internal organs, which suffer even more. A relaxation of the abdominal muscles when the body is bent forward, allows not only the organs of the lower abdomen, but the bowels, stomach, liver, and other organs of the middle and upper portion of the abdomen, to hang pendent, while at the same time there is an increased vigor of the respiratory movements, by which there is an increase of the force with which the diaphragm presses downward, causing downward displacement of the various organs connected with the lower abdomen and pelvis. The downward displacement of these organs is really the cause of the back-ache of which so many young women complain, rather than the muscles of the back. Pain in the back is a local expression of an internal disorder, just as headache is often an expression of a disordered state of the stomach, rather than of a diseased condition of the head. A lady patient once described a back-ache as being "headache in the back," a description which impressed us as being very apt as well as original.

The sovereign remedy for the evils resulting from stair-climbing, is the maintenance of a correct poise while ascending or descending stairs. In the case of persons whose muscles have not been developed by proper training, their movements in going up and down stairs must be very deliberate. These two suggestions, if carefully followed, will protect any person able to go up and down stairs at all, from suffering any injury whatever thereby. We have frequently startled women who have been suffering for years from ailments which it was supposed wholly interdicted such an exercise as ascending a flight of stairs, by replying, in answer to their question, "Doctor, do you think it would be possible for me to go up and down stairs occasionally without injury?" "Certainly; by all means take a trip up and down stairs once or twice a day regularly. It would be a good exercise for you." The poor woman who asks the question has sometimes been utterly shocked at the assurance with which we recommended stair-climbing as a physical means of grace. Really, going up and down stairs in a correct attitude, as shown in Fig. 2, is not at all an unhealthful exercise; the exercise is almost wholly confined to the legs. So long as the body is kept correctly poised, and the muscles of the back are not strained, the abdominal muscles, being well contracted, hold the internal organs in position; and, as the trunk is deliberately raised and moved forward by the action of the muscles of the legs, the individual slowly ascends, almost with unconscious effort, and apparently with the expenditure of a small proportion of the energy usually employed in the same exercise.

In going up a flight of stairs, one should inflate the lungs well, keep the chest well forward, and at the same moment think of Milton's cheerful line,

"Come and trip it as you go."

In this way, one will find himself at the head of the

stairway, feeling scarcely more fatigued than if he had been walking on a level surface.

To those of our readers who have long been complaining of stairs, and standing in mortal fear of stair climbing, we would say, Do not stop the performance of this exercise, but try to improve upon the method which we have described, and we predict that you will really come to enjoy stair-climbing, as a means of developing strength of lungs and limbs, and will soon be ready to confess that this much-abused mode of exercise is, when properly executed, both harmless and healthful.

THE first requisite for success in life is to be a good animal. — *Herbert Spencer.*

TO START PROPERLY IN A FOOT-RACE. — Dr. A. Alexander says: "Stand with the left toe to the mark, the foot flat. Let the other foot be twelve or eighteen inches behind, toe turned out and pointing to the scratch at the angle of about forty-five degrees. The feet should be far enough apart to balance the body well. If a small hole is dug for the right foot, a better start can be made, as the foot will not slip when the word is given. At the word to get ready, the whole weight of the body should be on the right foot, the knees slightly bent, both feet flat on the ground, no swaying or tipping on the toes. The body should be inclined slightly forward, just enough to get a well-balanced position. When the word 'Go!' is given, the runner must rise quickly on his left toe, and at the same time set his right foot vigorously into the ground, and speed ahead at a natural gait, not 'flat-footed' nor entirely on the toes."

OVER-EXERCISE. — Few theories are carried to a more unwarranted extreme than that of the importance of physical exercise and muscular development. Because exercise improves health, and muscle is a fine thing to own, half-educated reformers preach exercise and muscle as if there could not be enough of them. Any plain-spoken physician will say at once that there *can* be too much exercise, and that unwise forms of exercise can be injurious. He will also say that there is very slight essential connection between muscle and that supreme physical quality, vitality. Many a man has developed muscle at the expense of vitality, and many a nervous temperament has impaired health by dragging itself through exercise when it needed rest. Muscle is all right in its proper place, but ahead of it come heart, lungs, brain, and stomach. Exercise is so easily overdone, and may be made so injurious in some cases, that it is doubtful whether anybody should go in for the gymnasium or other athletic sports strongly, without the superintendence of a skilled physician in at least the early stages. — *Sel.*

THE Irish athletes show the most endurance of any athletes in the world. The reason for this seems to be the breadth of their chests. It is related that a few years ago two regiments of the English army were lined up in front of each other. There were a thousand Englishmen of the Royal Guard in one line and a thousand Irishmen of the Connaught Rangers in the other. The line of Irishmen stretched *thirty-six feet* farther than the other. It was caused by the difference in width of chest, for the men in both lines touched elbows.

MORAL VALUE OF PHYSICAL CULTURE. — That a certain amount of exercise is needful for health is one of the few things on which all doctors are agreed, and one of the still fewer things as to which medical teaching is submissively accepted by the non-professional public. Unfortunately, intellectual assent no more implies practical performance in the domain of hygiene than in that of morals. It is by those "in populous cities pent," by professional and business men chained to the desk of the consulting room, and by women, that exercise is most apt to be neglected. With regard to young ladies, indeed, it is not so very long since nearly all exercise worthy of the name was tabooed by Mrs. Grundy as only fit for "tomboys," and as tending to give an appearance of robust health which was thought to be incompatible with refinement. More rational notions are now beginning to prevail, however, and the limp, anæmic maiden, with uncomfortable prominences, is rapidly giving place to a type more like the Greek ideal of healthy womanhood. The ruddy-cheeked, full-limbed girl of to-day, who climbs mountains, rides, swims, rows, and is not afraid of the health-giving kisses of the sun, is a living illustration of the value of exercise. She is healthier, stronger, more lissom, and withal more intellectual, more energetic and self-reliant, as well as more amiable and better tempered than her wasp-waisted, beringleted great-grandmother, with her languid elegance and her Draconian code of feminine decorum. In the physical betterment which is so conspicuous in girls of the period, lies the best hope for the future of our race. — *Sir Morrell Mackenzie in The New Review.*

CLOTHING IN WINTER.

[Abstract of a lecture given by J. H. Kellogg, M. D.]

"I TOOK a hard cold early in the fall, and somehow I could not get rid of it all winter." Remarks like this are heard altogether too often. A cold is a very serious matter, not merely in itself but in what it leads to in crippling the vital forces generally or specifically. Preventive work is always much more satisfactory than reformatory work, and this is as true in regard to health as in regard to morals. Neither a patched-up character nor a patched-up constitution can equal one without blemish.

One reason why people take cold in the fall is that they do not begin to readjust their clothing soon enough, nor change from time to time as the necessities of the season require. Some go by the almanac, and lay aside or put on their flannels on a certain day of a certain month, regardless of any other consideration. But one day is cold, and the next may be warm, and there must be a continual change in the amount of our clothing to keep pace with these changes of temperature, which are really a part of the toning-up process intended by nature to prepare us to endure advantageously the cold of the winter season. If the cold settled down upon us all at once, we would be sure to suffer from the shock.

We should remember when we put on a garment that it becomes just as much a part of our body as if it grew there, so far as temperature is concerned. It is a kind of artificial skin, and we should regulate its thickness according to need, even if we make a change every day. This is the penalty which we pay for wearing clothing at all. Our forefathers, the ancient Britons, considered it a superfluity, and their skins were toughened so that they could endure the severe weather incident to that climate at certain seasons without difficulty.

Be outdoors as much as possible and inure yourself to the state of the weather. Stimulate the action of the skin by tepid or cold baths and brisk rubbings, and kindle the furnace fires of the body with a greater amount of pure oxygen from outdoor exercise. The heat-making preparations of the body will be thus increased, and as the difference between the external and internal heat is increased, we will have a brighter flame in our bodies as well as in our grates. Do not stay in for inclement weather, and nature will store up heat and energy enough to enable you to resist inclemencies. If the sun shines, you will surely need to be out a great deal, and if it rains or the snow blows, put on overcoat or cloak, and leggings and overshoes, and face the storm. If you shut yourself up in a close, hot room, you will doubtless have a cold all winter. Some people keep their houses actually warmer in winter than in summer—80° and 85° most of the time, with practically no ventilation. Additionally, they wear too many clothes, and then when they go out, their skins being relaxed and enfeebled from living in a close, hot atmosphere, they cannot help taking cold. The persons who suffer most from sore throats are usually those who wear comforters and mufflers in all sorts of weather and under all circumstances. They keep the skin moist and tender, and so a slight exposure will bring on congestion. Reserve heavy wraps and mufflers for the most severe weather and for protracted exposures like long carriage drives. Wear enough clothing for comfort at all times, and by no means attempt any rash hardening process.

The clothing of the body should be evenly distributed, and to this end, union undergarments for summer and winter are much to be preferred to those in two pieces, which lap and bring additional warmth where less warmth is needed than at the extremities (if there be any distinction made). Two suits of light flannel are warmer and more healthful because of better ventilation, than one very heavy suit. Many make the mistake of putting on too much outside clothing and too little underclothing. A garment which fits the body closely is a great deal warmer than an overcoat and a great deal cheaper. Every one should have a good supply of various

grades of underclothing. The feet should be clothed all the time with boots or shoes of uniform thickness, and they should be large enough to admit thick woolen stockings with comfort.

The clothing should be so adjusted that it is an easy matter to lighten it when entering a warm room from keen, cold outdoor air. One of the very best ways to take cold is to keep on heavy clothing or wraps while sitting in a heated room and then go at once into the cold. We need to exercise great care in regulating the temperature of our school-rooms and living rooms, to see they do not become overheated. It will not do to be governed by the feelings; a thermometer should be frequently consulted. A temperature of 68° to 70° F. is about right for the maintenance of health.

Proper ventilation should be attended to, for the breathing of air, foul with exhalations from the lungs and body, is exceedingly demoralizing physically, and predisposes to colds.

The cold weather of our northern clime is a universal tonic to all its dwellers. During its stay, we breathe a little more rapidly; we think faster; we are more energetic, and are lifted to a higher plane of existence. We must therefore not fail to get all its benefits. This can only be accomplished by properly adjusting our clothing to the weather, and spending a portion of each winter day in the open air.

MISAPPLIED POWER. — Although we may not think it, the whole argumentation in these days relates to the better application of power. Edison tells us that the force in the flow of a stream like the Mississippi would replace all the hand power on the Continent, and could be made to do so. He says that Niagara will yet be utilized by means of stored-up electricity to turn every spindle in the Empire State, and in New England besides. We know that in several towns in France the electric lighting is done by means of force generated from streams of water miles away, whose natural flow is thus transmuted into light. By parity of reasoning one cannot but reflect that the amount of force exerted at this moment to compress the waists of women by artificial methods, would, if aggregated, turn all the mills between Minneapolis and the Merrimac; while the condensed force of their tight shoes, if it could be applied, would run many a railway train. — *Frances E. Willard.*

THE WAIST UNNATURAL AND INARTISTIC. — The following, an extract from an illustrated London magazine, the *Strand*, are the views of a prominent English artist in relation to the accentuation of the waist in women's dress: —

"My own opinion is that female dress will never be thoroughly satisfactory until women have realized that they have no waists. Nature has not endowed them with waists, which are artificial forms produced by compressing the body. This seeming paradox is easily proved by considering that the waist of women has been placed by fashion in every conceivable position, from under the armpits to half way down the hips. Obviously it cannot correspond to any natural formation, or it could not wander about in this extraordinary manner. Of course the Greek lady never supposed she had a waist. She often, for the sake of convenience, had a string around the body, but only just tightly enough to keep her clothes in place, and then nearly always let some folds of the drapery fall over and hide the unsightly line. If there must be a waist, I distinctly prefer the one placed under the armpits, in the fashion of the beginning of this century, for it is physically impossible to tie it so tightly as to much alter the form, and having the division high up tends to minimize the most common defect of the English female figure — a want of length in the leg. Of course it is this want of length that has led to the high heels, but the remedy is worse than the disease. It does not really give the impression of long-leggedness, and it does alter and spoil the whole carriage of the body."

AIRING CLOTHING. — When taken off at night, each article of clothing should be hung where it will air. Especially should this be the case with outside garments, such as coats, dresses, skirts, etc., which cannot be subjected to washing. Even hose (which are oftener than any other way thrown in a careless heap on the floor), when not convenient to change, ought to be carefully turned and hung on a chair. This will divest them of the cold, clammy feeling common to hose which have been worn for several days. No garment should ever be taken off and put away in the closet without first being hung for a short time where a good stiff breeze will blow through it.

If these rules were followed, and if the occupants of crowded stores and street-cars were, as a contemporary truly says, "more careful to take off and air their coats, cloaks, and dresses, upon returning home, contagious diseases would be held within stricter bounds;" for the goods of which these garments are made is usually an excellent medium for the dissemination of the germs of all communicable diseases.

MOTHERS' INFLUENCE ON POSTERITY.

I HAVE, at times, as doubtless most mothers have, been deeply impressed with a sense of my responsibilities as a mother. I have thought of my children as being, in a very few years, the busy, active men and women of the day, helping forward the cause of right and justice and goodness, or taking their stand on the side of the enemy, and dragging themselves and others down to wreck and ruin. And I have trembled at the thought that I have now to help decide which it shall be. But I confess that until lately my vision stopped there. I thought not of my influence on my posterity of succeeding generations. I will ask you, mothers, to come and make a few calculations with me.

Suppose one of you to have five children, and that they, in their turn, will each be the parent of five children. Suppose these twenty-five grandchildren, also, to be each the parent of five children. You have one hundred and twenty-five great-grandchildren. Now that is not a far-off thing. It lies in the near future; yes, you might almost say in the present, for many of you will probably live to see your great-grandchildren. I know, and doubtless you do too, many hale, hearty great-grandmothers. But let us proceed in our calculations one step further, and there are six hundred and twenty-five human beings, who, in form, in complexion, in vivacity, in intelligence, in morality, in religion, in destiny, are, in a great degree, shaped, colored, molded, propelled, by the influence which you, mother, are exerting at this time.

We are all familiar with the story of Rip Van Winkle, who slept for twenty-eight years and waked up to find such marvelous changes. Let us, mothers, close our eyes and take a long, long sleep — longer than his. Let us sleep for several generations — sleep till these multitudes which we have been computing are treading with busy feet the tortuous mazes of life.

An angel with a mysterious torch glides into the silent room. At his gentle touch you awake to consciousness, and on the wings of light he has transported you far hence. You stand with him, all unseen, at the entrance of a bar-room. It is blazing with light, and the clatter of glasses and the din of angry voices reach your ear. The door opens, and a man staggers out and falls heavily on the pavement, and the gushing blood reaches to your feet. Instinctively you stoop down to help the fallen, but you recoil with a shudder as the angel flashes his mystic light full on his face, and reveals to your spirit's ken that your own flesh and blood lies before you. Ere you have time to collect your bewildered thoughts, your guide has transported you back three generations, and you are in a small, comfortable house in your native town. The door of the pantry stands open, and you see inside a young, pale-faced woman. She leans her head on her hands, and sighs as though her head ached. She opens a private press, and taking down a bottle of spirits, she pours out a little and drinks; and as she resumes her seat, with lightened step and enlivened eye, the angel's light falls upon her and illumines her countenance, and you recognize your own self of former days.

The angel is still at your side, mother. Arise in spirit and follow him. One sweep of his wing, and you are in the streets of a great city. It is late at night. The sober, respectable citizens are in their homes, retired to rest. Who are those women walking the streets at this hour of the night? What gaudy attire for such a time and place! There comes, meeting them, a simple youpg man, now proceeding to his place of abode. With bold effrontery they accost him, and as they turn with him and pass you by, the painted cheek and brazen brow and shameless talk tell you that you are in near proximity to a pair of the abandoned women of the town. With natural revulsion you gather yourself together, lest the hem of their garment should graze your feet; but in that instant the revealing light of the angel envelops them, and in dismay you hide your face from your own posterity.

Snatching you from the humiliating scene, the angel seats you in your own happy home of early wifehood and motherhood. A fair young woman reclines on a sofa, dressed in a loose morning robe, with hair disheveled and a dime novel in her hand.

The cheeks are fevered and the eyelashes sometimes wet as she pores over the alluring page. The hours of night are passing, but she heeds them not. She fears not disturbance, for her husband's business takes him from home many days at a time. At length the book drops from her hands and she lies dreamily gazing at the dying embers, voluptuously reveling in the details of the licentious story.

Curiosity tempts you to pick up the book and learn its name, for it has a familiar look. As you do so, the angel holds his lantern so that you may read the title, and in its light a ruby on the finger of the dreamer flashes in your eye, and lo! it is your own wedding ring! Turning your gaze down Time's pathway, the supernatural light of your guide sparkles along the invisible but indissoluble cord that joins the woman on the sofa with the woman on the street.

Once more the angel enters the room. Away you fly with him, and in an instant you are gazing through the bars of a prison cell. A young man — a mere boy — is the lonely occupant. Already crime has written its characters on his face, and you wonder that one so young should have found such a lodging. With the angel's leave you inquire of his jailor, How came he hither? He tells you that several times he had been arrested for petty thieving, and that his last act was to open a money safe, and that as he was about to abstract the gold, the night-watchman had sprung upon him, and in the scuffle that ensued, the boy had drawn a revolver and shot the man so that he died the next day. You sigh as you turn away from the poor lad, who must spend weary months and years in that cheerless cell. Carelessly you ask his name, and a tremor goes through you as there falls on your ear a name, strange and meaningless to the outside world, but familiar and fraught with meaning to you.

With the speed of lightning your angel guide has caught you up, and you are seated in a railway car. The express is slowing for the last stop before reaching the metropolis. The whistle has sounded; the conductor has shouted the name of the station; passengers, here and there, are hastily collecting various articles. One of them is the lady in the seat with you. As she abruptly rises, something falls into your lap. It feels like a purse, but it is dark; you cannot see. She steps forward to go out. She has not noticed it. You had wished so much to buy a winter wrap when in the city, but had not enough money to buy it and the other things you must purchase. The purse feels heavy — you could get the wrap easily now. You hope she will not miss the purse till the train has started. No! you are off! No one knows. No one has seen it. You did not steal it from her. It dropped into your lap. Surely it was a providential incident. Looking up at your angel guide, he turns the eye of his mysterious lantern, and sends its light flashing along the line from the purse in your lap to that desolate prisoner in the cell.

Mothers! mothers! mothers! "What manner of persons ought ye to be in all holy conversation and godliness." 2 Peter 3 : 11.

"O that there were such a heart in them, that they would fear me, and keep all my commandments always, that it might be well with them, and with their children forever!" Deut. 5 : 29. — *Mrs. C. R. Mc Cartney.*

THE TEACHING OF HE PRESS. — A noted writer in the cause of social purity says: "The agency, affecting social purity most widely and directly through the printed word, is the ordinary daily press. What is its teaching and influence?

"There are clean journals; giving news and not vulgar gossip; giving a full record of the time, of the evil as well as the good, as a true newspaper must do; but showing, by the space given respectively to each, that they hold great movements in the conduct of public affairs to be of more importance than small details of personal vice and crime. But of how many newspapers is this true? In how many is the eye first attracted by showy headings relating to the evil doings of insignificant people or vulgar details of personal gossip? In how many is to be found a disgusting particularity in all reports of scandals and obscenities? In how many is the space not devoted to advertisements given much more largely to the vicious than to the good side of life?"

SAID a young girl not long ago: "I think one deterrent to the pleasant friendships which might exist between young ladies and gentlemen, is the silly desire to see a flirtation in every acquaintance between young people." How much of this spirit is fostered by the "light reading" which almost all girls indulge in? Are not such books in a sense mirrors which convert the gazer into the distorted likeness they see of themselves? Let fathers and mothers see to it that all the reading matter which enters the home, or is suffered to influence the young, is pure in tone and elevating to mind and heart.

THE KEELEY FRAUD EXPOSED.

By ingenious advertising in newspapers, the publication of articles appearing to be editorials, but paid for as advertisements, and by every possible artifice, a considerable sensation has been produced within the last few months by Dr. Keeley, through his claims to cure drunkenness by the hypodermic administration of a medicine which he claims to be "bi-chloride of gold." Quite a sensation in favor of Dr. Keeley was made not long ago, by the appearance in the *North American Review*, of an article by Col. Mines, more familiarly known to the reading public as "Felix Oldboy." Col. Mines confessed to having been a confirmed inebriate, and claimed that he had himself been cured by the method. Dr. Keeley's prestige was on the topmost wave of prosperity. Hundreds flocked to him for treatment, and the crowd increased until it is claimed that more than 700 patients are in daily attendance at his office, giving him a princely income, amounting, at $25 a week apiece, to the comfortable sum of $17,500 a week — a very comfortable salary for a doctor who was refused a certificate to practice by the Illinois State Board of Health. Not being able to practice regularly, the doctor has taken up this fad, and seems to have gotten even with the State Board of Health of Illinois, and with the public, which he has succeeded in gulling in a most magnificent manner.

But Dr. Keeley's glory is at an end. The next number of the *Review* succeeding the one in which Col. Mines's eulogy of the method appeared, was scarcely published before the poor man found the old fever running riot in his veins, in which he went to greater lengths than ever before. He was finally arrested and taken to Charity Hospital on Ward's Island, where he died in delirium tremens. Patients were also said to have developed delirium tremens while under treatment at a branch of the Keeley Institute, at White Plains. A physician in Chicago has brought suit against Dr. Keeley to recover damages for using his name as a patient who had been cured of the alcohol habit, when in truth he had never been a patient at all, but had only written a letter of inquiry.

Another point against Dr. Keeley is the development of the fact that there is no such thing as bi-chloride of gold; at any rate there is no staple compound of gold which could be properly thus named. There is chloride of gold, but no *bi-chloride of gold*, so that the claim he makes as regards the nature of his remedy is evidently false, and in this respect he must be denounced in unstinted terms as a swindler. It is, indeed, a question whether there is any gold whatever in the remedy which he employs. Certainly if present at all in any form, its quantity is too small to be appreciated.

But the fact remains that persons who have visited Dwight, Ill., and were drunk, have come away sober, and have remained sober. How is this to be explained? Evidently there is a mental influence connected with the treatment, by which the patient is impressed with the idea that he has been cured, and that the liquor habit no longer has power over him. So long as he maintains this state of mental confidence, he is safe from the power of the habit. Thousands have been cured by other means, through the same state of mental assurance. If there is any virtue whatever in the Keeley method, this is the secret of it. Certainly there is no potency in any drug to remove permanently the appetite for alcohol, any more than for the removal of the disposition to lie, steal, or commit any other crime.

Keeley is evidently a charlatan, and he will work his so-called "secret" for all it is worth so long as he can find victims. We have no objection to his carrying on his work so long as he can make it go, since he evidently does convince a few drunkards, at least, that they are free from their fetters, and hence some good is accomplished. We are not particular how drunkards are reformed, if they are only re-

formed ; nevertheless, it is our duty to point out the fact that the principle upon which the cures are claimed to be made is a fallacious one, and that the method pursued by Dr. Keeley is not in harmony with either good sense or good morals, as his evident purpose is not a humanitarian one, but a purely selfish and unprincipled scheme for lining his own pockets, not with any "bi-chloride of gold," but with something far more patent and tangible in its effects — the unadulterated article.

"NEW HYGIENE" ON ITS LAST LEGS.

DR. HALL still continues to vituperate everybody who does not recommend his so-called "secret remedy," and is especially venomous against us for having exposed the fact that instead of originating the idea, as he claims, he had stolen it from Dr. Shew, who published it at least a year or two before the date at which he claims to have made his marvelous discovery. Our exposure of this fact seems to have paralyzed him for some time, as he refused to reply to the most importunate letters written him by his agents who declare that they find their business destroyed by our *exposé* unless he can make some explanation ; but no explanation has been forthcoming. After a while the ingenious *savant* discovered a small opening through which he imagined he could make a safe escape. The book (Dr. Shew's book) in which Dr. Hall's secret is so fully and explicitly described, was copyrighted (and doubtless published also) a year or two before the date at which Dr. Hall claims to have made his discovery. But the edition which Dr. Hall has, bears the printer's date 1850, a year after the time when Dr. Hall claims to have made his discovery. Dr. Hall admits that the book was copyrighted two years before, but undertakes to escape by the quibble that the book was doubtless copyrighted two years before it was printed,—a most absurd claim, as no certificate of copyright is ever issued until after a book is published. The book itself gives evidence that at least one or more editions had previously appeared, showing that the edition of 1850 was without doubt the successor of one or two previous editions which were published at the time the book was copyrighted.

But allowing all that Dr. Hall claims, his case is not helped a particle, for the reason that Dr. Shew did not claim to have published any discoveries of his own, but simply to describe the methods in use by Priessnitz, at Graefenberg. Priessnitz had been employing the methods described by Dr. Shew, including the so-called secret of Dr. Hall, for twenty or thirty years ; thousands of persons from all parts of the world had visited his establishment, among whom were numerous physicians. So these methods of treatment were well known in this country, and had been practiced for years, not only by Dr. Shew but by other physicians, long before Dr. Shew's little manual made its appearance. Dr. Hall, in the wild search for the remedies which he describes in his manual, would have been certain to have learned of the simple injection of water into the bowels in quantities of from one to several pints, as described by Dr. Shew, and as practiced by all water-cure physicians at that time and for many years previously.

Notwithstanding our exposure of this pretended secret in all parts of the country, we are astonished to find so respectable a journal as *The Farm, Field, and Stockman*, of Chicago, offer this exploded secret as a premium for their journal ; or perhaps we should put it the other way,— that they have engaged in the sale of the "secret" with their journal as a premium for "Dr. Hall's Health System," as the so-called secret is called. The whole "system" consists of the injection into the bowels of as much water as the colon can be made to hold,— a method of treatment, which, while useful in necessary cases, is capable of producing much harm when recommended for universal employment, by undue mechanical distension of the bowels, and by accustoming the bowels to the use of an unnatural stimulus, thus destroying their normal activity. The fact that a few or many persons have been materially benefited by the use of the water enema (which is no discovery of Dr. Hall's), does not by any means justify the conclusion that every man, woman, and child ought to adopt this as the habitual mode of evacuating the bowels, as is claimed by Dr. (?) Hall. The whole business is one of the most outrageous frauds that we have ever known to be published.

GERMAN LINIMENT.— Oil origanum 1 oz., oil sassafras 1 oz., gum camphor ½ oz., Granville's lotion 3 dr., chloroform 3½ dr., tinct. aconite ½ oz., tinct. capsicum ½ oz., camp. soap liniment 1 oz., alcohol ½ gal.

METZ'S BALSAM.— Linseed oil 180 parts, olive oil 180 parts, oil laurel berries 30 parts, turpentine (oleo-resin) 60 parts, powdered aloes 8 parts, powdered verdigris 12 parts, powdered white vitriol 6 parts, oil juniper 15 parts, oil cloves 4 parts.

GOOD HEALTH
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BATTLE CREEK, MICHIGAN.

THE NEW YEAR.

A NEW year has come, and with it have come to many thousands, new plans, new hopes and aspirations, and new resolutions. How many thousands have said within the past week: "January 1 I will turn over a new leaf"! The leaves of life's book are turning, whether we will that they shall or not, and each day's record goes down indelibly, whether we take thought of it or not. Good resolutions looking toward reformation, for the fulfilling of neglected obligations, amount to nothing unless carried into effect. "Better it is not to resolve, than to resolve and not to do," is an old saying which most of us have seen verified in our experience.

At this auspicious season, when, as it were, a new chapter in the book of life is opened, it is well to consider the mistakes and errors of the past, and to determine that the future shall witness better things. But wishing, planning, resolving, willing to do different or better, possess in themselves no potency for the evolution of tangible results. We must look deeper into the nature and causes of things. If we have failed in the past to reach our ideals, it is because there is some underlying cause which has continually stood as an obstacle in our way. Resolutions heaped upon resolutions will all share the same fate as their predecessors unless this underlying cause is removed. This principle holds just as true in the moral as in the physical world. Let each one, then, who desires that the coming year shall be a better year than the past, and more fruitful of good results than its predecessors, carefully scrutinize and study his faults and failures with reference to the deep-lying influences which have led to them, rather than the accidental circumstances with which they may have been apparently, though really but superficially, related.

If one has been addicted to some error in diet, the harmful nature of which he has well known, but has nevertheless failed to overcome his liking for the particular viand, the indulgence of which has so often been visited by nature's just retribution in the way of indigestion,— perhaps an attack of nervous or sick headache,— he must realize that the fault is not in the taking of the tempting though pernicious article of food, but in the illegitimate gratification of an animal appetite. Quite possibly the careful study of his habits, and especially his faults, may lead an individual to the discovery of the fact that other animal appetites are likewise illegitimately gratified; and it may be that the gratification of a depraved taste, or rather, the prostitution of the taste to mere sensuous enjoyment, independent of its utility as an aid to the appetite, is the open door through which enters a whole line of resolution-breaking, soul-debasing tempters, which, taking possession of the emotions and the animal instincts, lead to lines of thought and conduct which render life on a high moral level impossible, even in spite of any number of the best resolutions and the strongest pledges.

The relation of physical causes to mental and moral states is a question which is being more and more studied and discussed, and it is to be hoped that the study and investigation which is in progress may result in the liberation of men and women from the influence of many ancient superstitions, and the final revelation of the fact that the three elements of man's nature — physical, mental, and moral — are so intimately associated that the successful culture and development of one requires the simultaneous culture and development of each of the others. This truth was never more tersely and beautifully expressed than in the motto which the ancient Greeks at the period of their highest glory wrote over the portals of their temples: "A Sound Mind in a Sound Body."

DANGER IN OYSTERS.

We quote the following from the December number of the *Bacteriological World and Modern Medicine:* —

"The scavenger habits of the oyster render it peculiarly liable to become a vehicle of the infectious material of typhoid fever and other allied diseases. The *British Medical Journal*, in an editorial, thus discusses the relation of oysters to typhoid fever: —

"'The question of the causation of typhoid fever by the ingestion of oysters growing in polluted estuaries has come into public prominence in connection with the illness of His Royal Highness Prince George. It is not for the first time. At the meeting of the British Medical Association in Cambridge, Sir Charles Cameron, the present medical officer of health for Dublin, read a paper entitled, "Sewage in Oysters," in which he pointed out that oysters growing in estuaries and other places to which sewage has access, must often contain sewage matter. Indeed, he found this to be the case in oysters collected in Dublin. So lately as September 20, 1890, he recorded in the *British Medical Journal* a series of cases of enteric illness (fortunately not fatal) from apparent poisoning by oysters, referring also to four fatal cases of poisoning by mussels, in the case of Mrs. O' Donner and her family, which created a great and painful impression earlier in the year, and were reported in our columns of July 19. In this case, also, the mussels were in contact with sewage water; and he notes that in nearly all the cases of mussel poisoning on record they were in contact with sewage or stagnant water, although there is a tendency to refer "mussel poisoning" to other causes. It may be remembered, also, that Dr. De Fabeck reported in our pages cases of typhoid fever attributed to poisoning by sewage-polluted oysters in Naples, and called attention to the danger of eating oysters, — a danger to which, from personal experience, we can testify. There were, it may be added, a great many persons in Dublin last winter who attributed attacks of typhoid fever, diarrhea, etc., to the use of oysters.'

"Dr. Segers, of Buenos Ayres, a surgeon in the navy of the Argentine Republic, recently described, according to the *British Medical Journal*, a newly observed disease, which he denominates 'chronic mussel poisoning.' In a recent visit to Tierra del Fuego, he made a careful study of this disease. The following are the principal symptoms: Marked jaundice, hypertrophy followed by atrophy of the liver, and hemorrhages from the various mucous surfaces. The last-named symptom is speedily followed by death. The disease prevails among the Fuegians to such an extent as to threaten the extinction of the race. Mussels are very abundant on the Fuegian coast, and the natives depend on them largely for sustenance. Their nutritive value is so small — a large quantity is required to support life — that the Fuegian sometimes eats from ten to twenty pounds of mussels in a day. It seems that the condition of the mussels varies with the state of the moon, the creature becoming poisonous during the wane of the moon, at which time a great number of the mussels die. It is believed by Segers that the poisonous ptomaines produced by the decomposition of the dead mussels, are absorbed by the survivors, and that this is the cause of the disease produced in those who eat them. By feeding the mussels to fowls, Segers was able to produce symptoms similar to those observed in human beings. Injections of extract of the livers of diseased mussels, prepared at a temperature sufficiently high to destroy microbes, caused in mild doses a sort of intoxication, a staggering gait, and a rise of temperature. Large doses were followed by dilatation of the pupils, coldness of the extremities, tremor, weakness of the heart, and death.

"From the toxic effect of these injections with liver extract prepared at a temperature sufficiently high to destroy microbes, Dr. Segers concludes that the mussel poisoning is chemical in character, and not microbic. The disease in human beings may be successfully treated in the first stage, but in the second stage, when atrophy of the liver has begun, the disease proves rapidly fatal in spite of all treatment.

"The accumulation of evidence against the oyster as an article of diet seems to be rapidly increasing, and it appears safe to predict that the time is not far distant when this delicacy will be discarded as too risky a morsel for human consumption."

Why Women are Prone to Cancerous Disease. — According to the *Medical Record*, Dr. Snow says that the number of women who apply to the Cancer Hospital is twice as great as that of the men, notwithstanding the frequency of cancer of the lip and tongue which occurs almost exclusively in males, and is usually the result of tobacco-using. The great excess of cancerous disease in women is due to cancer of the uterus and *mammæ*. The doctor gives, as one reason why these organs are so liable to malignant disease, the abnormal conditions imposed by civilized life, — constipation, tea drinking, and tight lacing.

SONG OF THE GERMS. — The editor of the Boston *Medical and Surgical Journal* thus soliloquizes about germs : —

Germs in the air,
Germs in the sea,
Germs wherever one may be.
Germs and to spare,
Growing in me,
German germs from Germany.

What e'er we say
Or write or think,
Germs will wriggle in the ink.
On tongues they 'll play,
And "culture" drink,
From each minute cerebral chink.

A HERD OF TUBERCULOUS CATTLE DESTROYED. — Rhode Island cattle raisers are having a hard time on account of the prevalence of tuberculosis and the persistent destruction of these animals by the State Board of Agriculture. A recent paper gives an account of the total destruction of a herd of fine thoroughbred Jerseys on account of tuberculosis, the herd having been condemned by the State authorities. Something radical ought to be done at an early date to prevent the extension of this disease among lower animals and human beings. Something is being done for the protection of the first class named, but little or nothing has, as yet, been attempted in the direction of limiting the extension of the disease among human beings.

THE ALIMENTARY CANAL OF VEGETARIANS. — It is a well-known fact that the alimentary canal of vegetarian animals is much longer in proportion to their length than in carnivorous animals. For example, in the sheep the alimentary canal is about thirty times the length of the body, while in the lion and other carnivorous animals, it is from three to six times the length of the body. In man, a frugivorous animal, the alimentary canal is ten times the length of the body, fruit, the natural food of man, being an article which requires a less complicated digestive apparatus for its conversion into blood-making material than the coarse roots and herbage upon which herbivorous animals usually subsist.

A curious fact has recently been observed by Küttner, as related by him in an article published in Virchow's Archives. This author has made very extensive anatomical researches respecting the length of the small intestine in different classes of persons. He finds that in the vegetarian peasants of Russia, the small intestine measures from twenty to twenty-seven feet in length, while among Germans, who use meat in various forms quite freely, the length of the small intestine varies between seventeen and nineteen feet. The author attributes the difference in length of the small intestine, in these two classes of persons, to the difference in diet. Of course differences of this sort must be the result of the influence of diet exerted through many generations.

WHY JEWS DO NOT HAVE CONSUMPTION. — Dr. Heron, an English physician, has recently published a work entitled, "Evidences of the Communicability of Consumption," in which he calls special attention to the fact that orthodox Jews are remarkably exempt from this disease, which fact he attributes to the great care by which all animals prepared by carefully conforming Jews are inspected before being allowed to be offered for food.

According to Dr. Heron, about four per cent of all the animals slaughtered for food in Great Britain are affected in some degree by tuberculosis. He believes that if the same care was observed in the inspection of all animals used for food as is observed by the Jews, the result would be a very great diminution in the prevalence of this disease.

TUBERCULOUS CATTLE IN RHODE ISLAND. — A Providence journal gives an account of the killing of a large number of fine cattle in the vicinity of Warwick, found to be suffering from tuberculosis. It is stated that the State Board of Agriculture, which has power to condemn and destroy these animals, is constantly receiving complaints from different parts of the State respecting cows suspected of being tuberculous. The report describes the conditions found in several cases, as follows :—

In one animal "there were growths in the lungs as large as a man's fist, and they emitted a terrible odor. The animal was very thin and emaciated, and evidently diseased."

In another large cow the lungs were found to be running with a yellowish filthy matter, the result of tuberculosis. In the kidneys of this cow "were found large tubercles filled with dark, gritty matter."

In still another case a large, fatty, tuberculous mass was found in the neck.

In another instance a large bunch the size of a man's fist, growing in the neck, was filled with purulent matter.

This disease is rapidly gaining ground in this country, and it is high time that most strenuous measures were taken to prevent the further extension of the disease among cattle, and especially to prevent the contraction of the disease by human beings through the use of the milk and flesh of diseased animals.

ENGLISH JAM. — According to the *British Medical Journal*, "An inquiring stranger who was being shown over a British wine manufactory noticed several high mounds of crimson dust. These, he was told, were the refuse from the wine-presses in which the juice of raspberries, currants, and other fruit used in the business, was extracted for making the wine. As it is seldom that anything is wasted in an English factory, an inquiry was made as to the form in which these mounds of dust would re-enter the market; the visitor was promptly told that it was disposed of to jam-makers to give the appearance of fruit to the pulp of turnips, vegetables, apples, or what-not, which forms the basis of the confection. It would seem that almost anything will do to make jam of, as the chemist can produce a flavor to imitate every kind of fruit. It is commonly supposed that orange peel wherewith to make marmalade is picked up in the streets. Probably this is a slander on the preserve-maker, but according to the report of a case heard this year in a metropolitan police court, rotten oranges in the condition of a 'black, pulpy substance,' and 'quite unfit to eat,' as the inspector very sapiently remarked, are considered by the owners good enough to be 'chopped up for marmalade.' Oranges for this 'excellent substitute for butter at breakfast,' it was shown, cost only four shillings a box, whereas fruit for eating costs twelve shillings — a disquieting fact indeed."

The facts which are disclosed in the above paragraph, may be of greater interest to English than to American readers, as jams are not so much used in this country as in England. Nevertheless it should be known that the same impositions and adulterations are practiced in this country as in England; indeed, the laxity of the laws in reference to the adulteration of foods is so great in this country, that were it not for the abundance and cheapness of fruits, making substitution or adulteration less profitable than in countries where fruits and their derivatives are scarce and necessarily high in price, a much greater amount of adulteration would doubtless exist in this direction. It is probable that sophistication of every description prevails to a greater extent in this than in any other civilized land. As it is, one may feel assured that when purchasing an average specimen of canned plumbs, bottled jam, fruit extract, baking-powder, or "sugar-house" syrup, he is certainly investing his money in something other than what he supposes himself to be purchasing. Sophistication, sham, humbug, and quackery are the order of the day. Barnum used to say that the people loved to be humbugged, and the readiness with which adulterated goods are purchased and nostrums are swallowed, if they are only cheap and highly lauded, verifies the truth of the great showman's observation.

THE Iowa State Board of Health has included membranous croup in the list of infectious diseases, and requires it to be quarantined.

IT has been recently discovered by a German chemist, that citric acid is a normal constituent of cow's milk, which contains about one half dram of citrate of lime per quart.

FATIGUE FEVER. — It is doubtless not generally known that exhaustion or fatigue may induce fever closely resembling that due to microbes. The real cause of the production of these fevers is the development within the body of poisons resulting from tissue changes. In typhoid and allied fevers the rise of temperature is due to the production of poisons by the germs which are developing within the body. There are no germs present in cases of fever induced by fatigue or exhaustion, but the poisons produced by the body itself, accumulating more rapidly than the kidneys and other excretory organs are able to throw them off, produce the same results as the poisons generated by germs.

This class of fevers appear under three forms or degrees :—

1. A condition in which there is little or no rise of temperature, but a condition similar to that of the typhoid state. This is quickly relieved by rest.

2. A condition induced by very prolonged fatigue without proper periods of rest. This is the acute form of the disease. There is a rise of temperature, and a change in the fluids of the body, a continuous fever, and conditions similar to those observed in mild cases of typhoid fever.

3. The third form of the disease is the result of violent exertion or prolonged and hazardous muscular effort, such as forced marching, or watching at night, followed by labor during the day for a prolonged period without proper rest. In this form of the disease the course of the malady is very similar to that of a severe case of typhoid fever. Death sometimes results in consequence of it.

Death rarely if ever occurs in the second form of the disease, although the patient sometimes lingers for weeks in the febrile state, the temperature fluctuating more or less, as in other fevers. Relapses occur easily, if due prudence is not exercised in refraining from work until convalescence is firmly established.

Why the Hair Falls Out.— The reason why a hair falls out, is that it becomes too heavy for its roots. We sometimes see a tree on the mountain side that has fallen down by its own weight,— its roots could not hold it. It is for a similar reason that the hair falls out, the shaft of the hair has grown too heavy for the root, and so it becomes loosened by its own weight. The hair is always falling out, more or less, in proportion to the degree in which the roots are nourished. With every person the hair has a definite length, and it is impossible for it to be made to grow longer, because its length is proportioned to its size and the size of its roots. Some persons have hair that will trail upon the floor, while that of others is only eighteen or twenty inches in length, and the reason is that the roots of the former are strong and well nourished, while those of the latter are only capable of carrying the weight of the shorter hair.

The roots of the hair may be weakened by disease of the skin. This may be a parasitic disease, and vegetable fungi may grow down into the roots so that they will become weak and diseased in consequence. Or the whole scalp may be diseased so that its nutrition is interfered with, and there is not sufficient blood brought to the roots of the hair. In baldness the natural condition of the skin is changed. Instead of being velvety, it is thin and shiny; and instead of being movable as a healthy scalp should be, it is often attached to the skull.

It has been frequently observed when massage is applied to the head that it promotes the growth of the hair; it becomes thicker and has a better luster. The oil of the hair is also more abundant when massage is used. A shampoo given with fingers dipped in cold water, is invaluable. By shampooing, the blood is brought to the surface, while by manipulation the old dead skin will be removed, the scalp brought into a healthier state, and the blood supply increased so that the deeper structures as well as the upper layers of the skin will be invigorated and their health improved. Sometimes the skin is so closely attached to the skull that it can hardly be moved; but by this treatment, after a couple of weeks, it becomes movable. This looseness of scalp is a thing that is necessary for its health; therefore we would recommend massage of the scalp as one of the best means of promoting the health of the hair.

Hair tonics are mere stimulants. All they do is temporarily to excite the skin. They have the same effect as do all other stimulants — at the expense of apparent temporary benefit they really deplete the vitality of the scalp.

A New Method of Removing Foreign Bodies from the Ear.— A Scandinavian medical journal recommends the following as a method of removing foreign bodies from the ear, when syringing after the usual method proves of no avail: —

"Dip a small brush in liquid glue, introduce it into the ear so as to let it come in contact with the foreign body. Let it dry, for which half an hour or an hour will be required. The glue should be warm when applied.

"A quicker method is to pulverize a little alum, warm it in a teaspoon over the flame of an alcohol lamp, dip a camel's hair brush, or the blank end of a match, in the melted alum, and quickly introducing it into the ear, bring it in contact with the foreign body, letting it remain for a few moments, when the foreign body will be found stuck fast to the end of the match or brush, so it can be readily withdrawn. To prevent burning the ear by contact with the melted alum, a little tube of paper may be made by rolling up a bit of writing-paper and passing it into the ear down to the foreign body. The paper should be drawn out at the same time with the match or brush to which the foreign body is attached."

COOL BATHS FOR FEVERS. — After many years of experimentation with a great variety of medicinal agents for the purpose of reducing the temperature of patients suffering from diseases attended by high temperature, many of the most eminent physicians are returning to the use of the cool or cold bath, the virtues of which were well demonstrated by Curry more than a hundred years ago, and afterward popularized by Priessnitz and his followers, and which have been, for more than a quarter of a century, in general use in Germany for this as well as other purposes in the treatment of disease. In a recent lecture published in the *Medical News*, Dr. E. G. Janeway, one of the leading physicians of New York City, remarks as follows respecting the best method of lowering temperature in cases of typhoid fever: —

"If the fever remains high, I would advise the systematic employment of baths, beginning with a temperature of 96°, and cooling it down to 70°, or placing the patient in a bath at 70° for about ten minutes, and then taking him out and rubbing him down thoroughly to favor reaction. These baths effect an immediate reduction of the temperature, and subsequently a still greater reduction."

A SIMPLE REMEDY FOR CASES IN WHICH FOREIGN BODIES HAVE BEEN SWALLOWED. — Children not infrequently swallow pins, sometimes pennies, and even larger objects, through the careless habit of holding such things in their mouths. Careful parents will instruct their children in better habits, but the great majority of children are not observed with sufficient care, neither are they sufficiently well instructed, to prevent the frequent occurrence of cases in which foreign bodies, of more or less harmful and dangerous nature, have been swallowed. The best method of dealing with cases of this sort was discovered by a German surgeon, some years ago. A case well illustrating the value of this method was recently reported by Dr. Silver, of New York. A three-year-old boy, while lying on his back on a lounge, playing with a large shawl-pin, which he was treating as a cigar, suddenly swallowed the pin. His mother heard choking sounds, and on turning toward the boy and asking what he had done with the shawl-pin, he promptly replied, "Me eat it up." The mother, of course, was very much alarmed, but on examining the child's throat could see no trace of the pin. She took the child at once to a physician, who also made a careful examination but could find no trace of the swallowed article. The mother was directed to give the boy nothing but potatoes to eat for two days, but to allow him to eat freely of this vegetable. Four days after the pin was swallowed, it was passed without difficulty, the head downward, and was found to be imbedded in a thick, pasty mass of undigested potato. The pin was three inches in length, and the diameter of the head was one half inch. In cases in which articles with ragged edges or sharp corners have been swallowed, the same remedy has been employed with equally good success.

FOR SLEEPLESSNESS. — For many years we have been in the habit of recommending, in cases of sleeplessness, the wearing of the moist abdominal bandage, or what the Germans call "Neptune's girdle." This was one of the favorite remedies of Priessnitz, and we have demonstrated its virtues as a sleep-producer in hundreds of cases. We quote from the *Dietetic Gazette* the following translation from a French medical journal, as evidence of the popularity which this simple remedy is winning in higher medical circles: —

"Warm baths, as is well known, produce a calming effect, and tend to bring on sleep, and Alldorfer has attempted to apply such a method to patients where a sedative effect is desired, and yet where a bath is inapplicable. His method consists in wrapping the lumbar region and belly with linen cloths soaked in warm water, and then covering them with oiled silk or rubber cloth, so as to prevent evaporation, while the whole is kept in place and loss of heat prevented by a flannel cloth. This procedure is of ready performance, and the author says that by this simple means he has obtained most astonishing results in the treatment of insomnia. By dilating the large vessels of the intestinal tract by the warmth applied, a condition of anæmia of the brain is produced, favoring sleep. These large intestinal vessels have been very properly termed the waste-gates of the circulatory system."

DIET FOR NERVOUS DYSPEPSIA. — Nervous dyspepsia is one of the most common of all nervous disorders. According to our observation, this disease lies at the foundation of a great majority of the cases of chronic nervousness, nearly all cases of nervous headache, and a large proportion of the cases of insomnia, mental depression, and various other forms of nervous derangement, which are too often attributed to a great variety of subtle and far-fetched causes, which, in the majority of cases, probably have had little or nothing to do with the development of the disease. In our experience in treating this class of cases, running back for twenty years, we have found no one

remedy so valuable as a simple diet, from which butter, flesh food, cheese, pickles, condiments, and all rich and indigestible articles are carefully excluded. We are glad to find in a recent number of an eminent German medical journal, an article recommending a similar dietary. According to this authority, milk and oatmeal porridge are especially useful in this class of cases, and where the nitrogenous elements of flesh food seem to be indicated, the "meal of leguminous vegetables" is suggested as a substitute of "special value." Coffee is interdicted, and a beverage made from roasted acorns recommended in its stead.

KEROSENE OIL FOR DIPHTHERIA. — An English doctor claims to have cured successfully, without a single death, large numbers of cases of diphtheria, with kerosene oil, or what in England is called "paraffine," the petroleum oil usually used in lamps for illuminating purposes.

FOR ACNE OF THE FACE. — This is a very troublesome affection, which is characterized by redness of the nose or of circumscribed areas upon the cheeks, chin, or forehead, due to irritation of the follicles of the skin, and is often a source of very great annoyance. It may generally be relieved by the use of the following simple ointment: Sulphur, 1 dr.; benzoate zinc ointment, 1½ oz. Apply at night; wash off in the morning with castile soap.

DEATH FROM CIGARETTE SMOKING. — A wealthy cotton planter in the South recently died during an attack of pneumonia of moderate severity. The cause of death was heart failure. His physician attributed his death to the fact that for many years he had been accustomed to incessant cigarette smoking, so that his heart had been weakened and was not able to stand the strain of disease.

This is one of the usually unrecognized ways in which tobacco carries off its victims; and because the cigarette or cigar smoker does not die with the burning weed in his mouth, the idea is very commonly entertained by tobacco users that nicotine cannot be so very deadly a poison after all, and that when the system once becomes accustomed to its use, it is wholly harmless. Even many medical men lend their influence to the support of this erroneous notion.

Tobacco is a slow poison, insidiously undermining the constitution, weakening the heart, lessening the sensibility of the nerve centers, debilitating the stomach and other digestive organs, and gradually wasting the vital energies. The mischief it works upon its victims is unseen, and often unrecognized until some extra strain is brought to bear upon some vital part, as by an attack of pneumonia, rheumatism, fever, or some other grave malady. Then the fact appears that the constitution which outwardly seems to be intact is like a bridge whose worm-eaten timbers have an external appearance of soundness, although the structure is ready to crumble into a shapeless mass as soon as any unusual strain is brought to bear upon it.

IT PAYS TO BE GOOD. — For two hundred years the vital statistics of the Congregationalist clergymen of New England have been carefully kept, and with a remarkable result, showing that these good men, who, with very rare exceptions, lead regular and sober lives, are blessed with a longevity nearly double that of the average man. In 1890, the average age of the ninety nine Congregationalist clergymen who died, was seventy-one years and four months, which is about the same as the average of the total number who have died within the last two centuries.

IMPLANTING ARTIFICIAL TEETH. — The following is from the *Bacteriological World and Modern Medicine* for December: "Dr. Znamensky, of Moscow, Russia, has been experimenting upon the implantation of artificial teeth in dogs, with excellent results. A tooth which had thus been implanted could not be shaken or removed by any force which could be applied with the fingers. He has performed the same operation in one case upon a human being, with good results. Dr. Rainey, of Illinois, has been experimenting in a similar line, using roots made of block tin, and obtained good results."

SULPHUR-BLEACHED FRUIT. — It is now generally known that most of the dried fruit offered in the market, except that dried by old-fashioned processes by farmer housewives, on a small scale, is sometimes, during the process of drying, subjected to bleaching by means of burning sulphur. It has been generally supposed that this sulphur-bleaching is an entirely harmless process, but recent investigations show that it not only renders the fruit insipid, but at the same time deprives it of some of its nutritive value, and imparts to it substances which are, to say the least, unwholesome, if not actual poisons. The fact that fruit, when bleached with sulphur, is always free from worms and insects, is evidence of the fact that it contains something inimical to life. The attention of the sanitary authorities should be called to this matter, and a stop put to the process.

ANSWERS TO CORRESPONDENTS.

TREATMENT FOR MOLES.— I. T. M., Ga., wishes to know what treatment will eradicate moles from the skin.

Ans.— Moles cannot be removed by other than some destructive process or surgical means. Their removal will necessarily leave a scar behind, although the appearance of the scar will be found in many instances much less objectionable than the mole, when the latter is quite conspicuous.

PIMPLES.— A. P. P., Ohio, abstains almost entirely from greasy food, but is troubled constantly with a breaking out of pimples on his face and neck, which after a day or two produce heads containing yellow matter. He asks what he can do to remedy it.

Ans.— Some forms of acne are due to infection of the hair or sebaceous follicles by germs, and local as well as constitutional remedies are needed. We recommend to this correspondent a trial of some one of the remedies recommended for this disease in recent numbers of GOOD HEALTH.

ANTI-FAT DIETARY.— F. W., South Dakota, wishes an agreeable as well as effective bill of fare for a fat man's dietary.

Ans.— We are not profound believers in dietetic cures for obesity, except to this extent: A person suffering from obesity should avoid the use of sugar, all foods containing an excess of starch or free fats, and all preserves, confectionery, and all rich and highly seasoned articles of food. Excess of food should also be avoided. Overeating is more frequently the cause of obesity than error in the quality of food taken. The most important means of combating obesity is vigorous muscular exercise, which should be taken every day to the extent of inducing profuse perspiration and moderate fatigue.

"BLACK BONE ERYSIPELAS."— Mrs. J. E. T., Iowa, writes in reference to an elderly lady friend who is suffering from what is called "black bone erysipelas." The sore is on the ankle, and leaves the bone exposed, the foot and leg to the knee being turned black, and swollen to double the natural size. She has spent a large property in doctoring, but without any benefit. Is there any help for her?

Ans.— There is no disease technically or scientifically known as "black bone erysipelas." From the description of the case we are not able to make out whether the patient is suffering from a very bad varicose ulcer, or from senile gangrene; but from the fact that the case seems to be chronic, we conclude it to be a chronic ulcer. If this is the nature of the disease, it is curable by the employment of proper measures, although it is not at all probable that any simple prescription will effect a cure. We have seen cases apparently equally bad make a good recovery in a few weeks or months with proper treatment, and if the case is not one of gangrene, we have no doubt a cure might be effected by proper means; but the case is one which requires the personal supervision of a physician.

SORE SPOT IN BREAST — HEADACHE, ETC.— R. F. S., Colo., lay in bed eight weeks with the inflammatory rheumatism one year ago, and since that has had a sore spot in his left breast, and also suffers a great deal with headache. Has no energy, and bowels are often constipated. Would be grateful for information as to condition and treatment.

Ans.— Soreness of the chest is much more frequently due to disease of the muscles or nerves of the chest than to disease of the lungs. However, it is sometimes significant of internal disease, and the disease should be settled by a careful physical examination by a competent physician. The patient evidently needs a general building up, but the information received respecting the disease is too meager to make it possible to offer any valuable suggestions.

BLOATING OF LOWER BOWELS — ROARING IN HEAD.— This subscriber, a lady, has a regular bloating of the lower bowels after meals, also a roaring in the head at night. Has a battery, and has used electricity a good deal for the latter trouble, but with little benefit. Is quite careful and abstemious as to diet. Asks for hints as to home treatment of the above-mentioned ailments.

Ans.— The cause of the accumulation of gas in the lower bowels is intestinal indigestion. We would recommend for this condition, the application of a hot bag over the stomach and bowels for an hour after each meal, the employment of the enemata, or colo-clysters, to keep the bowels in a healthy condition, and the wearing of the moist abdominal girdle at night and a dry flannel bandage about the bowels during the daytime.

Roaring in the head at night may be due to some disease of the ears. An aurist should be consulted.

SCIENCE IN THE HOUSEHOLD.

CONDUCTED BY MRS. E. E. KELLOGG.

SOUPS.

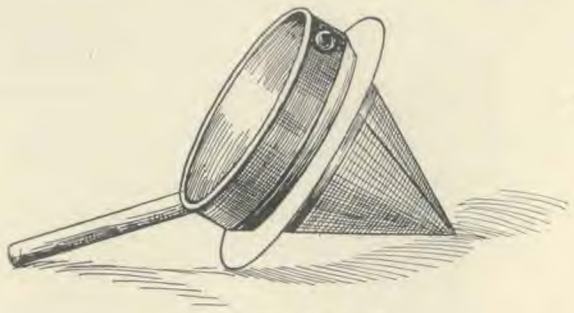
BY MRS. E. E. KELLOGG, A. M.

SOUP is an easily made, economical, and when properly prepared from healthful and nutritious material, very wholesome article of diet, deserving of much more general use than is commonly accorded to it.

In general, when soup is mentioned, some preparation of meat and bones is supposed to be meant; but we shall treat in this article of a quite different class of soups, viz., those prepared from the grains, legumes, and vegetables, without the previous preparation of a "stock." Soups of this character are in every way equal, and in many points superior, to those made from meat and bones. If we compare the two, we shall find that soups made from the grains and legumes rank much higher in nutritive value than do meat soups. For the preparation of the latter, one pound of meat and bones, in about equal proportion, is required for each quart of soup. In the bone there is little or no nourishment, it being valuable simply for the gelatine it contains, which gives consistency to the soup; so in reality there is only one half pound of material containing nutriment for the quart of soup. Suppose, in comparison, we take a pea soup. One half pound of peas will be amply enough for a quart. As we take an equal amount of material as a basis for each soup, we can easily determine their relative value by comparing the amount of nutritive material contained in peas with that of beef, the most commonly used material for meat soups. Peas contain 86.6 parts nutritive material, while lean beef contains only 28 parts in one hundred. Thus the pea soup contains more than three times as much nourishment as does the beef soup.

In preparing soups from grains, legumes, and vegetables, the material should be first cooked in the ordinary manner. The next step is to make it homogeneous throughout, and to remove any skins or cellulose material it may contain. To do this, it should be put through a colander. To aid in this sifting process, if the material be at all dry, a small quantity of milk may be added from time to time. When the colander process is complete, a sufficient amount of milk or other liquid may be added to make the whole of the consistency of rather thick cream.

If the material is now cold, it must be reheated, and the salt, if any is to be used, added. The quantity of salt will depend somewhat upon the taste of the consumer; but in general, one half teaspoonful to the pint of soup will be an ample supply. If any particular flavor as of onion or celery, is desired, it



CHINESE SOUP STRAINER.

may be imparted to the soup by adding to it a slice of onion or a few stalks of celery, allowing them to remain during the reheating. By the time the soup is well heated, it will be delicately flavored, and the pieces of onion or celery may be removed with a fork or a skimmer. It is better, in general, to cook the soup all that is needed before flavoring, since if allowed to boil, all delicate flavors are apt to be lost by evaporation. When reheated, add to the soup a quantity of cream as seasoning, in the proportion of one cup of thin cream for every quart of soup.

To avoid the possibility of any lumps or fragments in the soup, pour it again through a colander or a

Chinese soup strainer into the soup tureen, and serve. It is well to take the precaution first to heat the strainer and tureen, that the soup may not be cooled during the process.

If it is desired to have the soup especially light and nice, beat or whip the cream before adding, or beat the hot soup with an egg beater for a few minutes after adding the cream. If cream cannot be had, the well-beaten yolk of one egg for every quart or three pints of soup, will answer as a very fair substitute in potato, rice, and similar soups. The egg should not be added to the body of the soup, but a cupful of the hot soup may be turned slowly onto the egg, stirring vigorously all the time, in order to mix it well without curdling, and the cupful then stirred into the whole.

The consistency of the soup when done should be about that of single cream, and equal throughout, containing no lumps or fragments of material. If it is too thick, it may be easily diluted with hot milk or water, if too thin, it will require the addition of more material, or may be thickened with a little flour or cornstarch rubbed to a cream with a small quantity of milk, used in the proportion of one tablespoonful for a quart of soup, — heaping, if flour; scant, if cornstarch, — and remembering always to boil the soup five or ten minutes after the flour is added, that there may be no raw taste.

Milk is a factor of no small value in the preparation of most soups, and should be largely used in the place of water when available. With such vegetables as potatoes, parsnips, and others of the class composed largely of starch, and containing but a small proportion of the nitrogenous food elements, the use of milk is especially important as an addition to their food value, as also to their palatableness.

SOME SEASONABLE RECIPES.

LENTIL AND PARSNIP SOUP. — Cook together one pint of lentils and one half a small parsnip, sliced, until tender in a small quantity of boiling water. When done, rub through a colander, and add boiling water to make a soup of the proper consistency. Season with salt, and if desired, a little cream.

CELERY SOUP. — Cook in a double boiler a cupful of cracked wheat in three pints of water for three or four hours. Rub the wheat through a colander, add a cup of cream, and if needed, a little boiling water, and a small head of celery cut into finger lengths. Boil all together for fifteen or twenty minutes, until well flavored, remove the celery with a fork, add salt, and serve with the hard-boiled yolk of an egg in each soup plate.

VERMICELLI SOUP. — Cook a cupful of sliced vegetable oysters, a stalk or two of celery, two slices of onion, a parsnip, and half a carrot in water just sufficient to cover well. Meanwhile put a cupful of vermicelli in a quart of milk, and cook in a double boiler until tender. When the vegetables are done, strain off the broth and add it to the cooked vermicelli. Season with salt and a cup of cream. Beat two eggs light and turn the boiling soup on the eggs, stirring briskly that they may not curdle. Reheat if not thickened, and serve.

SPLIT-PEA SOUP. — For each quart of soup desired, simmer a cupful of split peas very slowly in three pints of boiling water for six hours, or until thoroughly dissolved. When done, rub through a colander, add salt and one half cup of rather thick sweet cream. Reheat, and when boiling, stir into it two teaspoonfuls of flour rubbed smooth in a little cold water.

Boil up until thickened, and serve. If preferred, the cream may be omitted and the soup flavored with a little celery or onion.

THERE is no better cleansing agent in use, for colored goods, than soap bark. Five cents' worth will cleanse an ordinary garment. Pour over it a quart of boiling water, and let it simmer gently on the stove for an hour or two, then strain, and it is ready for use. Sponge the goods carefully with this solution, throwing them at once into cold water, and rinsing thoroughly. Garments ripped to pieces and cleaned in this way, carefully dried and pressed, will make over almost like new.

IT is said that oak may be given the appearance of age by sponging with sulphuric acid and water equal parts, or what is preferable, staining with umber in thin shellac varnish.

OLD papers, cut into long, narrow strips, and when possible, twisted like lamplighters, make excellent stuffing for cushions. Trimmings from a book bindery are very nice for the purpose, as well as convenient to use, but are not always obtainable.

LITERARY NOTICES.

THE Goldthwaite Geographical Magazine Publishers, New York, are offering to every one ordering through them, the *Century*, *Harper's*, *Scribner's*, or the *Cosmopolitan* for 1892, their *Geographical Magazine* free. This is a most liberal offer indeed, and our readers who may desire any of these great magazines, cannot do better than to order through them.

"PERSONAL AND PUBLIC PURITY," by Rose Bryan, M. D., a twenty-four page pamphlet, with cover, is a very able, helpful presentation of the general subject of social purity, from the point of view of a woman physician. It is especially valuable for parents and for mothers' meetings, and ought to have the widest possible circulation. Price by mail, 10 cents. Per hundred, $6. Address, The *Philanthropist*, P. O. Box 2554, New York.

Minerals is the name of a new monthly that will shortly make its appearance. This periodical is one that is commended to the scientist, to the collector, to the lapidary, to the jeweler, to the chemist, to the lover of beauty, and to the general reader. It will aim to be useful, but it will also aim to be popular, and to be written in a style that the tyro can understand, with as little use of technical terms as possible. Price $1 per year. To introduce it, it will be sent one year for 50 cents. Address, The Goldthwaites, 132 Nassau St., N. Y.

"THE SUPREME PASSIONS OF MAN; or the Origin, Causes, and Tendencies of the Passions of the Flesh," by Paul Paquin, M. D. Price 65 cents. Published by Little Blue Book Co., Battle Creek, Mich. This is a most worthy and unique little book, devoted to the teaching of true and scientific views relating to the causes which act upon and produce a normal and healthful mental condition. In order properly to set forth the nature of the work, we cannot do better than to quote a paragraph from the author's own words: —

"Get mankind once under a safe system of nutrition based on science, a system allowing foods only of such kinds, qualities, and quantities, and at such times as nature intends for him, and fully seventy-five per cent of the prevailing diseases and crimes will disappear from the globe, because the cause shall be no more."

Scribner's Magazine for January begins its sixth year and eleventh volume, and is particularly beautiful in its mechanical execution as well as in its numerous and varied illustrations. Of particular interest to lovers of music, art, and literature, are the articles on "Bayreuth Revisited," by H. E. Krehbiel; "American Illustration of To-day," by W. A. Coffin; and "Some Unpublished Correspondence of Washington Allston." This latter article revives the memory of a unique figure among earlier American painters. Among the eminent correspondents whose letters appear are S. T. Coleridge and G. C. Verplank. Charles Scribner's Sons, New York.

THE *Century Magazine* for January is a rich and attractive number, having for frontispiece a portrait of the French composer, Gounod; the accompanying letterpress is entitled, "Reminiscences of a Pensionnaire of the Academy of France," and is written by the great artist himself. Among other notable attractions of the magazine we reckon the finely illustrated article, "The Jews in New York," by Richard Wheatley; "Custer's Last Battle," by Capt. E. S. Godfrey; and the second installment of the fine series of papers, "Characteristics," by S. Weir Mitchell, M. D. There are also many other entertaining as well as lavishly illustrated articles, besides many fine poems; while the usual departments, "Topics for the Time," "Open Letters," and "In Lighter Vein," —each and all well repay the attention of those who thoughtfully turn their pages. The Century Publishing Co., New York.

"PRACTICAL TYPEWRITING," by Bates Torrey. Fowler and Wells Co., New York. This book is a very superior instructor in the art of typewriting, and fully demonstrates what it is chiefly written to prove; viz., the advantages of the all-finger movement as against the old method involving the use of but the index and second fingers of each hand. The author recommends the covering of the entire keyboard by the fingers as in piano playing, and the establishment in the mind of the position of the letters, thus enabling the operator to write by touch alone, a method already practiced by many experts, and which, it is claimed, is a great saving of time, labor, and eyesight, as well as one securing greater accuracy.

PUBLISHERS' DEPARTMENT.

MRS. KELLOGG, who for a number of years has conducted the department of Science in the Household in this journal, and assisted in the editorial work of several of the other departments, has recently been appointed chairman of the World's Fair Committee on Food Supplies for the State of Michigan. Mrs. Kellogg's careful study of foods and their preparation, and their respective dietetic values, eminently qualifies her for useful work in connection with this committee, and her appointment to this important position is appreciated by her friends, more especially as it was a recognition which was, on her part, entirely unsought.

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THE hundreds who have been waiting so patiently and anxiously for the appearance of Mrs. Kellogg's book, "Science in the Kitchen," upon which so many years of patient labor have been bestowed, will be pleased to know that the work of getting it through the press is steadily progressing. The printers have been so much crowded with other work that the advance has been rather slow during the last few weeks, but it is to be hoped more rapid progress will be made from now until the work is completed. The author's work has long been finished, and all that remains to be done is to get the work through the press, a task which is being accomplished as rapidly as possible. When completed, this work will be unquestionably the most valuable treatise on the subject which has recently appeared, and will more than meet the most sanguine expectations of those who are waiting for it.

* *
*

AT a recent meeting of State canvassing agents, held in this city, at which representatives from nearly all of the neighboring States were present, a motion was unanimously passed pledging each State representative present to do his part toward raising the subscription list of GOOD HEALTH to 100,000. This may be easily accomplished within a year's time, if a requisite amount of energy and push are enlisted in the effort. If each one of ten States will place in the field only twenty live agents, 100,000 subscribers may be added to the present large subscription list of GOOD HEALTH within a year's time, if each agent only obtains so small a number as ten subscriptions a week, which is only a tithe of the number of subscriptions taken by some of our best agents in a single week. Twenty agents in each one of a dozen different States will easily give us 100,000 subscribers within six months' time. Let us have the agents, and we will soon be able to report the thing accomplished.

* *
*

STERILIZING APPARATUS.—It is now generally known that ordinary cow's milk is unfit for use without sterilization. Careful microscopical studies have shown that every quart of ordinary milk contains many millions of germs, owing to contamination by dust and fragments of excreta from the cow in the process of milking, and during the exposure of the milk in the stable or barnyard. These germs can be killed by boiling at a sufficiently high temperature, but are not destroyed by the degree of heat to which they can be subjected by boiling under ordinary circumstances. Milk boils at a temperature of less than 200°, whereas a temperature of about 220° is necessary to the certain destruction of many forms of microbes.

The editor of this journal has devised a process by which milk may be perfectly sterilized in any home. The Sanitarium Food Company has undertaken to manufacture and supply the apparatus necessary for this purpose, and is prepared to furnish it at a moderate price. Milk sterilized by this process will keep an indefinite length of time. The writer tasted, a few days ago, a bottle of milk which was sterilized last spring by the method referred to. It was found to be as sweet and of as good flavor as though it were but a few hours old. One of the advantages of this mode of sterilizing milk is that the milk remains unchanged in color and flavor, being almost wholly free from the flavor of boiled milk, which is unpleasant to many people, and presenting the flavor and color of good fresh milk.

The apparatus consists of the following articles: —

1. One dozen sterilizing bottles.

2. A bottle holder for lifting the bottles in and out of the vessel containing the boiling solution.

3. A compound, by the addition of which to the water, the boiling point may be raised to 230°, a temperature at which all known germs are destroyed.

4. A vessel for holding the liquid and bottles.

The mode of sterilizing is so simple that any one can do it from the directions which accompany each outfit, and any one who has ever employed it will not be willing to be without it. The apparatus is regularly used in the Sanitarium, where all the milk used upon the tables by either patients or employees is thoroughly sterilized.

* *
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CHRISTMAS AT THE SANITARIUM. — The beautiful parlors of the Sanitarium, the dining room, and the gymnasium, put on an air of festivity in decorations of flowers from the greenhouse and evergreens from the wood; and on Christmas eve the guests and helpers assembled in large numbers to do honor to a richly-laden Christmas tree, reaching from floor to ceiling of the gymnasium. Mr. F. S. Russell, a member of the Orpheus Quartette of Battle Creek, kindly opened the entertainment with a solo entitled, "The Star of Bethlehem." After prayer by Chaplain Mc Coy, Miss Pfeuffer, a guest from Texas, and a young lady of rare vocal powers and culture, sang an *æria*, "My Peace I Leave with You." Both musical selections were appropriate, and were sympathetically rendered. Chaplain Mc Coy then gave a brief address upon the origin of Christmas as a festival, emphasizing our remembrance of the day as commemorative of bringing the "unspeakable Gift" to earth. The presents were systematically and expeditiously distributed, care being taken that no one was forgotten, and the audience filed out with many expressions of good wishes and good cheer. During the holiday week, many of the patients had the pleasure of entertaining friends from abroad.

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THE army of young men and women who are engaged in introducing GOOD HEALTH in various parts of the United States unanimously report a cordial reception wherever the journal is presented. No journal devoted to sanitary subjects has ever received even a small fraction of the encouragement given this journal in the way of public patronage and popularity. The popularity of GOOD HEALTH is certainly not due to any catering to popular foibles; for, as every reader knows, it is a most uncompromising foe to every enemy of health and morals. Probably there is no scientific journal published in this or any other country, which maintains a higher standard upon these subjects than does this journal. Nevertheless, the policy which it has always maintained,— to engage in no personal controversy,

and to wage no war against any individual, but to contend for principles only,— has made for it thousands of friends in all parts of the English-speaking world; and it is a source of great encouragement to the publishers, and all connected with it, that never in the history of GOOD HEALTH has there been a time when its growth in popular favor has been so rapid as within the past twelve months. Nevertheless, the prospects are that the next twelve months will witness a still more rapid extension of its circulation than the last, thanks to the enthusiasm of its friends and the energetic efforts of numerous agents in various parts of the United States, Canada, Australia, and other English-speaking countries.

* * *

ACCORDING to the usual custom, the managers of the Sanitarium have favored their guests with various literary and musical entertainments during the season. The last of these to date took place the evening of December 29. Mrs. Edna Chaffee Noble, who is at the head of a school of elocution, vocal culture, and Delsartian expression, in Detroit, spending the holiday season with friends in this city, was prevailed upon to fill an evening here. The entertainment was a delightful one, her selections being fresh and new, and of a range sufficient to exhibit her rare talents to excellent advantage. Her manner is most charming, and with perfect skill she swayed the emotions of her auditors at will, seeming to be equally at home with the pathetic and the humorous side of life. The following morning Mrs. Noble favored the guests with a short talk upon "The Art or Science of Laughing," which she makes the basis of her method of teaching vocal culture. The lecture was an admirable tonic to all present. She closed with a number of fine recitations.

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DR. E. R. SQUIBB, of Brooklyn, N. Y. "On the Medicinal Uses of Hydrogen Peroxide." *Gaillard's Medical Journal* of N. Y.

DR. ROBERT T. MORRIS, of New York. "The Necessary Peroxide of Hydrogen." *Journal of the American Medical Association*, Chicago, Ill.

DR. PAUL GIBIER, Director of the Bacteriological and Pasteur Institute of New York. "Peroxide of Hydrogen and Ozone—Their Antiseptic Properties." *Medical News* of Philadelphia, Pa.

DR. EGBERT H. GRANDIN, Obstetric Surgeon New York Maternity Hospital, Infant Asylum, etc. "Peroxide of Hydrogen in Gynecology and Obstetrics." *The Times and Register*, Philadelphia, Pa.

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per J. D. SIMPSON.

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A.M. 1.45	A.M. 11.45	.....	P.M. 6.45	Ar..Battle Creek..Lv	.....	A.M. 9.14	P.M. 4.12	A.M. 5.45
P.M. 6.30	A.M. 7.35	.....	.....	Lv.....Toledo.....Ar	.....	P.M. 8.35	P.M. 12.10	P.M.
.....	.....	A.M. 12.13	P.M. 3.11	Ar.....Bryan.....Lv	A.M. 6.20	P.M. 1.32	.....	.....
.....	.....	P.M. 5.00	A.M. 7.30	Lv..Cincinnati...Ar	P.M. 1.45	P.M. 8.55	.....	.....

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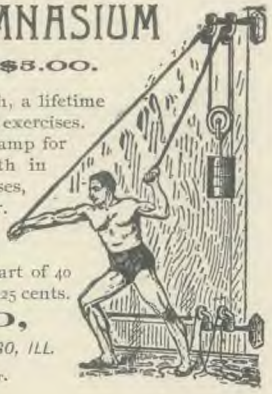

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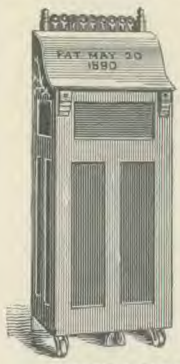

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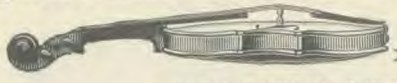

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Corrected Nov. 15, 1891.

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STATIONS.							
Chicago.....	am 7.05	am 9.00	pm 12.20	pm 3.10	pm 10.10	pm 9.25	pm 4.55
Michigan City	9.10	11.10	2.00	4.48	am 12.25	11.20	7.01
Niles.....	10.20	pm 12.43	2.52	5.50	1.45	am 12.25	8.25
Kalamazoo	12.00	2.20	3.55	7.04	3.37	2.00	pm 10.05 / am 7.00
Battle Creek...	pm 12.55	2.59	4.25	7.37	4.29	2.45	7.55
Jackson.....	3.05	4.30	5.32	8.52	6.25	4.20	9.45
Ann Arbor.....	4.42	5.25	6.22	9.45	7.45	5.43	10.55
Detroit.....	6.15	6.45	7.20	10.45	9.20	7.15	am 12.10
Buffalo.....	am 3.00	am 3.00	am 3.00	am 6.25	pm 5.05	pm 5.05	pm 8.15
Rochester.			5.50	9.55	8.10		10.00
Syracuse			8.00	12.15	10.20		am 1.00
New York.....			pm 3.45	pm 8.50	am 7.00		7.45
Boston.....			5.40	11.05	10.45		10.45

WEST.	†Mail.	†Day Express.	*N. Shore Limited.	*Chicago Express.	*Pacific Express.	†Kal. Accom'n	‡Eve'g Express.
STATIONS.							
Boston.....		am 8.30	pm 2.15	pm 3.00	pm 6.45		
New York.....		10.30	4.50	6.00	9.15		
Syracuse		pm 7.30	11.55	am 2.10	am 7.20		
Rochester.		9.35	am 1.45	4.20	9.55		
Buffalo.....	pm 11.00	11.00	2.40	5.30	11.50	am 8.45	
Suspen. Bridge			3.25	6.25	pm 12.50		
Detroit.....	am 8.20	am 7.40	9.25	pm 1.20	9.15	pm 4.45	pm 8.00
Ann Arbor.....	9.35	8.40	10.19	2.19	10.32	5.52	9.18
Jackson.....	11.25	9.40	11.18	3.17	12.01	7.15	10.45
Battle Creek ..	pm 1.00	11.12	pm 12.22	4.25	am 1.20	8.47	am 12.05
Kalamazoo....	2.17	11.55	12.59	5.00	2.22	pm 9.30 / am 6.00	1.07
Niles.....	4.15	pm 1.12	2.08	6.17	4.15	7.40	3.10
Michigan City	5.37	2.14	3.08	7.20	5.35	8.55	4.30
Chicago.....	7.55	3.55	4.50	9.00	7.55	11.15	6.50

*Daily. †Daily except Sunday. ‡Daily except Saturday.

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Accommodation train for Niles and all intermediate points, leaves Battle Creek at 7.59 a. m., arriving at Niles at 10.05 a. m., daily except Sunday.

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Time Table, in Effect Dec. 6, 1891.

GOING WEST.						STATIONS.	GOING EAST.				
.....	p m 3 00	a m 9 00	p m 7 00	.....	.....	.....Boston.....	.....	a m 6 15	p m 9 50	9.25	p m 7.30
.....	p m 5.00	p m 6 30	p m 8.00	.....	.....	.....New York	.....	p m 9.55	a m 7 40	p m 5 07	a m 10 10
.....	a m 6.20	a m 6.30	p m 1 00	.....	.....	.....Buffalo	.....	a m 8,40	p m 5.30	a m 4.20	p m 9.00
.....	a m 7.45	a m 8 00	p m 2 45	....	.....	....Niagara Falls....	.....	a m 7 30	p m 4 10	a m 3.10	p m 7.10
.....	.....	.....	.....	p m 1 00	.....	.....Boston.....	.....	8.15	a m 9 50	p m	p m 7.33
.....	p m 8.40	.....	.....	p m 11.55	.....	.....Montreal.....	.....	p m 8,20	a m 7.40	.....	a m 7.40
.....	.....	.....	.....	p m 1.00	.....	.....Toronto	.....	a m 7.35	p m 5.25	.....	p m 7.35
.....	.....	.....	.....	.....	.....	.....Detroit.....	p m 9.25	.....	a m 7.45	9.25	a m 11.50
Day Exp.	R. C. Pass.	Limtd Exp	Pacific Exp.	Pacific Exp.	M'ail Exp.		Mail.	Limtd Exp.	Atlic Exp.	Day Exp.	Pct.H Pass.
am	pm	pm	pm	pm	am	Dep. Arr.	pm	am	am	pm	am
.....	3.44	.....	.....	.....	5 59	..... Port Huron	10.01	.....	.....	.....	12 00
6.50	3.40	12.55	8.40	7.20	6.04	Port Huron Tunnel.	9.56	12.25	7.30	8.50	11 55
8.05	5.10	1.40	10.07	8.51	7.29	.....Lapeer.....	8.15	11.15	6.17	7.35	10.40
8.35	5.47	2.08	10.45	9.35	8.1	..... Flint.....	7 30	10.45	5.40	7.05	10.05
7.10	4.30	11.40	8.25	8.25	7.10	.....Bay City.....	8.45	....	7.22	8.55	11.30
7.55	5.15	12.18	9.00	9.00	7.55	.....Saginaw.....	8 00	.....	6.45	8.00	10.45
9.05	6.50	2.35	11.20	10.30	9.30	..... Durand.....	6.20	10.20	5.03	6.35	9 30
10.02	7.55	3.2	12.15	11.30	10 35	.....Lansing	5.10	9.30	4.00	5.40	8 20
10.29	8 30	3.45	12.46	12.05	11 15	..... Charlotte.....	4.30	9.01	3.25	5 11	7 47
11.15	9.25	4.30	1.35	1.00	12.25	....BATTLE CREEK....	3 35	8.20	2.40	4.30	7 00
11.53	pm	....	2.20	1.48	1.08	.....Vicksburg	2.33	7.43	1.48	.....	am
.....	.....	.....	.....	‡1.58	1.19	.....Schoolcraft.....	.....	.....	.....	.....	.....
12.40	.....	5.45	3.18	1 42	2 05	.....Cassopolis.....	1.29	7.00	12.45	3.07	.....
1.20	.....	6.20	4.00	3.30	2.50	.....South Bend.....	12.45	6.20	12 00	2.35	.....
2.45	.....	7.35	5.30	5.10	4.30	.....Valparaiso.....	11 10	5.00	10.30	1 20	.....
4.50	....	9.30	7.37	7.50	7 00	.....Chicago.....	8.40	3.00	8.15	11.25	.....
p m	.....	pm	am	am	pm	Arr. Dep.	am	pm	pm	am	

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