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HEALTH

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J. H. KELLOGG M.D.

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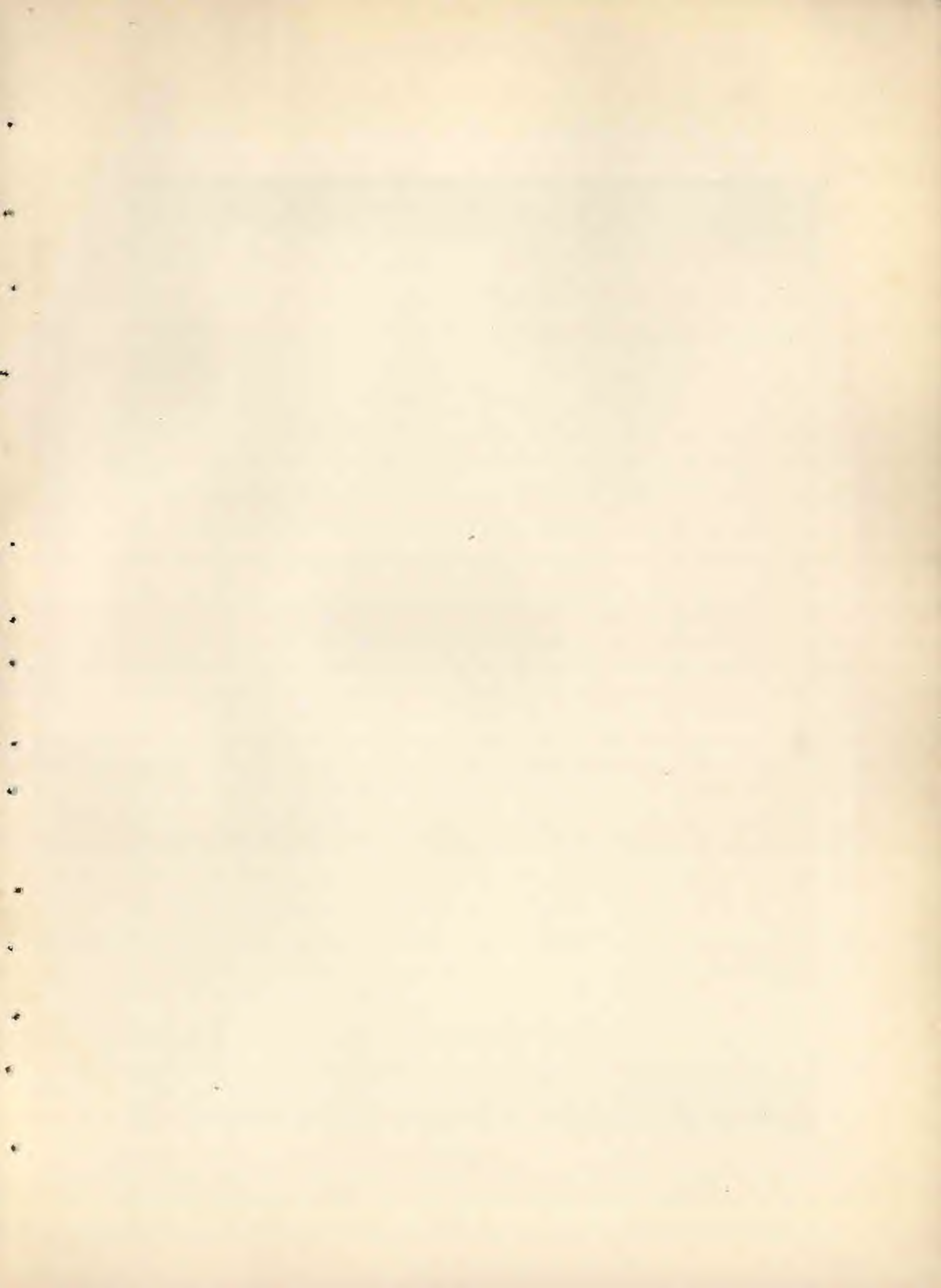
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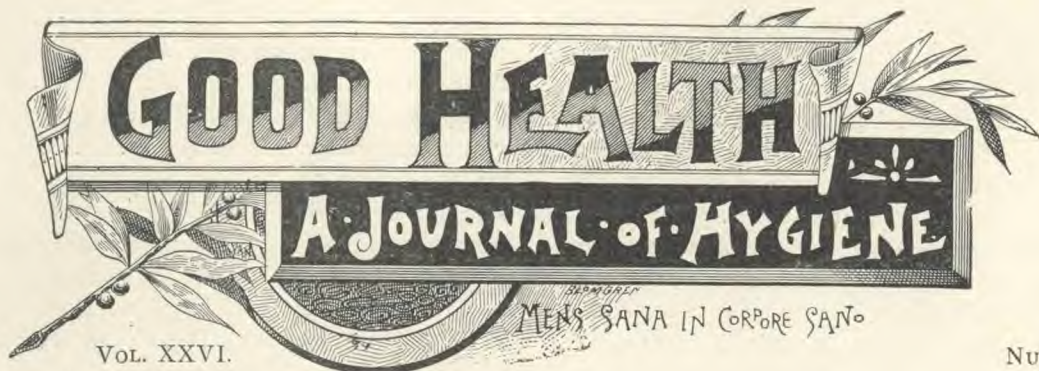
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WEST COAST OF TASMANIA.



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BATTLE CREEK MICHIGAN.

MAY, 1891.

INTERNATIONAL HEALTH STUDIES.

BY FELIX L. OSWALD, M. D.

Author of "Physical Education;" "The Bible of Nature," Etc.

25.—The Australian Colonies.

AUSTRALIA has for the last sixty years been the favorite colony of Anglo-Saxon emigrants, and it is curious to see how soon, in that English-speaking and English-ruled domain, elbow-room has produced the same results which, in the United States of North America, were ascribed to the influence of climate and republican institutions.

Take the elongation of the typical John Bull. In many parts of Tasmania and New Zealand, British immigrants can resume life in a climate closely resembling that of their ever-dripping native isle; but—added to limitless playgrounds—mist, fog, and rain have generated the same tall athletes which droughts and sunshine have evolved in Texas and Missouri. The truth seems to be that the squat John Bull of our political caricatures, if not a myth, is at least a wholly abnormal biped. Hengist and Horsa were not afflicted with pot-bellies; the natives of Schleswig-Holstein, the cradle of Anglo-Saxondom, are the tallest men of Northern Germany, and the gaunt, long-legged traveler whom his Swiss landlord at once recognizes as an English tourist, represents the essential type of his nation much more fairly than the waddling squire of our pictorial satires. Lack of exercise and indigestible made dishes have really peopled the English cities with a large, and perhaps increasing, percentage of Falstaffian misshapes; but the original type asserts itself at the first favorable opportunity, and on the Devonshire hunting-grounds of the Cockney parvenu as quickly as anywhere in New England and New South Wales. Another instance in point is

the obtrusiveness of our squatter population. If a New Zealand Mohammed should desire to "seek the light of revelation in the wilderness," he might enjoy a few weeks' privacy in the summit forests of the Egmont Range, but on the border of the arable plains his hermitage would be invaded by daily committees of tobacco-spitting neighbors; friendly surprise parties would interrupt his noonday prayers, and return after dark to watch him at his evening devotion. *Tout comme chez nous.*

They would crawl under his cabin, and wink at the discovery of a private alcohol-still, but they would find it difficult to pardon his predilection for a vegetarian bill of fare. From the Gulf of Carpentaria to the south end of New Zealand, the Australasian colonists adhere to the doctrine of beef-worship in its most pronounced form. The devotees of a similar dogma once formed a plurality of our East-American settlers, and their descendants have been redeemed chiefly by the influence of their Spanish and German fellow-citizens, but the much less composite population of the South Sea colonies have danced around their edible Apis-bull until a list of their digestive complaints would gladden the soul of a blue-pill vender.

In the South Island of the New Zealand archipelago carnivorous excesses are counteracted by the influence of frequent frosts, but nearer the equator, in Queensland and the central territories, dyspepsia is beginning to tinge the natives with that jaundiced hue which distinguishes the complexion of our Louisiana

Creoles from the clear olive-brown of the Greek and Spanish vegetarians. It has also tended to aggravate the nomadic propensity of the border settlers. Flesh-food begets a restlessness which can be studied in the habits of carnivorous beasts; in the fierce, fidgety movements of panthers and hyenas, as contrasted with the equanimity of the ruminants and the contented playfulness of the fruit-eaters. For the same reason the Spanish-American colonists re-emigrate much less than their Northern neighbors, and even a net-work of railroads in Mexico or Brazil would not produce anything like our chronic Western exodus-fever.

But in Australia the same cause has led to the same result. Year after year thousands of well-to-do farmers leave their pleasant homes in the terrace lands of the East Australian Alps, to try their luck in some new boomer settlement of the bleak central plateau, where they tarry only till a new boom gives them another chance to gratify their roving mania. That propensity has received additional encouragement from the peculiar distribution of the Australian gold bonanzas. The auriferous belt of upper California has fixed boundaries, and all the placer gold of the Sacramento Valley might be traced to its original site in the foothills of the Sierra Nevada. The Australian nuggets, on the other hand, have been scattered in the most capricious manner over an enormous area of sand-hills and gravel plains, where systematic research is apt to be at fault, and random and luck-relying adventurers have a fair chance to win the favor of the incalculable goddess.

*"In höchsten Noethen bleibt uns nur
Rückkehr zum Urquell der Natur,"*

rhymes Schopenhauer, in commenting on the wholesale suicide of the Numantian rebels: "In extremes of need, flight to Nirvana offers the only refuge." A steadily increasing number of his countrymen achieve their deliverance by acting on this hint. In Prussia, Bavaria, and Saxony, as well as in Russia and Poland, suicide is becoming more frequent from year to year, but ruined Australians still enjoy the alternative of flight to the gold fields. Eight shillings a day is still the average pay of hired miners, with the risk of discharge at short notice in case of ill-success, but also with the chance of a liberal premium in case of a decided bonanza.

In those border diggings, hundreds of squatters subsist in a way that would make even a Californian stare, but the Australian colonists glory in the reputation of being the most unprejudiced people on earth; and their tolerance in some respects is certainly unequaled in any part of North or South

America, though it may have been surpassed in the cosmopolitan capital of the Roman Empire. The strangeness and novelty of external nature in the continent of the antipodes probably prepares the way for a considerable departure from the ways and manners of stiff-collared Old England. Professional naturalists, indeed, tell us that in America, too, ninety-nine of a hundred species of plants and animals differ from those of the Old World; our cedars are not the cedars of Lebanon, our deer are smaller and hairier than the deer of the English parks. Rustic colonists, however, have no eyes for such differences; they notice only the similarities, and are glad to find oak and beech trees enough to construct their houses after the model of the paternal mansion.

But even unscientific explorers must be strongly impressed with the fact that they have reached a new world, when they come across forests of green but leafless trees, wriggling with ring-tailed hedgehogs and ringing with the whoops of donkey-voiced kingfishers, or capture a nondescript that seems to form a connecting link between birds and mammals. In a country of this sort, Old World tenets seem out of place, and the colonists only laugh at the *sans culotte* dances of the natives, as they laughed at the Bathurst half-breed who proposed to reorganize society on a basis of faith, by turning all property into coin, and letting Providence distribute it by the result of a grand chuckluck (a sort of dice game), giving every player an even chance.

New England was settled by ultra Puritans, New South Wales by fun-loving adventurers, and the effects of that difference still assert themselves in many ways. The old patristic belief in the sinfulness of sports and physical recreations still dims the sunshine of our national life. Let a couple of poor lads try to get a much-needed bath in a suburban pond, and within ten minutes St. Gerome will rush up in the form of a police-bully; let their sisters try to enjoy a musical *fete champetre* on Sunday afternoon, and within ten minutes St. Augustine will read the riot act. The trouble is that the old Blue Laws have retained the authority of time-honored institutions, though public opinion has not failed to change, as proved by the liberalism of such cities as San Francisco, where the hyena-howls of bigots have never yet silenced the exponents of the truth that the suppression of public sports is sure to avenge itself by an increase of vice.

Australia abounds with such free towns, and in no other country on earth—the dominions of the sport-loving king of Baroda perhaps excepted—have modern athletes found more liberal patrons. The climate of North America, seconded by an atmosphere

of progressive democracy, was long supposed to imply a prescriptive right to the development of superior physical vigor, till the best oarsman of the Western hemisphere was distanced by a young Australian, and the representative light-weight and heavy-weight pugilists of Yankeedom were knocked out of sight by Australian specialists. That *argumentum ad hominem* seems to have opened our eyes to a miscellany of errors in questions of supremacy, and the popularity of Australian ballot systems appears to increase

and old vie in the enjoyment of aquatic gymnastics; nearly every well-to-do family of coast dwellers own a sailboat.

The inland settlers organize hunting expeditions. They have a talent for misnomers, and their names of the "bush wolf," the "lynx," and the "wild cat" refer to as many different marsupial animals which once abounded in all the well-wooded regions of the Eastern colonies. Game is getting scarce in the immediate neighborhood of the settlements, but the vast in-



BAOBAB TREE, NEW SOUTH WALES.

as fast as that of Australian gymnasiums, and swimming-schools.

A few years ago the Paris Salon awarded a prize to a picture representing "The Bathing Season at Trouville-sur-Mer" (Lower Normandy),—from an ethical point of view perhaps the most characteristic work of art of the nineteenth century. The secularization of a thousand convents could not more plainly proclaim the fact that the doctrine of monachism has broken its backbone; yet pictures of that sort might be produced from photographs taken on any summer evening on the beach of Sidney or Adelaide. Young

terrior can still boast of unexhausted and almost unexplored hunting grounds. Path-finders have made their way to points two thousand miles from any permanent human habitation, to an isolated peak of Mt. Wilson, and a still more solitary Lake Amadeus, which is by turns a lagoon and a dry, dismal hollow; but a territory ten times as large as the six New England States taken together, is still to all purposes a *terra incognita*. It was supposed that the fifteen hundred thousand square miles between Queensland and the west coast settlements were chiefly sand wastes, but every now and then the hills about the west fork

of the Darling River are invaded by legions of kangaroos, starved by the droughts of the inland plateaus, which in less exceptional years must conceal a considerable number of good pastures. Long before Dr. Livingstone's time, western Zanzibar had been far more thoroughly explored than any part of Central Australia, but the scant value of such bee-line-investigations is attested by the fact that not one of the early travelers had noticed so conspicuous an object as the peak of Mount Kilimanjaro, the summit of the African Continent. Central Australia, too, may contain good sized mountain ranges, which generally imply the presence of wood and water.

The gold diggings of No Man's Land have been called the curse of Australia, as of our Pacific States, because they prevent the development of steady industries, by keeping up a chronic wild-goose-chase excitement. It might be questioned, however, if excitements, even of that uncouth sort, are not preferable to the deadly stagnation of a Quaker Utopia, where human life offers no alternatives of drudgery but sleep and drawling sermons. Since the instinctive love of diversions cannot be suppressed, it is a good plan to tolerate its least harmful gratifications; and if Australia has less numerous societies for the prosecution of Sunday picnickers, it has a compensation in the less frequent occurrence of fraudulent bankruptcies, labor-riots, and White Cap outrages.

The climate of Tasmania, the "Van Diemen's Land" of the earlier geographers, seems, on the whole, to be most propitious to the health of Caucasian settlers. The magnificent scenery of the western coast range is shrouded by frequent mists, but the winters of the uplands seem to resemble those of Southern Oregon, while the summers are sunny and

breezy, but withal warm enough to ripen oranges in sheltered valleys. Nightingales have been successfully acclimatized in several of the lowland settlements, though in June and July — corresponding to the midwinter season of the northern hemisphere — the little immigrants have now and then to rely on the assistance of their protectors, who have tried to introduce English larks in the same way, and have been wise enough to avoid the importation of English rabbits, that eat the New Zealand settlers out of home and farm.

All New South Wales (a territory as large as the Austrian Empire at the time of its greatest extent) enjoys the climate of Southern California. The fruit trees of the tropics thrive as well as those of Old England, and will gradually redeem the flesh-pot worshipers of the original settlements, where cattle-breeding was long considered the only profitable industry outside of the auriferous gravel pits.

Farther north the neighborhood of the equator asserts itself by frequent droughts, aggravated by sandstorms from the Western deserts, and by the difficulty of keeping drinking water from spoiling, since even deep cisterns are affected by the terrific heat of the Christmas month. In dry seasons, rivers, as large as the Ohio near its junction with the Cumberland, dry out into chains of shallow ponds and only a few of the inland farms can boast the possession of perennial springs. Strange to say, the provincial legislature has failed to protect the scant remains of the original woodlands. Tree plantations have succeeded well, but are scarce, and Queensland ought to adopt the motto of a clever American Arbor-Day orator: "No culture without forests; no forests without culture."

(To be continued.)

LIFE AT THE ORIGINAL WATER-CURE.

Installation at Graefenberg.

THE whole landscape was buttered with sunshine, when we sallied out to climb the long hill, halfway up which shone the white-washed walls of the great Silesian Water-Cure. It was, nevertheless, the weather of a belated spring,—so cool that we covered ourselves, against its breath, with our winter overcoats. I will also remark (begging the public's pardon for mentioning such a thing) that we were, one and all, stoutly underclothed with flannel; and I wish particular notice to be taken of this fact, as it is of considerable interest when taken in connection with the butterfly

costume in which we fluttered about a few days afterward.

Through streets of solid stone, and plaster houses, we passed into a narrow sweep of meadows, and crossed a lively brook of clear water, variously useful in washing invalids and dirty clothes. In the shop windows were displayed huge brogans, stout canes shod with iron, drinking-horns, and pretty cups of Bohemian glass, all significant of the teetotal peripatetic society into whose haunts we were about to venture. Halfway up the hill we came to a little fount-



VINCENZ PRIESSNITZ.

ain, where a solitary individual was swallowing water, with an air as if he thought very little of the liquid, but supposed it was good for him. Some hundred yards farther on, was another fountain, dripping from the base of an obelisk of gray stone, on which shone the inscription, "*Au Genie de L'eau Froide.*"

From here onward, we met numbers of people of a cheerfully crazed appearance, wandering confusedly hither and thither, like ants when you scatter their nests. All were shabbily attired, some in linen, as if in derision of our flannels; some bare headed, with clipped hair; others with towels around their temples, their pockets bulky with glass cups, or their shoulders harnessed with drinking-horns. Most of them carried thick canes, and raced up the eminences like Christian climbing the hill Difficulty. Ladies, too, were visible, shoeless and stockingless, wading through the dewy grass, their feet burning with what Dr. Johnson would have called auroral frigidity and herbiferous friction. They all kept in constant motion, and seemed never to speak to each other, reminding me of those bewildered knights in Ariosto's enchanted palace, who wandered perpetually up and down, hearing the voices of dear friends, but seeing no one. The center of movement for this distracted crowd was an irregular square, stony and verdureless, on one side of which rose two enormous, ghastly buildings, with multitudinous windows, constituting the establishment proper; while

opposite these, at various distances, glared low, white-washed cottages, also used for the storage and cleansing of a vast invalidism. From a concave in the masonry of the outer stairway to the principal edifice, gushed a hearty little jet of water, abundantly supplying the horns and cups which were continually presented to its humid mouth.

Priessnitz was absent for the nonce at Freiwaldau; but a bathman led us to the superintendent of the establishment. Entering a side door, we mounted to the dining-hall, with our handkerchiefs to our offended nostrils; for the landlord of the Golden Star had not misrepresented the perfumes which haunted the building. Our first supposition was, that these smells arose from decayed patients, who had got water-logged and moldy from having been kept too long under treatment; but our guide through this rancid region favored us with a more humane, and, as I afterward discovered, a more probable explanation. In Silesia, as in Syria, the natives still preserve a venerable custom, derived, I presume, from Noah's ark, of uniting stable and dwelling-house under one roof. The Arabs, indeed, keep hogs out of their cellars, and are not apt to overcrowd them with cows and calves; but the Silesians despise or ignore these fastidious precautions, and consequently our noses were in great indignation.

Bare, creaking stairs and floors brought us to a prodigious desert of an eating-room, varied by an oasis of table (land), and scattered with caravans of unpainted chairs in lieu of camels. The superintendent—a short, flabby man, with a baldish crown, an apple-dumpling face, and white eyes—came to receive us. I have forgotten the exact price which he demanded for board and lodging, but it was something extremely insignificant—not more, certainly, than three dollars a week. It was so much like gratuitous hospitality that we sent a porter to the Golden Star for our trunks, and followed the superintendent to one of the cottages. We found it a very rustic one, built of raw clapboards, and approached through a puddle, the overrunnings of a neighboring water-trough. It had begun life, indeed, as a stable; but we objected very little to that, as the scent of quadruped life had been totally exorcised from its breezy chambers. The floors and partitions were of the consistency of pasteboard, and we saw at once that, if we did not wish to disturb our neighbors, we must live in a whisper. Everything was of unsophisticated pine—the walls, the narrow bedsteads, the chairs, and the aguish washstands.

There were only three chambers for four of us, but one of them was double-bedded and doubled chaired.

We tossed up kreutzers for the single rooms. Irwine got one of them and Burroughs the other. While the trunks were coming, we began a dance in celebration of our advent, thinking that perhaps we should never feel like it again. Presently we heard a yell of fury from some profundity below, accompanied by a double knock against the floor under our feet, from what seemed to be a pair of boots. We paused in our shaker exercises, questioning what abodes of torture might exist beneath us, and what lost mortal or demon might inhabit them. We afterward learned that a neuralgic Russian lived on the first floor, and that, feeling annoyed by our clamor, he had sought to mend matters by howling and throwing his shoe-leather about.

Presently we all gathered in the passage to catechise a young Englishman, who was, also, (in)stalled in our ex-stable. Having been three months under treatment, he could give us some idea of what we were to do and to suffer; but in the middle of his talk, he was imperiously summoned away by a moist, cool executioner, armed with a wet sheet. In a moment more we heard, with mingled mirth and horror, the rasping splash of the dripping linen, as it fell upon our friend's devoted body; and a quarter of an hour afterward we saw him hurry out with wet locks, and make off at a shivering canter for the mountain paths.

By half past twelve we were bearing our empty, expectant stomachs up and down the great eating hall. Patients followed patients through the creaking doors, until nearly two hundred sick, blind, and deformed people were hungrily patrolling around the long tables. Eight or ten neat, curiously white-faced damsels hurried in and out, loaded with piles of plates, or with monstrous loaves of what seemed to be mahogany bread. Presently they all entered in a column, bearing spacious smoking platters of meat and vegetables, prepared, as I afterward found, by cooks of Satan's providing. No other signal was necessary to the famished invalids, who immediately made for the tables at a pace which reminded one of the fast-trotting boarders of a Western hotel. However sick they may have been in other respects, they were certainly well enough to eat; and I think I never saw, before nor since, such an average large appetite among such a number of people. A disgracefully dirty man, with an ugly, swelled face, who sat on our left, filled his plate three or four inches deep with every kind of provender, ate it up, and then did it again, and a third time, as if it were no feat at all. We afterward learned that Priessnitz counseled his patients to eat all they wished, the more the better; for the peasant was as perversely hard in his

treatment of a stomach as if one carried a crop and digested with pebbles, like a chicken; maintaining among other heresies, that a water-patient's gastric powers should be strengthened by hard work, as much as his legs by hard walking. Partly in consequence of this monstrous theory, and partly because of the native savageness of Silesian cookery, the food was of the worst description, consisting of such horrors as veal ten days old, sauerkraut, and the most unsusceptible dough balls. Such a diet would produce a galloping dyspepsia in any one who was not invigorated by frequent baths and wet rubbings; but as things were, I imagine that no great harm was done, and that in a general way, two hundred ostriches could not have digested better. A man who takes four cold duckings *per diem*, walks five or six miles after each of them, and wears a wet bandage over his abdomen, may confide, even to recklessness, in his gastric juices.

When we came to discuss the dough balls above mentioned, a German astonished us by saying that they were the favorite dish of the Emperor Ferdinand of Austria. "Yes," said he, "with those they coax him to sign State papers. He is rather childish now, and thinks it a great bore to be always putting his signature to proclamations and treaties. Accordingly, Schwartzberg tells him that if he will write his name so many times, he shall have dough balls for dinner."

Our meal closed with spacious fruit pies, not much less than two feet in diameter. All these indigestibles gave our stomachs exercise until six o'clock, when the table was again set with fragments of the mahogany loaves, and pitchers of sweet and sour milk. At ten we went to bed, and discovered that we were expected to keep warm with one blanket apiece, although the weather was chilly enough to palliate the use of four. For fear of a wet sheet, or some other cold comfort, we took care to call for no additional covering, and supplied the hiatus for the night with our plaids and overcoats.

FIRST DIPS IN GRAEFENBERG.

Early in the morning, Priessnitz came into our room, followed by Franz, the bathman, and by Irwine, who lent himself as interpreter. I saw before me a medium-sized person, with weather-beaten features; a complexion which would have been fair but for the deep sunburn; eyes of blue inclining to gray; thin, light brown hair touched with silver; and an expression reserved, composed, grave, and earnest. He sometimes smiled very pleasantly, but he spoke little, and wore in general an air of simple, quiet dignity.

Altogether I felt as if I were in the presence of a kindly-tempered man of superior mind, accustomed to command, and habitually confident in his own powers. I afterward observed that he kept the same impassive self-possession in the presence of every one, were it even the highest noble of the Austrian empire.

He listened to a brief history of my malady, seeming very indifferent to its past symptoms, but examining attentively the color of my skin, and the development of my muscles. He then ordered the wet sheet to be spread, and signed me to stretch myself in it. As soon as I had measured my length on the dripping linen, Franz folded me up rapidly, and then packed me thickly in blankets and overcoats, as if I were a batch of dough set away to rise. Neuville followed my damp example, and our teeth were soon chattering in chilly sympathy. Having noted the intensity of our ague, as if it were a means of judging what degree of vigor in the treatment we could bear, Priessnitz marched off to survey the agonies of Irwine and Burroughs. Neuville and I remained as fixed, and nearly as moist, as King Log in the pond, but in a state of anguish far beyond the capacities of that stolid potentate. We were so cold that we could not speak plainly, and shivered until our bedsteads caught the infection. Then a change came, a graduated, almost unconscious change to warmth, and at the end of ten minutes it was hard to say whether we were uncomfortable or not. A few moments more brought a sensation of absolute physical pleasure, and I began to think that after all water was my element, and it was quite a mistake that I was not furnished with tasty red fins like a perch, or a convenient long tail for sculling, like a pollywog.

Just at this pleasant stage of the experiment, when I would have been glad to continue it longer, Priessnitz came back and declared us ready for the plunge bath. Franz turned up the blanket so as to leave my feet and ankles free, shod me with a pair of straw slippers, set me unsteadily upright, like a staggering ninepin, took firm hold of my envelopments behind, and started me on my pilgrimage. I set off at the rate of a furlong an hour, which was the top of my possible speed under the circumstances. Forming a little procession, with Priessnitz ahead as the officiating priest, then myself as the walking corpse, and then Franz as a sexton, we moved solemnly on, until we reached a stairway leading into a most gloomy and low-spirited cellar. Dark, rude, dirty flagstones were visible at the bottom; while from an unseen corner bubbled the threatening voice of a runlet of water. The stair was so steep and the steps so narrow, that it seemed impossible to descend without pitching for-

ward, and confining myself desperately to the attraction of gravitation, I cautiously raised my left foot, made a pivot of the right one, wheeled half a diameter, settled carefully down six inches, wheeled back again to a front face, brought my dextral foot down, and found myself on the first step. Ten repetitions of this delicate and complicated maneuver carried me to the floor of the cellar.

Franz now engineered me into a side room, and halted me alongside of an oblong cistern, brimming with black water, supplied by a brooklet which fell into it with a perpetual chilly gurgle. In a moment his practiced fingers had peeled me like an orange, only quicker than any orange was ever yet stripped of its envelop. As I shuffled off the last tag of that humid coil, the steam curled up from my body, as from an acceptable sacrifice or from an ear of boiled corn. Priessnitz pointed to the cistern like an angel of destiny signing to my tomb, and I bolted into it in a hurry, as wise people always bolt out of the frying-pan into the fire, when there is no help for it. In a moment my whole surface was so perfectly iced that it felt hard, smooth, and glossy, like a skin of marble. I got out on the first symptom of permission, when Franz set about rubbing me down, with a new linen sheet still possessed of all its native asperity. If I had been a mammoth or an ichthyosaurus, with a cuticle a foot thick, he could not have put more emphasis into his efforts to bring my blood back to a vigorous circulation. Priessnitz joined in as if he enjoyed the exercise, and honored me with a searching attrition from his knowing fingers. Then, after examining me to see if I grew healthfully rosy under the excitement, he signed me to throw a dry sheet over my shoulders and give myself an air bath before the window, into which a fresh morning breeze was pouring. Holding tight with both hands to the corners of the sheet, I flapped my linen wings as if I were some gigantic bat or butterfly, about to take flight through the orifice, and soar away over the meadows. "Goot!" said Priessnitz, nodding his solemn head in token of ample satisfaction; and folding my drapery around me, I marched upstairs, like a statue looking for a pedestal, or a belated ghost returning to its churchyard. I met Neuville descending with a stiffness of dignity which made me think of Bunker Hill monument walking down to get a bath in the harbor; so woefully solemn, so dubious about his footing, so bolt upright, and yet so tottering, that he would have shaken the gravity of a pyramid, or moved a weeping crocodile to laughter. Once more in the double-bedded chamber I gave myself a few hurried rubs in supererogation,

and was about dressing when Neuville and Franz reappeared from the lower regions. With shivering fingers I seized my thick under-wrapper and proceeded to don it, with a glorious sense of anticipatory comfort. But that atrocious Franz saw it, snatched it, tucked it under his arm, and then made a grab at my drawers and stockings, and then signified, by menacing signs, that I was to leave my coat on its nail. No luckless urchin at Dotheboys Hall was ever stripped half so pitilessly. As for Neuville, who had been toasting himself over American fires through the mediocre chill of a Florentine winter, and was as sensitive to cold as a butterfly or a weathercock, or a Mr. Jarndyce himself, he was despoiled with the same hyperborean unkindness. Out we went, nearly as thinly dressed as Adam and

(To be concluded.)

Eve, but leaving no Paradise behind us; forth we hurried, driven by Franz, that bald-headed cherub, horribly armed with a wet sheet; away into the woods we fled, to wander like Cains, and drink three or four tumblers of water before we might venture back to breakfast.

I took my first taste at the House-Fountain, and swallowed a pint with difficulty. I seemed to be choke-full of water, oozing with it at every pore, like the earth in spring-time; ready to brim over with it if I were turned ever so little off my perpendicular; fit to boil and steam like a tea-kettle, should I incautiously venture near a fire. It is astonishing how much moisture can be absorbed into the system through the skin; how nearly a man can resemble a water-logged ship, or a dropsical cucumber.

POISON IN "HIGH" MEAT.

[Translated from the German in *Vegetarische Rundschau*, by J. H. Neall, M. D.]

P. KONRAD, commenting on the danger of using meat which has a high flavor by being kept too long, propounds the following question in the *Gasthaus*, a paper published in Germany: "Is meat which is undergoing decomposition unfit for human use, and why?"

"For a long time science has endeavored to make plain the fact that the use of meat that has begun to decompose, is, under all circumstances, unfit for man, and is in the highest degree harmful. Not only should the bad taste, smell, and its appearance deter from its use, but there are changes in the elements themselves, which render its use dangerous to human life. Only a short time ago, at one place, twenty persons were made dangerously sick by the use of venison which had been kept too long. Three children died, while others were saved with much difficulty. In two women, recovery is even now not fully established.

"Research has shown that out of decomposing meat there is derived an extract in the highest degree poisonous, deadly in its action, and which cannot be destroyed, even by cooking. At what point are putrefaction and its harmfulness inaugurated? Putrefaction of meat begins with the decomposition and transformation of its albumen, the cause of the strong smell.

"It is indeed true that by use of water and the employment of different known means, such as soda, salicylic or boracic acid, the putridity is apparently removed, and, if it is not too old, it loses its bad smell and taste. These means only affect the outside of the meat. How is it with the inside?"

"The different methods of preserving meat are detrimental to it as a food.

"Even if the use of meat in a decomposing state should do no apparent harm, still such meat has little or no value as nourishment for a human being. The pure albumen is no longer contained in it, but has been changed into a harmful substance. Even the handling of such meat is not without danger. How often has it not happened that cooks, etc., who, in the packing of game, receive a wound, or already having one, have, from the secretions of *haut-gout* meat, received severe blood-poisoning?

"One must indeed be a gormand who did not lose his appetite forever for such meat, when once he had seen it placed under a microscope.

"In Paris a scientific Union has been formed against the use of *haut-gout* meat. The object of this Union is to show the foolishness and danger of such use, and to have the sale of such meat stopped by the courts.

"Prof. Falck, of Marburg, writes as follows: 'Even if our knowledge of putrefying flesh has still many defects, yet this much is settled, that the use of decomposing meat does injure the health. It ought therefore not to be allowed in the markets. Inspectors of meat should condemn unsparingly all such meat. The pretext that *haut-gout* meat is in demand by a certain class, should have no meaning to the ear of an inspector. Let him who desires putrid flesh for his kitchen, purchase it fresh and keep it as long as he may desire. That is a private matter, and may be governed only by individual taste. In the markets, no strong-smelling meat should be allowed.'

TRANSMISSION OF TUBERCULOSIS BY COW'S MILK.

BY J. H. NEALL, M. D.

FROM the *Sanitary Inspector* we learn that Dr Harold C. Ernst has been conducting a series of experiments in regard to the transmission of tuberculosis by cow's milk. The Massachusetts Society for Promoting Agriculture, liberally provided a farm and means for carrying out the investigations. The farm chosen was one with a healthy exposure, with perfect drainage, buildings in excellent repair; in fact, in every way under the best hygienic conditions from a scientific point of view.

The cows selected for experiment were kept for some time at this farm. Some, brought there "in the poorest sort of condition, suffering from tuberculosis, either did not lose any more or else they gained, and in certain cases apparently got well." In these investigations the endeavor was made to obtain cattle affected by tuberculosis, but not of the udder, because the infectiousness of milk where tuberculosis has attacked the milk glands, has long been acknowledged.

The point in this series of experiments was to prove that milk from cows having tuberculosis in any part of the body, might be and often was the vehicle for the transmission of the virus.

We are not so much interested in that part of the investigation where are introduced matters of opinion and the manner of obtaining those opinions (by sending out a circular letter to some two thousand medical and veterinary men), as we are with the actual facts deducible from the experiments.

Milk from the cows affected by tuberculosis in parts of the body other than the udder, was examined at the farm, and Dr. Ernst makes the statement, that "out of one hundred and twenty-six series of 'cover glasses,' in searching for the organism, the bacillus of tuberculosis, coming from cows having no tuberculosis of the udder at all (as was shown by a *post mortem* examination of the cows), we find it present in the milk in sixteen instances." That is, he found it present in about thirteen per cent of the examinations made. Considering the conditions, and the difficulty of finding bacilli at all in milk, this may be considered a startlingly large percentage.

From specimens of the milk where the virus could not be discovered by the microscope, some was used in inoculations in a series of guinea pigs and rabbits. As a result, tuberculosis was produced in thirteen per cent of the inoculations. To guard against the error that might arise from a previously existing tuberculo-

sis in these animals, they were selected and kept under observation a long time before the inoculations, and were selected particularly because of their healthy condition. The feeding experiments, related by Dr. Ernst, have the most startling import.

Out of twelve pigs, born of healthy parents and fed with the milk from cows used in the above-mentioned experiments, five became tuberculous. That is, almost fifty per cent became tuberculous by infection through some part of the alimentary canal. Out of twenty-three calves, born of healthy parents, but placed upon the milk of these cows at the farm before they were twenty-four hours old, and not having had milk from any other source, eight became tuberculous.

Taking specimens from the milk-supply of Boston, Dr. Ernst found, once by the microscope and once by inoculations, its presence in the milk as supplied through the milk dealers. He concludes that tuberculosis is quite too prevalent for the safety of public health, in the cattle used for milk-supply in that part of the country. In summarizing his conclusion he states that tuberculosis is an infectious disease, classed as such in France, where there is an absolute prohibition against the sale of meat from tuberculous cattle of any kind.

Then, as the result of the work that they have been doing, he thinks it is distinctly shown, and to his mind emphatically proved, that the milk of cows affected with tuberculosis, may contain, and does contain, the virus, no matter how extensive, or to how small extent, the disease may exist in the animal furnishing the milk; and that the proportion of this milk that is virulent, coming from cattle even with no tuberculosis of the udder, is greater than has been thus far, or until very lately, suspected.

In view of the work that has been done in different parts of the world, proving the virulence of such milk to be so possible, he concludes that some restriction should be placed upon the sale of milk coming from cows affected in any way by tuberculosis,—a restriction absolutely demanded for the good of the public health in general, but especially for the protection of the children of the poor.

Comment upon the above seems hardly necessary, but we would, however, suggest that milk to be used by either children or adults should be sterilized by boiling, by which the danger of infection would be avoided.

GERMS IN THE AIR.

PROF. TYNDALL discovered, many years ago, that the motes which dance in the sunbeams are largely made up of germs. He also discovered that when the air is kept perfectly still, so that the dust has time to settle, there are no motes in the sunbeam, and indeed the sunbeam itself disappears; for it is the fine dust in the air which renders visible the rays of light passing through it. The experiments of Tyndall, Pasteur, Koch, and many other scientists, have shown that these minute living particles commonly known as germs, more technically called microbes, are the cause of a great number of human maladies, among which are those of the most dangerous and fatal character.

The Origin of Germs.—Germs do not originate spontaneously, as was once supposed. All germs originate in other germs. Some germs multiply by simply increasing in size and subdivision, while others produce spores resembling the seeds of plants. The air we breathe always contains more or less of these minute vegetable organisms. In deep valleys, and in streets and back alleys of cities, germs are very abundant, while the air on mountain tops is almost free from them.

How Germs Grow.—Germs, like plants, require soil in which to grow. Some of them thrive only upon dead and decomposing matter, germs being, in fact, the active agents by which fermentation and putrefaction, and all forms of animal and vegetable decomposition, are produced. Some germs are parasitic in character, and prey upon other living organisms, animal or vegetable.

The rapidity with which some kinds multiply is something astonishing; a single germ sometimes becoming two within fifteen minutes. Starting with this fact, a computation may be made to ascertain the number of these organisms which would be produced in twenty-four hours from a single germ. Germs rarely continue multiplying in this way, however; for nature has provided certain restricting conditions respecting their growth, which prevent their developing with such celerity as to overwhelm all other living things.

Germs serve some useful purposes, as in the raising of bread, and in the production of some articles which are used in various arts and industries. Even in setting up decomposition of dead animals and vegetables, they are serving a useful purpose in carrying out the fiat of the Creator, "Dust thou art, and unto dust shalt thou return."

Sources of Germs.—In this short article we shall not undertake to consider all the sources of germs, but

we will notice especially the principal ones which are sources of contamination of the air. In the first place, it will be readily understood that in order that germs shall be picked up by air currents and carried about by the wind, or drafts, they must be in a dried state; when wet or moist they are too heavy to float, and hence remain where they are developed. Germs are found in the air in the shape of fine particles much too minute to be seen with the naked eye, unless a number are joined together in a comparatively large mass, which might constitute a small speck of dust. Wherever decomposing matter is allowed to become dry and disintegrated, the air is constantly receiving a contribution of these agents of disease and death. Animal or vegetable matter thrown out on the surface of the ground, is likely to become a source of germs. Such places as vaults, cesspools, surface drains, gutters, heaps of decaying wood or stable refuse, pigpens, chicken coops, the borders of stagnant pools, or any mass of decomposable matter, may constitute a source of germs. In dwellings, the most prolific sources of germs are sinks, neglected cellars and pantries, carpets filled with dust, feather beds, neglected closets, and not infrequently a close, damp, unventilated space under the house, into which small animals creep to die, or in which rank vegetation develops, only to die and decompose.

Persons suffering from contagious or infectious maladies are generally sources of air contamination. Erysipelas, diphtheria, typhoid fever, smallpox, scarlet fever, measles, whooping cough, consumption, and similar maladies, constantly give off dangerous germs into the surrounding air.

How to Combat Germs.—Cleanliness is the best of all means for combating germs. A house that is thoroughly cleaned will be free from germs, unless they are produced in prolific numbers in the immediate vicinity, and are brought in through open doors and windows. No decomposable matter, whether animal or vegetable, should be allowed about the premises occupied by human beings. It is a mistake to suppose that decomposable matter is safe if buried in the ground. Germs will still be given off, and the air as well as the soil will be contaminated.

Substances capable of destroying germs are known as germicides, or disinfectants. There are many substances capable of destroying germs, but we shall mention only a few of the most serviceable.

Corrosive Sublimate.—The most efficient of all known germicides which are available for ordinary use, is corrosive sublimate, a chemical agent often

employed by housewives in the destruction of certain kinds of vermin. Most germs are killed by the application of a solution of one part of corrosive sublimate in four thousand parts of water. Even weaker solutions are effective for the destruction of certain kinds of germs. A strong solution, however, is needed for the certain destruction of some germs which are very tenacious of life. The 1-2000 solution of corrosive sublimate is made by the addition of one half dram of corrosive sublimate to a gallon of water. A solution of this powerful poison should never be kept on hand, owing to the danger of fatal accident, especially in homes where children or ignorant persons are likely to come in contact with it. It is better to have a number of half-dram powders put up at a drug store ready for use when needed.

If a solution must be kept ready for use during the care of a case of typhoid fever, it should be tinged with some coloring matter, as cochineal, which will serve as a warning against its use, and the jug or bottle containing it should be labeled "Poison," and should be kept carefully out of the reach of persons likely to be harmed. The nature of this chemical agent is such that it cannot be kept in a metal vessel. If placed in tin vessels, the tin coating is quickly destroyed, hence such solutions must be kept in glass or earthen-ware vessels.

Sulphurous Acid.—The fumes of burning sulphur, which, when combined with water, form a chemical substance known as sulphurous acid, constitute one of the most useful means of destroying germs in the air, and are especially useful for the disinfection of rooms which have been occupied by persons suffering from contagious or infectious maladies. Sulphur is also useful as a means of destroying the germs which, growing in cellars, pantries, closets, and damp places, give rise to the peculiar musty odor characteristic of such places. The following is the proper method of using sulphur for this purpose: Place in an iron kettle, equal parts of sulphur and powdered charcoal, mixing a few pieces of newspaper with the powder. The quantity required is four pounds of sulphur for each one thousand cubic feet of air in the space to be disinfected. Place two or three bricks in a wooden tub containing an inch or two of water. Place the kettle upon the bricks, and after tightly closing the windows and stopping the cracks by pasting paper over them, light the mixture, and when it is well going, leave the room, close the door tightly, and paste strong paper over the cracks so as to confine the fumes within the room. After twenty-

four hours, open the doors and windows, and allow air to circulate freely through the room for a day or two. The walls and floor should then be thoroughly scrubbed, and the room can be considered well disinfected.

Turpentine.—This commercial agent is also an excellent disinfectant. It may be used for disinfecting discharges, in the absence of other efficient agents. It should be remembered, however, that it is very inflammable. It is necessary to employ a quantity of turpentine equal to the volume of matter to be disinfected.

Alcohol.—This common agent is an excellent disinfectant. To be effective, however, it must be undiluted. Poor spirit alone will not answer for this purpose; ninety-five per cent alcohol is required. A quantity of alcohol at least equal to the amount of poisonous matter to be destroyed, is needed for effective disinfection. Alcohol is, of course, too costly an agent to be employed for the disinfecting of clothing or discharges, except in extraordinary cases, but is very useful as a means of disinfecting the hands or other portions of the body.

Dry Heat.—A temperature of 300° is destructive to nearly all germs. Unfortunately, however, this temperature, when maintained for a sufficient length of time to render certain the destruction of all germs, is likely to seriously damage the texture of many fabrics, hence this mode of disinfection is not in very great favor. It may be employed, however, for the disinfection of many objects which cannot be safely exposed to the action of chemical agents or water. Objects requiring disinfection by this mode may be placed in an oven, care being taken to place a bit of dried bread or a piece of white paper in the oven with them, by watching which, the degree of heat and liability to injury may be determined.

Boiling.—This is one of the most convenient of all modes of disinfection, since it is always ready to hand, and can be employed at little or no expense. Nearly all germs are killed by boiling for from thirty minutes to one hour. All germs dangerous to life, or so-called disease germs, may be readily destroyed in this manner. Most germs are killed by boiling for from fifteen to thirty minutes, but boiling for from fifteen minutes to an hour is the safer plan. It should be remembered that boiling water is not a disinfectant. Heat in connection with moisture is the disinfecting agent, consequently it is necessary that a boiling temperature, which is ordinarily something less than 212°, should be maintained for the time mentioned, to insure thorough disinfection. J. H. K.



DEFORMED FIGURES.

THE average civilized woman is a deformed woman. Uncomplimentary as this statement may appear, it is nevertheless demonstrably true. Corset-wearing and neglect of physical exercise have produced such grave and almost universal physical deterioration among American women that scarcely one can be found who has reached the age of twenty years who is not more or less deformed. This idea was thoroughly impressed upon the writer's mind by personal study of the natural figure among Indian women of various tribes, including the primitive Yuma tribe of New Mexico and Arizona, Chinese women, and the peasant women of Italy, Germany, France, and England, and those very rare specimens of healthy and vigorous womanhood whom one meets in this country among the few who have dared to refuse to bow the knee to fashion, and have allowed themselves to grow up without any attempt to mold or transform the body into a shape different from that designed for it by nature.

Uterine prolapsus, retroversions, retroflexions, and the various degrees of ovarian prolapse which accompany these displacements, are seldom met with among chaste unmarried women of savage or semi-civilized nations, but are very frequent among this class of young women in this country, and those of the wealthier classes of all civilized countries. In this country these conditions, when found in young women, are almost invariably attributed to some accident or imprudence in muscular exercise, such as jumping from a carriage, a fall upon the ice, jumping the rope, walking too great a distance, lifting a pail of water, carrying a baby, or some similar circumstance. The baneful effects of stair-climbing have been lengthily dwelt upon by physicians as

well as over-careful mothers. Not infrequently such light exercise as running a sewing-machine, or standing behind a counter, or sitting upon a piano-stool, has been charged with producing the most dreadful forms of uterine displacement and other pelvic diseases. I do not say that none of the things referred to have ever been instrumental in bringing about uterine or pelvic diseases, but I have long been thoroughly convinced that such causes as are above mentioned are quite too trifling in character to be considered as anything more than proximate causes, back of which there lies an etiological factor of a general and fundamental character, the essential nature of which is deficient or inadequate muscular development.

Climbing a flight of stairs a dozen or a hundred times a day would not injure in the slightest degree a young woman accustomed to mountain-climbing, or one of the Swiss damsels who, every day of their lives, descend and ascend the ladder-road, which, for a good part of the year, is the only means of access to the little village of Albinen, Switzerland. Walking the floor with a ten-pound baby in her arms would be very light exercise for one of the swarthy women whom Stanley employed as porters to carry his heavy loads of supplies across the Dark Continent. A Dahomey Amazon would consider running a sewing-machine a ridiculous pastime, and would much prefer twirling the machine itself over her head or balancing it on her thumb. The female equestrian who leaps from her horse to the ground and back again a half-dozen times in succession, with the animal flying about the ring at full speed, would smile at the absurdity of the proposition that any young woman could suffer serious injury by jumping

from a carriage to the ground, or skipping a rope a few scores of times. It need not be denied, however, that these causes, trifling as they may appear, may be sufficient to provoke all the mischiefs with which they have been charged, in a young woman whose physical education has been neglected. It is quite possible that the city girl who has never been accustomed to more vigorous exercise than moving herself at a moderate rate along a level surface, might be harmfully overtaxed by the exercise of climbing two or three flights of stairs several times a day. The remedy is not to be found in abolishing stairs and prohibiting young ladies every form of exercise which has been charged with producing pelvic mischief, but rather in subjecting young women to such a course of physical education as will fit them to endure muscular efforts of any reasonable character without injury.

The mechanical injuries resulting from the wearing of garments which constrict the waist are conspicuously shown in the change in the figure which this mode of dress produces. I have had made a simple apparatus, by which it is possible to make an exact profile of the body in an upright position in any plane. I have made with this apparatus a large number of tracings for the purpose of studying the change in form induced by constriction of the waist and lack of muscular development. Some of the deformities have been exhibited in previous numbers of this journal, and others will be shown in future numbers. The writer has in preparation, a work which will present this whole subject in a new and graphic manner, which it is hoped will be sufficiently striking to convince the most incredulous of the prodigious mischief which has grown out of the prevailing fashions in women's dress.

From an artistic standpoint, the change in the contour of the body produced by corsets or tight bands certainly presents nothing attractive. But the deformity produced by the constriction of the waist has a significance of far greater importance than that which it presents from an artistic or æsthetic standpoint. Dr. Trastour, an eminent French physician, has clearly shown that what he terms the *statique abdominale* has an important relation to the health of the abdominal viscera. The relation of the several organs which occupy the abdominal and pelvic cavities is such that any considerable change in position necessarily results in disease. The stomach, dragged out of place, loses its natural tone, its walls become relaxed, dilatation results, and the patient suffers from all the distressing symptoms of gastric neurasthenia. The constant dragging upon the liver

and the right kidney occasions the displacement of these organs, especially of the kidney. The prolapse of the organs which normally occupy the upper part of the abdominal cavity necessarily compels the displacement of the organs lying next beneath them, thus leading to prolapse of the intestines, or what is termed by Glenard and other French writers, *enteroptosis*. Prolapsed intestines become atonic through the disturbance of the portal circulation, and not infrequently pseudo-stricture of the large intestine is occasioned by its abnormally folding upon itself through the depression of its central portion, which is more easily dragged down than the ascending or descending portion. Obstruction leads to fecal accumulation and dilatation.

Such disturbances of the relations of the viscera will be found in a large proportion of women suffering from pelvic disorders. Indeed, one may say, almost without reservation, that in a case in which there is disturbance of the normal relations of the pelvic organs there will be found considerable disturbance of the relations of the abdominal viscera. In a woman who presents a prolapsed or retroverted uterus and ovaries, there will almost invariably be found prolapsus of the bowels, in many cases a dilated or prolapsed stomach, and not infrequently a movable and prolapsed right kidney. In one hundred cases of pelvic diseases, taken without selection and in the order in which they came under observation, I have found disturbances of the normal relations of the abdominal viscera in ninety-four cases. The stomach and bowels were prolapsed in all of these cases. There was dilatation of the stomach in more than half the cases. The right kidney was distinctly movable and fallen below its normal position, in thirty cases. In twenty cases, the kidney had fallen so much below its normal position that it could be freely moved about. In three cases, both kidneys were prolapsed. In four cases, the liver was very greatly prolapsed; and in three of the cases, almost the entire organ was below the inferior border of the lower ribs. In one case the spleen, which was four times its normal size, enjoyed the freedom of the entire abdominal cavity. When first noticed, it was lying between the uterus and the bladder, and was at first touch taken to be a fibroid growth connected with the uterus.

In the six cases in which there was no disturbance of the relative positions of the abdominal organs, the patients were unusually well developed muscularly, and the pelvic disease was distinctly traceable to other than mechanical causes.

The abnormal position of the kidneys and stomach

present in a large proportion of cases of pelvic disease is undoubtedly responsible for a large share of the symptoms which are frequently termed reflex, and are supposed to be primarily due to abnormal pelvic

conditions; whereas, they are only a partial expression of the group of morbid conditions involving the entire contents of the abdomen and pelvis, of which the pelvic disorder is only a small part.

HEALTH, GRACE, AND BEAUTY. — FIFTH PAPER.

Exercises to Cure Round Shoulders.

BAD positions in sitting, particularly sitting in rocking-chairs, bending over a desk in reading, studying, or writing, and a bad poise in standing, are the principal causes of round shoulders. Many persons, who have naturally very good figures, present always a very weak, awkward appearance, in consequence of the round shoulders and flattened chest, and the elevated and projecting chin, which commonly attend these conditions. The accompanying cut shows one way in which such a condition is acquired.



FIG. 1.

Persons who have not advanced so far in age that the cartilages of the trunk have become ossified, or the bones of the trunk too rigid to yield to muscular action, may correct a very considerable degree of round shoulders and deformity of the chest by means of proper exercises. Even persons of middle age and upwards may make very great improvement in their figures by the proper use of exercises calculated to develop the muscles which support the shoulders in their normal position.

Fig. 2 presents an outline of a man of sixty years, whose acquired deformity is too great to be cured by any amount of exercise, and yet something in the way of improvement may be done for even so advanced a case. An ounce of prevention is worth a pound of cure in this as in other matters; nevertheless those who have not had the benefit of proper physical training when young, will be grateful for the advantages derived from the employment of proper exercises, if they will pursue the matter assiduously and perseveringly. The great cause of the roundness of the shoulders is weakness of the muscles which hold the shoulder blades together. To cure this deformity, it is necessary, then, that such exercises should be employed as will bring into vigorous action the muscles which cause the shoulder blades to approach each other. In round-shouldered persons the shoulder blades generally project. Wise mothers say of round-shouldered children, that "their

wings are budding." When the shoulder blades are properly brought together, they lie folded upon the back part of the chest, and the awkward protuberance disappears.

Exercise 25.—Take forward-bend position, shown in Exercise 5, Fig. 3, page 46, February number, taking care to keep the elbows close to the side, and placing the hand upon the shoulder as far outward as possible. From this position change the arms to rest-stand position, in which the hands are placed at the back of the neck, the ends of the fingers touching, the elbows and shoulders in line. Return to bend position, then again to rest-stand position, so alternating half a dozen times.

Exercise 26.—Raise the left arm to perpendicular, reaching as high as possible, and at the same time stretching the right arm upward and the left arm downward, keeping the body in good poise, bring the arms to forward-bend position; then stretch the right arm upward and the left arm downward. Repeat this exercise from six to ten times.

Exercise 27.—Left arm upward stretch, right arm sideways stretch, reverse arms; bring arm first to forward-bend position, then stretch right arm upward and left arm sideways.

Exercise 28.—Left arm upward stretch, right arm forward reach, bring arms to forward-bend;

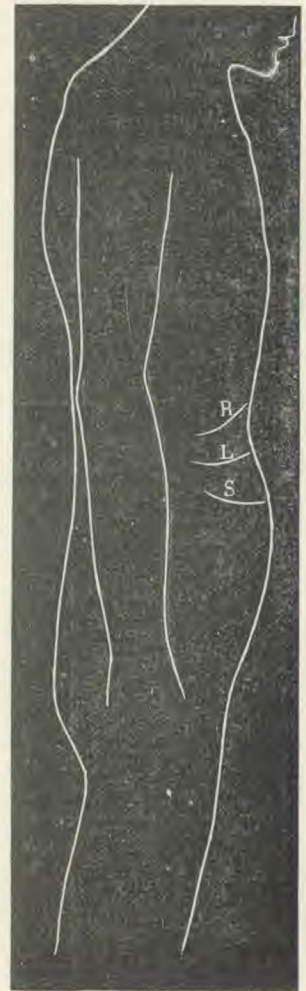


FIG. 2.

reverse positions, bringing arms immediately to forward-bend position. Repeat from six to ten times.

Exercise 29. — Stretch both arms horizontally sideways, palms down. Place the feet about two feet apart, bend the body forward to an angle of 45°, keeping the head in line with the trunk, and not allowing the waist to bend, twist the head alternately right and left.

Exercise 30. — Stretch the arms sideways, palms forward. Flex the forearm to a right angle, keeping the body in good poise, rotate the arms so that the forearms will be perpendicular; return the forearm to horizontal, again rotate to perpendicular, and repeat from six to ten times.

Exercise 31. — Raise the elbows to the height of the shoulders, bring the hands to the chest, touching the ends of the fingers with the palms down, keeping elbows and shoulders in line. Suddenly fling the arms sideways, return to the first position, and repeat the exercise from six to ten times.

Exercise 32. — Stretch both arms forward in horizontal line. Move arms sideways until the arms and shoulders are in line. Return to the forward-reach position, and repeat ten times.

Exercise 33. — Swimming is a most excellent ex-

ercise for strengthening the muscles of the shoulder blades. An exercise which is a good imitation of the movements made by the arms when swimming in the water, may be taken thus: With the elbows at the height of the shoulders, bring the thumb sides of the hands together in front, two or three inches below the chin. The wrists should touch the chest, and the palms should be slightly turned outward. Counting one, two, three, put the arms through the following motions: At one, extend the arms forcibly forward, at the same time twisting them so that the palms will face each other. At two, fling the arms sideways, until they are in line with each other and with the shoulders. At three, bring the hands to the starting position. Repeat these movements twenty or thirty times.

PROGRAM FOR EXERCISE DURING MAY.

Continue the program for April, adding between exercises 6 and 7, the exercise above described, but not all upon the same day. Add each week two or three of the exercises, until all can be taken without difficulty. If the exercises given in this department each month are faithfully practiced, they cannot fail to produce most appreciable and excellent results.

VALUE OF PHYSICAL EXERCISE.

A GOOD set of muscles is one of the most excellent qualifications which a young man can possess. There is no position in life for which they unfit him, and there is none which they will not enable him to fill to better advantage than he otherwise could do. There are a thousand and one emergencies in life in which strong, vigorous, and well-trained muscles are of enormous service, and in which their use may be of incalculable value.

Physical exercise gives better command of the whole body; and when properly conducted, trains both sides of the body alike, and so almost doubles the efficiency of the muscles. A man who has been trained in the ordinary way, really uses his left side but very little. Everything requiring skill, strength, or dexterity must be done with the right hand. Even the right limb usually has enough more training to make it a little larger than the left. The extra amount of work done by the right side of the body results in increasing the strength of the muscles of this side, and in deformity of the spine, which is made to curve toward the left side, causing the right shoulder to drop a little. There is probably not more than one person in four who does not have this deformity.

With proper physical training, both sides of the body will be equally developed, and should be equally useful. A man who is ambidextrous, or able to use both hands equally well, will not only be able to do more work in a day or in a year than a man who can employ but one hand, but in the case of the loss of one hand, he does not meet with so utter and complete a loss as the man who loses his one trained hand.

Even the brain and nerves share in the benefits derived from muscular training. When a muscle contracts, it is in obedience to the impulses originated in the brain, sent to the muscles along a nerve trunk. Hence, muscular exercise also implies exercise of the brain and nerves. The same law which induces muscular growth as the result of exercise, applies also to the exercise of the brain and nerves. Hence, muscular exercise, instead of detracting from mental development, as might be supposed, actually encourages the development of the brain, and increases its capacity for action. This is undoubtedly the reason why muscular exercise has so marked an effect in steadying the nerves, giving to one self-command, mental equipoise, and readiness. Nothing so well prepares one for readiness of action in emergencies as thorough training of the muscles.— *Man, the Masterpiece.*

DRESS

A COMBINATION WORKING AND HOUSE DRESS.

BY HELEN L. MANNING.

To avoid soiling the sleeves of one's dress when suddenly called upon to undertake work which would be liable to do so, is a problem which many a woman has struggled with in vain. To roll the sleeves up, wrinkles and gives them an untidy appearance afterward, and oversleeves are not only warm, but they often fail of accomplishing the purpose for which they are designed. One of the Battle Creek Sanitarium nurses has recently devised a costume which does away with all these difficulties and has additional features of comfort. The first cut represents the dress in entirety as a pretty and simple house costume. It consists of a full, plain skirt to which is attached a plain waist, the front of which is tucked. The back is plain and unlined across the shoulders. It is finished with close sleeves, which come about half way to the elbow. Above this is worn a short cutaway Zouave jacket, rounded from the throat to below the arm, when it is straight and plain across the back. (The artist has given slant lines rather than curves, representing the jacket very imperfectly,—in truth, neither of the figures is as good as the writer's design.) This is unlined,

and is finished with a corded edge. If preferred, the Zouave may be given a longer slope, thus bringing it just to the waist line in the back, in which case the entire back of the underwaist should be unlined.

The second cut represents the Zouave thrown aside, leaving a most useful dress. The soiled-sleeve problem is thus fully solved, and not only that, but a cooler dress is provided during active exercise of muscles of the arms, chest, and back. The underwaist is finished with a plaited standing collar. If preferred, a rolling collar or a flat round collar may be given to the Zouave. To be comfortable and healthful, the waist must be loose enough to admit of raising the arms straight above the head, without feeling bound or pinched anywhere. A working dress, above all others, needs to be strictly hygienic.

The style of this dress may be greatly varied, and still preserve its distinctive features. One of the prettiest is to gather the front of the underwaist full at the throat and waist line, leaving it perfectly loose between these points, and holding it in place at the bottom by a plaited belt or girdle about three inches wide. The outside waist should be an unlined half-fitting jacket, the front cut on a slant from the throat to the bottom, and in length coming two and a half inches below the waist line.

Not only will the nurse find this a convenient



FIG. 1.



FIG. 2.

dress in which to give baths and other treatment, but the woman who does her own work will hail with gladness a gown in which she can turn from the sitting room or sewing room and in a moment adjust her dress so as to mix bread or wash dishes with perfect freedom. A Zouave of this style in silk

or velvet might be a convenient appendix to a thin summer dress, when one wishes to go on the street in the evening. Also one dress might serve the purpose of two by having lace sleeves in a silk or velvet bodice, with long sleeves of the heavy material in the Zouave, or "blazer."

LEAVING OFF THE CORSET.

ELIZABETH STUART PHELPS WARD, whose ready pen lends new charm to even an old subject, offers the following sensible thoughts concerning the discarding of the corset:—

"Had I the sole responsibility of dressing a more or less stylish young lady in some approach to a sensible manner, I should begin by removing her corsets.

"Of course she 'never laces.' Of course she can 'turn around in them.' We know all about that. We have heard it a great many times before. It is a very old story. If a woman were dying of the close clasp of steel and whalebone, she would cry, 'Loose enough!' with her last gasp. Undoubtedly she believes it—more's the pity! We will not pause to argue the point with her. Off with the corsets!

"Take them down stairs. No, don't give them to Biddy. Never fasten about another woman, in the sacred name of charity, the chains from which you have yourself escaped. What is intrinsically unbecoming or unrighteous, is as unbecoming and unrighteous for your cook as for yourself. So burn up the corsets! No, nor do you save the whalebones. You will never need whalebones again. Make a bonfire of the cruel steel that has lorded it over the contents of the abdomen and thorax so many thoughtless years, and heave a sigh of relief; for your 'emancipation,' I assure you, has from this moment begun.

"A certain sense of freedom follows this change. The lungs partially dilate. The heart feebly feels for bounding-room. The nerve-centers are disturbed with an uncertain parody of ease. But a greater sense of discomfort grows upon you. The back, perhaps for the first time in your life, begins to ache. The spine grows sore to the touch. An exhausting faintness takes possession of you. The delicate sensibilities of the solar plexus (let us be learned when we can!) quiver in an irritated and irritating manner. A worrying nervousness takes possession of the whole frame. By night you are ready to resurrect the ashes of your departed corsets—for which I was quite prepared when I begged for their *auto-da-fe*. You are miserable and discour-

aged. This is precisely the point at which most women who 'mean well' are led to abandon their half-hearted or half-instructed efforts at dress-reform.

"So far from indicating that you should return to your stays, these uncomfortable sensations indicate that you have not been a day too soon in their removal. These are not the sensations of a healthy and untrammelled organism. The uncorseted savage knows nothing of them. Are women born in whalebone jackets? Did Heaven create Eve with a natural inability to hold her fair, fresh body up without the assistance of Mrs. Ford's latest patent? Is there reason, in the eternal nature of things, why your brother can stand straight, and feel at ease, in clothing as loose as your wrapper, and you 'drop all together' unless you can lean upon a long steel rod?

"Your discomfort is the discomfort of the poor old prisoner in the 'Tale of Two Cities,' who must needs bear with him, into his late and affluent liberty, the shoemaker's tools,—the degrading sign of that sadder mental captivity of which the body's bondage was the type. Your sensations are the sensations of a released captive,—not to be humored, be assured, for liberty's sweet sake. Every one of them is an appeal to you, in the name of common nature and of common sense, to persist in the unshackling which has produced them.

"But as time wears on, you grow more and more uncomfortable. It occurs to you one day that your bindings are too tight. Of course they are. So is your dress waist. You loosen the bindings an inch, another, two; the demands of the partially released and ever-struggling organs behind them grow, and will not be satisfied. Some idea of the unnatural restriction to which the ordinary modes of dress subject a woman's system, may be formed from the fact that a woman who now wears a *twenty-two* inch corset, will require, at the end of one year and a half of corsetless existence, a *thirty*-inch dress-binding for her comfortable wear.

"Loosen your bindings, then, till freed nature is content. You will have a more graceful figure in the end, than ever you have had yet."

SOCIAL PURITY.

MOTHERS' MEETINGS.

BY MRS. E. E. KELLOGG.

THERE is an old saying that "Mothers make the world," and in a very great degree this is true. To the mother more than to any other is accorded a power to lead, guide, train, and develop human bodies, hearts, and minds. To her is given the first opportunity of influencing the man or woman that is to be, the privilege of laying the very foundation stones of the character. Every home, however humble, is a wellspring from which emanate lives to swell the world's great current; whether for good or for evil depending much upon the work of the mothers in those homes. No other prerogative can compare in importance with that of the mother; yet far too many of these molders of the race have little or no conception of their great responsibility, while many more, although perhaps realizing the importance and sacredness of motherhood, are so lacking in knowledge and preparation for their God-given work that their best endeavors result in little less than failure. If we would renovate society, one of our first efforts must be to arouse mothers to a realizing sense of their high calling, to incite in them a desire to possess a fitness for their work, and to educate them in every direction that will help them to train their children wisely and carefully; and to make and conduct such homes as shall serve to influence and mold these children into pure and noble men and women.

For every other vocation in life there is required a special preparation, and the opportunities open for the acquirement of this needed training are manifold. For the training of mothers for their high office, we have no colleges, no carefully arranged curriculum, no years of life set apart for special study and preparation; hence the greater need that mothers should avail themselves of every accessible means whereby wisdom can be gained for the fulfillment of their sacred duties. One of the most valuable aids in this direction is Mothers' Meetings; for while the mother who earnestly seeks for knowledge cannot fail to find it from many sources, there is much to be gained by the interchange of thought, the systematic study, and the opportunity for counsel one with another upon matters of importance, afforded by Mothers' Meetings

convening regularly, and wisely conducted. These meetings may also be made to serve an excellent purpose in arousing the indifferent and thoughtless, since many will listen and heed, who have no inclination to search for themselves. When properly carried on, there is no other one thing which will exert a more telling influence for the promotion of purity.

In answer to the question so often asked, "How shall such meetings be started and conducted?" the following suggestions are offered:—

Begin by selecting some earnest, judicious Christian woman for a superintendent.

Determine how frequently such meetings shall be held, but let arrangements be made to hold them regularly, monthly or bi-monthly, on the same day of the week, that they may be expected, and that no mistakes may arise as to dates. Decide upon the place of meeting, whether church, lecture room, or parlor. For small communities, where the attendance is likely to be small, parlor meetings offer some advantages. It brings the mothers into closer communion with one another, and creates a more kindly social feeling; and when the place of meeting is changed from time to time, if the lady at whose house it is held takes the pains to invite her neighbors, the number of persons thus becoming interested may become a matter of considerable importance.

Select a series of topics, or mark out a course of study for six months, or a longer time, if preferred. In arranging the program, endeavor to make it as helpful and attractive as possible to the mothers of the community. Have the plan of work neatly written or printed on little cards or slips. It is well to select different persons as leaders for the several topics, and to assign to each her subject in advance, that ample time may be given for preparation.

Fix the time of the first meeting and appoint a committee, with the superintendent as chairman, to visit the mothers of the church or town and talk with them respecting the importance of Mothers' Meetings, giving them a personal invitation to attend, and, if possible, secure their promise to do so. The program of work laid out for the season, if left with each

mother visited, will be a reminder likely to secure her attendance at a part, if not all, of the meetings.

If this is not practicable, send a written invitation to each mother, inclosing the program of work and some suitable leaflet. The pastors of the churches should be enlisted in the good work among their members, and the local papers should be utilized, not only for announcing them, but for the publication of items relating to the importance and advantages of Mothers' Meetings, and reviews of some of the most helpful ones.

Having put forth every effort to secure the general attendance of mothers, the next point is to make the meetings so helpful and interesting that no woman will be willingly absent from one.

Open the meeting with devotional exercises. The subject for the day's consideration may then be presented by the one chosen for the purpose, either by a carefully written paper, or a plain, well-considered talk. This presentation of the subject should not consume more than thirty minutes, after which a short time should be given to the mothers for a general discussion of the subject. This discussion may be made an exceedingly helpful feature, and should be as general as possible, with short speeches. It must, however, be very carefully guided, no gossip or personalities being permitted, — nothing in fact to

lower the tone of the meeting from the high plane of religion and morality. At its close (which should always be prompt), it is well to distribute leaflets pertaining to the day's discussion, when such are obtainable, and to announce the time, place, and subject of the next meeting, with a cordial invitation to all present to be again in attendance.

As topics for study, the following are suitable:—

The Responsibility of Motherhood; Inherited Tendencies, How to Overcome Them; How to Cultivate those Traits of Character in Children Most Likely to Antagonize Vice; Influence of Environment; Predisposing Causes of Impurity; How to Win and Keep the Confidence of Children; The Question of Amusements; Occupation a Preventive Measure; The Kindergarten as an Aid to Purity; How and When Shall Instruction be Given on Vital Subjects? Danger from Impurity in Schools; How to Cultivate the Standard of Equality in our Homes; Special Dangers to our Girls; Pitfalls for our Boys; Our Young People in Society; Dress and Vice; What to Wear, and Why; Relation of Food to Purity and Temperance; Healthful Cookery; Literature and Purity; Immoral Advertising; Home Influences; Our Duty to the Girls We Employ in our Households; The Working-Girl Problem; Traveler's-Aid Work; Our Duty to the Erring.

WILES OF TOBACCO DEALERS.

THE city of Philadelphia was recently the subject of an unpleasant illustration of the means which tobacco dealers take to further their own interests and swell the tide of impurity, concerning which a writer in the *Christian Statesman* says:—

"Unchaste pictorial representations of actresses and ballet dancers have for some years past, as is well known, been employed by manufacturers and dealers in cigarettes (so largely made use of by boys and young men) to advertise their unclean and hurtful wares. Not satisfied with confining their cards to shops associated with the trade, a certain New York firm has lately gone the length of making use of the mails to carry their circulars and libelous pictures directly into our homes, having evidently brought the city directory into requisition, and copied names ready at hand by the tens of thousands."

The city postal authorities being appealed to, conclude that, as like pictures were to be found in cigar shops generally, and were tolerated there, it was quite useless to do anything to stop the invasion of such through the mails. Speaking of the reasons why such things are tolerated, the same writer says:—

"The host of cigarette users continues to increase daily, and very few of them have sufficient moral strength or manliness to lay the finger of condemnation upon their sympathizers, even though these, the dealers, the actively interested promoters of the baneful habit, may have flagrantly offended against the obligations of decency.

"Witnessing such offenses, it seems but fair to ask, what ought one to have to do with tobacco, save to reject and condemn it?"

"One cannot, it has been sagely said, 'take fire into his bosom and not be burned.' Now, it is the spirit of judgment and of sacrifice that the times call for—when men shall be willing to 'come out, be separate, and touch not the unclean thing,' and when there shall be a readiness manifested to do, in effect, as did at an earlier day those Florentines whom the searching testimony of Savonarola pricked to the heart, and who, in the grand plaza of their beautiful city, burnt in one vast heap the pernicious books and all the other wretched trash which they were conscious had been instrumental in keeping them away from their God."



PAIN KILLERS.

THE charlatan always finds a rich field for his exploits in quackery in the multiplicity of aches and pains suffered by human beings, especially in civilized countries, and does not hesitate to avail himself of his opportunities to the fullest extent.

The uneducated or unthinking person, when suffering pain, cares only for relief from pain, without consideration of the means by which the relief shall come, or of the relation of the remedy to the causes by which the pain may be produced. Pain is not in itself a disease, it is only a symptom. To relieve pain by the use of a narcotic of some sort, is simply an obscuring of the indication which nature is holding out for the purpose of calling attention to some morbid condition which needs to be relieved, of which the pain is merely a sign, and not the thing itself. We herewith present analyses of a large number of popular "pain-killers," which we have gathered from a variety of reliable sources. Pain should be relieved by the removal of the cause, not by the "knock-down argument" of a narcotic. "Pain killers" are among the most pernicious of drugs, and often aggravate and perpetuate the very maladies for which they are used. In hundreds of instances the opium habit has been acquired by the use of these narcotic nostrums. Thousands of babies have been killed by the employment of these dangerous "quieting potions."

Yellow Family Drops. — Opium 2 oz., sapo Venet. 1 lb., croci opt. 2½ oz., sp. rosemarini 2 lb.

Coaline Headache Powders. — The manufacturers guarantee these powders to cure sick headache, neuralgia, and effects due to exposure to the sun, fatigue, and alcoholic excesses. It is guaranteed to contain no opium, chloral, morphine, or other narcotics, to be perfectly harmless, and to leave no after-effects. An analysis made by *New Idea* shows the powders to consist chiefly of antipyrine, a newly discovered and

very powerful substance derived from coal tar. It relieves pain, but has a most depressing effect upon the heart, and is a dangerous remedy, except in the hands of a wise physician.

Flagg's Relief. — Oil of cloves, about 1 dr.; oil of sassafras, about 2 dr.; spirits of camphor, about 1½ dr.

Stedman's Soothing Powders. — Opium pulv. 3 gr., ipecac 1 gr., milk sugar 8 gr., rice flour 12 gr.

Fosgate's Anodyne Cordial. — Fl. ext. rhubarb 5 fl. dr., fl. ext. rhatany 2 fl. dr., fl. ext. ginger 6 minims, paregoric 1 fl. dr., simple sirup 1 fl. dr., dilute alcohol 5 fl. dr.

Senckenberg's Migraine Pastilles. — Antipyrine 4½ gr., antifebrine 7½ gr., rhubarb ¾ gr., calamus ½ gr., cinchona ½ gr.

Kephalgine. — Antipyrine 5 parts, roasted coffee 5 parts, caffeine 2 parts, salicylate of sodium 2 parts.

Lavarre's Sure Cure. — Each bottle of this remedy is said to contain "the virtues of two pounds of the choicest barks and herbs!" It is claimed to be a sure cure for neuralgia, rheumatism, toothache, headache, backache, and all diseases of the nervous system. Here is the composition, according to *New Idea*: fl. ext. poke berries 80 minims, fl. ext. sassafras 40 minims, liquid ammonia, caustic 5 minims, sodium bromide 20 gr., alcohol ½ fl. oz., oil peppermint 1 minim, powdered cochineal 4 gr., white sugar 3 dr. Troy, water (enough to make) 4 fl. oz.

Lindsey's Pain Cure. — Alcohol 4 oz., ethereal oil of wine 4 dr., tinct. of capsicum and myrrh, 4 oz., spirits camphor 4 oz., oil hemlock 2 oz., oil cinnamon 1 dr., oil sassafras 1 oz., oil cloves 4 dr., ether 2 oz., chloroform 2 oz., sweet spirits of nitre 4 oz., chloral hydrate 2 oz., lard oil 4 oz., oil cedar 4 oz., oil origanum 1 oz., oil wintergreen 2 dr.

Little Hop Pills. — Recommended for headache, biliousness, weak nerves, dyspepsia, constipation, de-

ranged liver, and general debility. Podophyllin 3 gr., ext. colocynth 6 gr., oil peppermint 1 drop, ext. rhubarb sufficient for 12 pills.

Powell's Balm of Anise Seed. — Similar to paregoric, the camphor being left out, and extract of licorice and anise seed oil added.

Papine. — This preparation is simply a deodorized tincture of opium. Each teaspoonful represents more than a grain of opium. It needs no comment to enable the reader to recognize the dangerous character of this nostrum.

Pope's Cure for Neuralgia. — Iodide potash 4 dr., ext. conium 1 dr., comp. tinct. cinchona 2 fl. oz., sirup sarsaparilla 4 fl. oz.

Parson's Local Anæsthetic. — Chloroform 12 parts, tinct. aconite 12 parts, tinct. capsicum 4 parts, tinct. pyrethrum 2 parts, oil cloves 2 parts, camphor 2 parts.

Bromidia. — Bromidia potassa, chloral hydrate, solid ext. hyoscyamus, solid ext. cannabis indica, alcohol, soft water.

German Rheumatic Remedy. — Wine colchicum, tinct. opium, spirits nitre, dulc.

DANGEROUS BAKING POWDERS.

The *Scientific American* has compiled, from five official reports, a list of baking powders containing alum and ammonia, both of which substances have been shown to be exceedingly harmful and dangerous to health, impairing digestion, and producing pallor, emaciation, and feebleness, according to Prof. Bartholomew, an eminent professor in the medical department of the Jefferson Medical College, of Philadelphia, Pa:—

American Gilt Edge
Atlantic & Pacific
Aunt Sally
Brooks & Mc George
Brunswick
Buckeye
Burnett's Perfect
Can't Be Beat
Capitol
Carlton
Centennial
Challenge
Cook's Acme
Cook's Best
Cook's Choice
Cook's Favorite
Cook's Finest

Coral
Cottage
Crown
Crystal
Daisy
Davis's O. K.
Dixon's
Dooley's
Dry Yeast
Eclipse
Empire
Enterprise
Eureka
Feather Weight
Fleur de Lis
Forest City
Four Ace

Gem
George Washington
Globe
Gold
Golden Sheaf
Grape
Great Eagle
Henkel's
Higgins's
Holyoke
Hygienic
International
James's
Jersey
Kenton
Lincoln
London
Mason's
Metropolitan
Miles's
New Era
Ocean Foam
Ocean Wave
Old Colony
One Spoon
On Top
Oriole
Our Best
Our Own
Patapsco
Pearson's

Perfection
Peerless
Pride of Ottawa
Pride of Toronto
Princess
Purity
Royal
Scioto
Silver Cream
Silver Queen
Silver Spoon
Silver Star
Silver Thimble
Snowdrift
Sovereign
Springfield
Star
State
Standard
Sterling
Sun Flower
Superior German
Veteran
Vienna
Washington
Welcome
Wheeler's
White Star
Windsor
Zipp's Grape Crystal.

CORRASSA COMPOUND. — For a number of years a man styling himself Rev. Jos. T. Inman, advertised extensively, giving as his address a certain number at Bible House, New York City. He claimed to have suffered from the results of the evil habits of his early youth, and to have discovered, while a missionary in South America, a remedy which afforded him entire relief, after many years of unsuccessful effort. His plan of operation was to offer to furnish, free of charge, a recipe for the cure of the disease. On receiving an application for said precious recipe, he forwarded to his victim a circular containing the formula: "Ext. of corrassa apimis 8 dr., ext. of salarmo umbellifera 4 dr., powdered alkermes latifolia 3 dr., ext. of carsadoc herbalis 6 dr.," with the

explanation that the remedies referred to were choice South American herbs, which could be purchased from no one but the Rev. J. T. Inman. As a matter of fact, the names composing the formula are wholly fictitious. No such herbs exist anywhere in the world. An analysis of the compound which was sent by this notorious quack to his dupes, as made by Dr. A. B. Lyons, an efficient chemist, is as follows: Gentian 15 per cent, licorice root 15 per cent, sugar 50 per cent, sodium bicarb. 17½ per cent, cochineal 2½ per cent.

NEXT month we shall publish something about the Brinkerhoff System.

GOOD HEALTH

J. H. KELLOGG, M. D. EDITOR.
BATTLE CREEK, MICHIGAN.

WHERE ARE THE MOTHERS?

ACCORDING to the last census of the population of the United States, several million of babies are unaccounted for. In other words, there has been an enormous falling off in the birth rate. It is scarcely necessary to dwell upon the significance of this important fact. A lowered birth rate is a matter of much graver consequence than an increased death rate, although the result, as regards the decrease of population or lessened increase in population, might be the same. An increased death rate may mean nothing more than a temporary increase in the activity of one or more causes of disease and death, while a lowered birth rate means a radical and constitutional fault of some sort affecting the very constitution of the race. This cause may be either physical or moral. For several years, the most learned scientific bodies of the French nation have been, by request of the French government, earnestly discussing the cause of the lowered birth rate and the rapid decrease in the population of France. As yet the French savants have found no satisfactory solution of the problem. It appears now that the same problem has unexpectedly arisen here in America, although as yet it has not assumed the gigantic proportions in which it appears in France.

As suggested by our heading, the prime cause of the falling off in the birth rate will be found in the mothers, or in those who should be mothers. Any one who has had an opportunity to become acquainted with the physical condition of the average young woman of the present generation, will be easily convinced that the next census will show a still greater falling off in the birth rate than the last. There probably never was a country or time in which so large a proportion of the women could be found engrossed with the cares of society life and burdens and duties which seriously interfere with the obligations of motherhood, as in this country at the present time.

The fashionable woman has no time for rearing children. A woman who is actively engaged in "church work," in city missionary work, or in any other line of philanthropic effort, often finds a ready excuse in the work in which she is engaged. A corset-choked woman knows very well that she is quite unfit physically for the rearing of healthy children, and besides the physical unfitness, she finds herself so lacking in fortitude, and so oppressed with neuralgias and an abnormal susceptibility to pain, that she very naturally shrinks from the physical ordeal, as well as the mental and moral responsibility, which motherhood involves.

It must be allowed that men are to some degree responsible for the statistical fact to which we have called attention, through the increase in the diseases which not only render men incapable of fatherhood, but which are directly productive of the condition of sterility in women; but as yet this cause must operate as but a small force in the production of the enormous loss of fecundity revealed by the last census.

Another most significant fact for which mothers must be held largely responsible, is the enormous business carried on at the present time in the manufacture and sale of infant foods. According to a paper read by Dr. Huffman, before the American Association for the Advancement of Science, at its last meeting, there is consumed in the United States, every year, not less than eight or ten million dollars' worth of infant foods. That these foods are rarely, if ever, perfect substitutes for the child's natural aliment is well known. What has created such an enormous demand for these poor substitutes? Certainly it is not the unnatural increase in the number of infants which has exhausted the natural food-supply, for we have already called attention to the fact that within the last ten years there has been a falling off in the birth rate amounting to several million.

This demand for infant foods may be the result of either one or both of two causes: The failure of the American woman to supply her infant with a due amount of nourishment, or the deliberate refusal of the American woman to take the trouble of dealing out to infant Young America his daily rations of sustenance. Probably both of these causes are active.

We have squarely before us, then, the sad fact that American mothers are rapidly losing the most distinctive prerogative of womanhood. The American woman of the present day either cannot or will not contribute as much to the perpetuation of the race as did her predecessor, and either cannot or will not

so well care for the smaller number of children which she bears.

These facts point most decidedly to a serious decline in the physical stamina of American women, as well as to a most lamentable and threatening loss of natural instinct. Certainly there is something radically wrong in the education of the girls and young women of the present day. This matter is one of too great gravity to be passed over lightly. It is certainly to be hoped that a reform may be instituted before these depraving and deteriorating influences have extended so far as to be irreparable.

WHY A SMALL BOY ATE GRANOLA.

A LADY patient at the Sanitarium tells the following amusing story respecting her little grandson, aged six years. The little boy had been repeatedly urged to eat granola. Among other arguments offered him as an inducement, he was told that eating granola would strengthen his muscles and assist him in growing up to be a strong and vigorous man. All persuasions were without effect, however, as he stubbornly refused to eat the article, declaring that he did not and could not like it. He was, unfortunately, a boy whose tastes had been thoroughly perverted. Suddenly, one day at the dinner table, to the great surprise of every one, he called for granola, and ate a considerable quantity of it with

apparent relish. Thereafter, he demanded granola at every meal. He made it his chief article of diet. When asked for a reason for this sudden change in his appetite, he at first gave no satisfactory reply, but finally confided to his grandmother that he had been, as he thought, insulted by a big boy on the street, and he was eating granola so as to make his muscles strong enough to enable him to thrash the big boy as he deserved. This circumstance demonstrates very clearly the fact that the likes and dislikes so often exhibited in children, as regards healthful food, can be very easily overcome, providing the interest of the child himself is enlisted.

DIED OF DINNERS.

KATE FIELD declares that "Died of Dinners" should be the inscription on many a public man's gravestone, as a warning to rising generations. Those who know, say that Justice Matthew's fatal illness was brought about by dinners. The Supreme Court allows no recess for lunch. The result is that our Solons snatch bites as best they can, and go home so hungry that they are ready to swallow everything put before them at dinner. What is n't put before diners-out in Washington is n't worth talking about. The world should wonder, not that Chief Justice Waite, and Justice Matthews, and Justice Miller have followed one another so quickly to a sphere where it is to be hoped dinners are unknown, but that any Justice of the Supreme Court is left alive.

"Why would it not be a good idea, before undertaking to administer justice to others, for the members

of our highest judicial tribunal to administer a little justice to themselves, eating sensibly at noon and simply at night? If they do not, the President may be called upon to fill other vacancies.

"Most of us commit suicide without knowing it, and our mourning friends call it a blow from the hand of Providence. In one sense they are right, however, for he who defies the laws of health pays the penalty of sickness and death.

"It's a great pity there is no chair in school or college dedicated to the science of living. Who will endow such a one? I know a man who could fill it, and who says everybody ought to live to be at least one hundred. The problem of long life is merely a question of what, when, and how much to eat and drink."

Probably the writer of the above has no acquaintance with the Sanitarium of Battle Creek, Michigan.

WARM-AIR BATHS IN FEVER.—Two Italian physicians, Drs. Queirolo and Penny, recently reported the results of some very interesting investigations respecting the influence of perspiration in removing poisonous substances present in the system during fevers, and the effect of the warm-air bath upon the disease in cases of this sort. It was found that rabbits inoculated with the sweat of patients sick with severe typhoid or malarial fevers, were killed thereby, and that the fever was diminished in a marked degree as the result of the warm-air bath, indicating that perspiration is one of the means by which the poisonous substances, which are the direct cause of the elevation of temperature in fevers, may be removed.

THE ORIGIN OF LA GRIPPE.—A French physician who has been for some months engaged in official study in Russia for the purpose of discovering, if possible, the origin of *la grippe*, reports that Russia is its natural *habitat*, and that it originates there in the insanitary conditions which commonly prevail among the lower classes. The great amount of filth existing in the houses of the people, together with the natural dampness of the soil, afford precisely the conditions necessary for the development of the germ which is supposed to be the cause of this malady. The investigator referred to, claims to have found the germ of the disease in the mud and filth about illy-kept dwellings. He further reports the discovery of the germ of pneumonia associated with the germ of *la grippe*, which apparently accounts for the frequent association of these two diseases.

Dr. Baker, of the State Board of Health of Michigan, at a late meeting, announced the view that *la grippe* or influenza is due to certain meteorological conditions, and the careful observations he has made relative to this subject certainly give his view of the matter a very great degree of plausibility.

SOME AGED INDIANS.—Indians of Southern California have long been remarkable for their great longevity and freedom from disease. Before they came in contact with civilized man, these Indians lived lives of great simplicity. Their food consisted mostly of nuts, acorns, and other products of the earth, their habits being strictly vegetarian. Dr. Remondino, of San Diego, recently read a paper before the State Medical Society, of which we quote the following abstract published in the *Brooklyn Medical Journal*:—

“At the Indian village, at Capitan Grande, are several Indian women whose ages are over one hundred and thirty years. Dr. Remondino quotes Dr. Edward

Palmer, long connected with the Smithsonian Institute, as authority for the statement that there lives in Southern California, a squaw who is one hundred and twenty-six years old, and that he has seen her carry, tied up in a blanket, six watermelons, for a distance of two miles. A few miles below San Diego lives an Indian, bent and wrinkled, whose age is computed at one hundred and forty years. Although blind, he is still active, and daily goes down to the beach and along the beds of the creek in search of drift-wood, making it his daily task to gather and carry to the encampment a fagot of wood. Still another is mentioned who, although one hundred and fifteen years old, is wonderfully active and a great walker, a fifty-mile trip to the mountain for a bag of acorns, which he packs on his back, being an ordinary matter for the old gentleman.

“Father Ubach, who is connected with the missions, is thoroughly conversant with the personal habits of all these old persons. He says their habits have been those of strict temperance and abstemiousness, their diet being exceedingly simple, consisting of acorns, flour, and water. Dr. Remondino thinks that the climate is an important factor in producing this great longevity. There is in Southern California an almost complete immunity from hepatic and renal disorders; no land is so free from lung affections, while rheumatism and malaria are unknown.”

We are surprised that it did not occur to the Doctor that if the Indians of Southern California lived to such great age in consequence of the salubrity of the climate, the same should be the case with the civilized white inhabitants; and yet, unfortunately, the average longevity of civilized people in California is certainly not greater than that in other States.

NO OCCASION TO REPORT.—It is the duty of the health officers in Michigan to send a weekly report to the State Board of Health. Officer Davis, of Close Village, was recently reminded by the Board of his failure to send in weekly reports. This is his reply:—

“There has not been enough sickness here within the last two or three years to do much good. The physicians find time to go to Milwaukee on excursions, serve as jurors in justice courts, sit around on drygoods boxes, and beg tobacco, chew gum, and swap yarns. A few sporadic cases of measles have existed, but they were treated mostly by old women, and no deaths occurred. There was an undertaker in the village, but he is now in the State prison. It is hoped and expected that when green truck gets around, melons plenty, and cucumbers in abundance, that something may revive business. If it does, I will let you know.”

POISONING FROM CASTOR BEANS.—It is perhaps not generally known that castor beans are extremely poisonous. A case recently occurred in which a young lady nearly died from eating a single bean.

A REMEDY FOR ADULTERATION.—The Roman authorities propose to cure the commercial vice of adulteration by the publication, in the daily papers, of the names of all makers and venders of food substances which are adulterated or injurious to health.

INSANITY AMONG SAVAGES.—Dr. Morton Manning, who has made an extensive study of insanity among the aborigines of Australia, reports that the disease is, with these poor people, due almost wholly to the use of liquor. All the cases of melancholia originate in jail, where the poor victims have been confined as the result of their intemperate habits.

THE CANCER GERM.—Dr. William Russell, of Edinburgh, has announced the discovery of a germ which is believed by him to be the cause of cancer. The germ is described as being spherical in shape, and from one half to three quarters the size of the red blood corpuscle. It is found not only in cancer but in old ulcers, and in a few growths not generally believed to be malignant.

MESMERISM AS MEDICINE.—Prof. Charcot, who has probably had more experience with hypnotism than any other living man, has recently finished a long series of experiments, as the result of which he announces the fact that not more than one case in one hundred thousand is likely to be benefited by hypnotism. If a remedy at all, it is one which can easily be dispensed with.

A BABY'S TRAVELS.—A Pittsburg gentleman has been studying the pedestrian abilities of young children. He began by attaching to a child's foot, a marker consisting of an inked pad which would make a mark every time the child took a step. The child was then placed in a room, the floor of which had been covered with white muslin, and allowed to run about as usual. At night the marks were carefully counted, when it was found that the child had made in the course of the day, nearly 6,500 steps. Estimating two steps to the foot, this would make a distance of 3,242 feet, or nearly three fourths of a mile.

By means of a pedometer, the same gentleman ascertained that a boy of nine years, sent out to play by himself, traveled, in the course of the day, from nine to ten miles.

EFFECT OF TOBACCO-USING.—It is said that the native Marois, of New Zealand, who were once a powerful race, and models of physical perfection, have been reduced to a small fraction of their former numbers, and are rapidly dying out, one of the most active causes being the use of tobacco, to which they have become greatly addicted since its introduction by Europeans.

A MOTHER'S SCHOOL.—Certainly there is no line of education more neglected than the qualification of mothers. How many young mothers know anything about the proper care of infants and children? Very often the mother only learns how properly to care for her little ones after two or three of them have been laid away in the grave. It is certainly a sad lesson to learn by such fatal experience.

Two philanthropic young ladies have recently started, in Washington, D. C., a school for the instruction of mothers. In this school women are taught by means of lectures, how to care for children, and in order to impress the lessons taught, a baby is procured for illustration, and is washed, dressed, fed, and then put to sleep before the audience, so each one can see how the thing should be done. Such a mother's school might be carried on with profit in every city in the land.

OLIVER WENDELL HOLMES ON DIET.—That veteran vegetarian, Prof. Alcott, of the school of Concord philosophers, used to say that if a man eats pork he becomes piggified. This assertion of the old philosopher has been much disputed and ridiculed, but now the "Autocrat of the Breakfast Table" comes forward in his recent book, "Over the Teacups," reasserting the same dietetic philosophy in the following paragraph:—

"Most assuredly I believe that body and mind are much influenced by the kind of food habitually depended upon. I am persuaded that a too exclusively porcine diet gives a bristly character to the beard and hair, which is borrowed from the animal whose tissues these stiff-bearded compatriots of ours have too largely assimilated. I can never stray among the village people of our windy capes without now and then coming upon a human being who looks as if he had been split, salted, and dried, like the salt fish which has built up his arid organism. If the body is modified by the food which nourishes it, the mind and character very certainly will be modified by it also. We know enough of their close connection with each other to be sure of that, without any statistical observations to prove it."

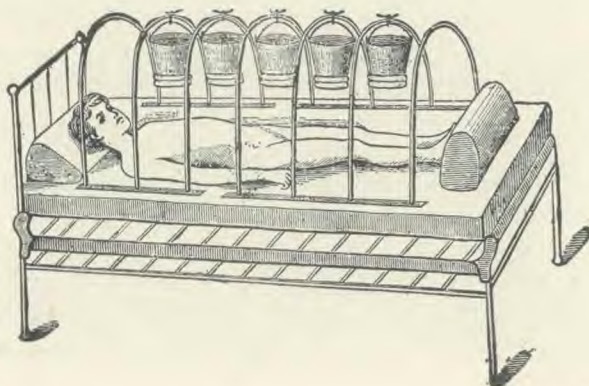


THE ICE CRADLE.

DR. FENWICK describes, in a recent number of the *London Lancet*, a new method of applying cold in diseases accompanied by high temperature. The accompanying cut shows what the doctor calls an "ice cradle," in describing which we quote his own words:—

"The ice cradle is an arrangement by which a constant current of cool air can be brought into immediate contact with the surface of the body, and thus bring about a reduction in its temperature by direct abstraction of heat. This method was originally introduced by Dr. Samuel Fenwick as a substitute for the cold bath in the treatment of typhoid fever, and with this object it has now been used for many years in his wards at the London Hospital, with the most excellent results. It consists essentially of an iron surgical cradle, from the central bar of which are suspended several small zinc pails half filled with ice. The patient lies undressed upon the bed (he may be covered with a light sheet made of opaque gauze), and the cradle, covered by a light counterpane, is placed over him. In order to prevent any feeling of chilliness, a hot-water bottle is kept in contact with the patient's feet. The ice in the pails is renewed at intervals, and it is found con-

venient in practice to cover the bottom of the pails with a piece of lint in order to prevent any condensed moisture from dripping upon the body of the patient. In default of the iron cradle, a very good substitute can easily be made with a piece of strong wire, or from two wooden hoops sawn through the center. Under such an arrangement a patient may lie for many days, the utmost required being to replenish the ice-pails, and occasionally to renew the hot-water bottle at the feet. Although the mean temperature of the cradle can rarely be reduced more than a degree or two below that of the surrounding atmosphere, it usually suffices to effect a reduction of several degrees in the bodily temperature, and, what is of more importance, to maintain it at a reduced point. In certain cases where the pyrexia (fever) has been moderate, or where ice was unobtainable, the cradle has been used without the pails, and it has been found that under these circumstances, the circulation of air at the temperature of the ward was sufficient to effect a gradual reduction in the temperature of the body, to the amount of several degrees. But in order to obtain the maximum value from the use of the ice cradle, it is necessary that the attention should be directed to several indispensable details in connection with its mode of application. In the first place, the cradle must be of sufficient width, for nothing tends to render a patient so hostile to the procedure as the use of a cradle so narrow as to cramp the free movement of his limbs. Secondly, it is always necessary to keep the feet warm by means of a hot bottle; for by this means any feeling of coldness can be easily counteracted, while at the same time the general comfort of the patient is considerably increased. Thirdly, the free circulation of air through the cradle is a *sine qua non*; unless this be attended to, the ice is quickly melted, the temperature of the air in the



cradle rapidly rises, and little if any good results from its employment. Lastly, in all cases it is well to take the patient's temperature every three or four hours, and to remove the cradle should the mercury have fallen below 100°, or the patient exhibit any inclination to shiver. When these precautions are observed, the patient soon becomes accustomed to the method of treatment, and many severe cases of enteric fever have lain beneath the cradle for as long as ten days or a fortnight, with only the happiest results."

It is claimed that this method of making cold applications, in which cold air is the medium instead of cold water, has been very successful in the treatment of pneumonia. The method strikes us as being a very sensible and practical one. The author has found that the effect of the ice cradle is often very much increased by sponging the patient with hot water. When his temperature has fallen to 101°, the cradle is lifted off, and he is covered with a light blanket, the cradle being replaced again as soon as the temperature has risen to 103°.

A CURE FOR CHOLERA.

It is now universally acknowledged that cholera is a disease due to germs. The comma bacillus, discovered by Prof. Koch, is doubtless the particular germ which produces this oftentimes fatal malady. Patients suffering from cholera in its advanced stage usually present the appearance of extreme collapse; the skin is blanched and cold, the muscles have a tendency to rigidity, the features are pinched, and there is extreme thirst, due to the exhausting discharges. The thirst is not much relieved by water-drinking, however, as the mucous membrane lining the intestines is pouring out the blood serum in great quantities, and seems to have lost its ability to absorb liquids, owing to the intense contraction of the bloodvessels. If called to treat a case of cholera, the following would be our mode of procedure:—

The patient would be surrounded with warm bags

filled with hot water, or some other means of communicating heat, all parts of the body being enveloped in this way, with the exception of the spine, to which an ice bag would be applied. The patient would be made to swallow hot water in large quantities, and a large, hot enema would be administered, for washing away the poison produced by the bacillus which is the direct cause of the symptoms of this disease. The hot-air bath has doubtless saved the lives of many persons suffering from cholera, but this is not convenient for administration, and in many cases the patient is too exhausted to receive the treatment. The mode of applying heat here proposed, however, is equally efficient, and combined with the application of ice to the spine, we believe would prove a most efficacious means of combating this dread disease.

A NEW WAY OF CATCHING CONSUMPTION.—A foreign physician reports a case of consumption in a musician which seemed to be due to the use of a trumpet previously belonging to a person who had died of the same disease. In investigating the matter, he introduced a small quantity of water into the tubes of the instrument. After allowing it to remain for ten minutes, he injected a small portion into a guinea pig, which soon after died of tuberculosis.

A SURE CURE FOR SEA-SICKNESS.—At this season of the year, many persons are making plans for a trip across the ocean, and at the same time are making calculations on suffering, during a greater part of the voyage, from sea-sickness, always the bane of ocean travel. A fit of sea-sickness lasting from two or three days to a week is by no means refreshing in its effects upon an invalid who is traveling abroad for rest and

recuperation. A great variety of remedies have been tried for the relief of this most disagreeable malady. With one exception, however, none of these have proved efficacious; but Dr. Chapman, of London, has proposed a remedy which is at least so effective as a palliative that it may be said to be almost a panacea. The remedy is as simple as it is effectual. It consists in the application to the spine of a rubber bag filled with ice or ice-cold water. Every ocean traveler should carry with him a spinal ice bag, which can be obtained from any dealer in rubber goods. Within a short time after the application, the nausea and vomiting ceases, and the victim of *mal de mer* falls asleep. No harm comes from the use of ice in this manner. The patient does not even suffer from chilliness or other disagreeable sensations. If the application of the bag directly to the skin is found to produce too intense sensation of cold, it should be covered with one thickness of flannel.

TETANUS IN INFANCY.—A German physician has shown that the tetanus of very young infants is due to a specific germ with which the infant is infected through the umbilical wound, the source of infection usually being dirty fingers or soiled dressing.

COCOA.—Many people, especially invalids, use cocoa with the idea that it is very nourishing. Many physicians recommend it with the same erroneous view. M. Carles, a French physician, has recently shown that this is an error. The fifty per cent of fat which cocoa naturally contains, must be almost wholly removed before it can be reduced to a powdered state. Any considerable quantity of fat left would cause the powder speedily to become rancid. The consequence is, that cocoa, powdered, is practically analogous to skimmed milk, its nutritive value being even less than this familiar comestible.

TO REMOVE A FOREIGN BODY FROM THE NOSE.—The unobstructed nostril should be closed with the finger, and the patient made to force the breath out through the nose with as much force as possible, keeping the mouth tightly closed. In order to prevent injury to the ears, it is a good plan to make firm pressure upon the openings of both ears during the expulsive effort. If this method is not efficient, it may be supplemented by the use of the rubber bag such as is used by specialists in treating the ears, and known as Politzer's bag. The nozzle of this is placed in the unobstructed nostril, which is tightly fixed to the nostril, then as the patient makes an expulsive effort, strong compression is made upon the bag at the same time. Any substance which can be removed without surgical aid, can be dislodged by this method.

BOILED MILK.—The increasing frequency of tuberculosis in cows, and the constant infection of milk with microbes, by its contamination with dirt and excreta through the carelessness of dairymen, renders it important that milk should only be eaten after having been sterilized by boiling. German housewives always boil milk as soon as it is received from the cow. By this means the germs are killed in their growth in the milk, and their production of poisonous substances is prevented. It is the custom at the Sanitarium, to boil all milk used upon the tables of both patients and helpers. For some years heretofore it has been the custom to boil the milk during the spring, summer, and fall months, but it is now the rule to boil it during all seasons of the year. It is necessary to take this precaution in addition to using the greatest care that only milk from

healthy cows is used. The idea that boiling milk renders it in any degree less wholesome as food, is an error; boiled milk is really more digestible than unboiled milk.

TO STOP THE NOSEBLEED.—Bleeding from the nose occurs in the majority of cases either from the sides of the septum, or the outer walls of the front portion of the nose. All that is necessary to stop the bleeding is to make pressure upon the bleeding point. This can be done by continuous pressure with the thumb and finger. The pressure should be applied from above downward, and the nose should be grasped close up to the "bridge," or bony part. Firm compression should be continued for at least ten or fifteen minutes, and when it is removed, the nose should not be cleared, as this would remove the clot, and so start the bleeding afresh. An ingenious country doctor keeps a wooden clothespin to use for this purpose, and an eminent physician asserts that in twenty years' practice he has not found a case which did not readily yield to the employment of this simple means.

THE DANGERS OF DIRT.—An Italian physician has recently been investigating the dust gathered from the pavement of the barracks. He inoculated fifteen guinea pigs with this dust, all of which died with tetanus, or lockjaw, within a week. It is quite possible that house dust may be the cause of lockjaw, rather than nerve irritation, as has been heretofore supposed. It seems, in fact, probable that this disease is due to infection of the wound with dirt from the ground, floors, or other similar sources. Apropos of the subject we quote the following paragraph from the *Sanitary Inspector* :—

"This may all be taken as again emphasizing the importance of cleanliness, and of the danger from dirt. Modern surgery has learned the fateful significance of filth, the dire consequences which may follow a trace of dirt upon the hands, beneath the nails, upon the bandages; and outside the medical ranks it should be common knowledge, not only that wounds are to be guarded from any possible source of pollution, but that infection comes not always directly from sick to well. The half-washed hands of the nurse may carry the germ of typhoid fever from the patient to her own food or to that of others; the hand soiled with tuberculous expectoration needs more than a careless washing to free it from the possibility of carrying infection; the emanations from a case of scarlet fever or diphtheria may be absorbed by the milk placed too near the sick room, and so carry disease and death to distant homes.

ANSWERS TO CORRESPONDENTS.

INHALATION OF SPICE DUST.—F. B. works in a wholesale spice house, and is constantly inhaling the dust of pepper, cinnamon, allspice, cloves, mustard, etc., which causes him to sneeze and blow his nose a great deal. He inquires: "1. Is this injurious, in your opinion? 2. Will it tend to shorten life?"

Ans.—1. The atmosphere of such a place cannot be considered perfectly wholesome. 2. So far as it has any influence whatever, it must have a tendency to shorten life; yet it is not probable that the effects resulting from the inhalation of the odors of pepper and other condiments is as likely to do harm as taking these articles into the stomach.

THE LOOSENING AND DROPPING OUT OF SOUND TEETH.—S. D. P. is fifty years old, and has not seen a sick day since boyhood. Has always been very particular regarding his diet, on account of a tendency toward constipation. During the last ten years he has lost five sound teeth, which apparently loosened and dropped out of their own accord. He asks: "1. What is the cause of this? 2. Is there anything I can do to prevent it?"

Ans.—1. Probably the dropping out of the teeth was due to the tartar about them causing gradual absorption of the gums, and finally of the bony process which supports the teeth. 2. Call upon a dentist to have the teeth thoroughly cleaned and the tartar removed.

PURIFICATION OF THE BLOOD—TREATMENT FOR PIMPLES, ETC.—M. R. is troubled with pimples and boils breaking out continually upon the face, although she is careful of her diet, and takes regular exercise. She asks: "1. Might not the taking of Hood's Sarsaparilla, clover tea, charcoal tablets, or senna and dandelion, help to purify the blood? 2. Should I bathe my face in hot or cold water? 3. Is there any soap or wash that you can recommend? 4. What particular diet is best for me? 5. What is your opinion of meat, tomatoes, cucumbers, and corn, as articles of food?"

Ans.—1. The blood will not be purified by putting things into it, but by getting something out of it. The only way to purify the blood is by the use of pure food, abundant water-drinking, exercise, and baths. 2. As a rule it is best to bathe the face in cold water. 3. Good castile soap is the best kind of soap with which we are acquainted. 4. A diet of fruits, grains, and milk is the best for producing pure blood. 5. Meat is unnecessary as an article of diet,

and has a tendency to clog the system with impurities. Cucumbers contain so little nourishment that they are not worth eating; in the form of pickles they are indigestible.

HOARSENESS AND COUGH.—Some one asks, "What is the first thing to do when a severe hoarseness or cough sets in?"

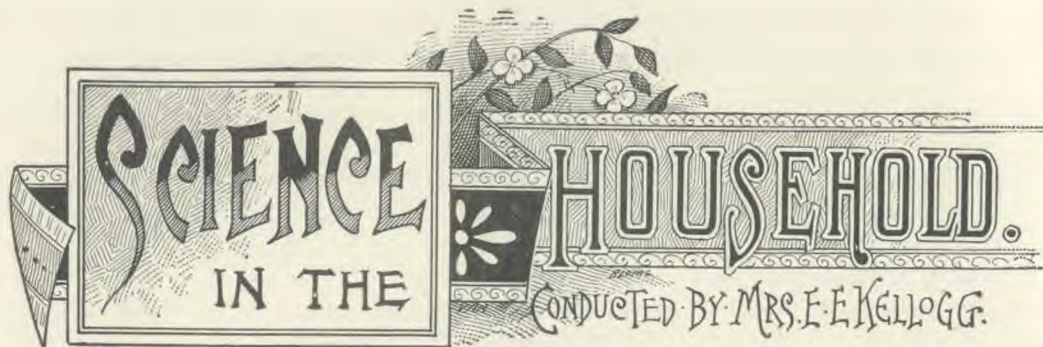
Ans.—Take a warm bath, and go to bed. Drink plenty of hot water to promote activity of the skin. Inhale, if you can, a saline spray, either chlorate of potash or common salt in the proportion of a teaspoonful to a pint of water. Follow with fomentations to the throat. Keep to your bed, and continue this treatment for a couple of days, if the attack is severe. Starve yourself for a day or two, taking nothing but hot water and fruit.

PAIN IN LOWER BOWELS.—A. H., Ga., has suffered for months from a more or less constant and severe pain in lower portion of bowels. Pain is worst when walking long distances. Is a vegetarian, but is canvassing, and therefore obliged to eat such food as he can procure. His bowels have never been otherwise than regular in their movements. Wishes to know the cause of the pain, as well as a remedy.

Ans.—The probable cause of the pain is an unnatural sensitive condition of the sympathetic nerves. A correct dietary is necessary for a cure. The application of heat to the painful part, and the wearing of a wet girdle, well covered with dry flannel, might prove serviceable.

WARTS—NASAL CATARRH.—K. R., Cal., inquires: "1. What causes warts on the hands? and what will remove them? 2. Please give the cause and the cure of nasal catarrh?"

Ans.—1. Warts are due to an increase in size of the papillæ of the skin. It is believed by some that they are due to germs. They can be removed by cutting out, or by means of a strong caustic. The daily application of strong acetic acid will soften them so that they can be rubbed off. Acid nitrate of mercury or nitric acid, properly used, will destroy them. 2. We refer the questioner to the little work entitled "Ten Lectures on Nasal Catarrh," which can be obtained of the Good Health Publishing Company, postpaid, on receipt of seventy-five cents. It would be impossible to answer the question satisfactorily in this department.



SCIENCE
IN THE
HOUSEHOLD.
CONDUCTED BY MRS. E. E. KELLOGG.

TOO GREAT VARIETY.

SIMPLICITY of diet should be a point of first consideration with all persons upon whom falls the responsibility of providing the family bills of fare, since the simplest foods are, as a rule, the most healthful. Variety is needed; that is, a judicious mingling of fruits, grains, and vegetables; but the general tendency is to supply our tables with too many kinds and to prepare each dish in the most elaborate manner, until, in many households, the cooking of food has come to be almost the chief end of life. While the preparation of food should be looked upon as of so much importance as to demand the most careful consideration and thought as to its suitability, wholesomeness, nutritive qualities, and digestibility, it should by no means be made to usurp the larger share of one's time when simpler foods and less labor would afford the partakers equal nourishment and strength.

Eating simply for the gratification of taste is a degrading custom. A great variety of foods at one meal exerts a potent influence in creating a love of eating, and is likewise a constant temptation to overeat. Let us have well-cooked, nutritious, and palatable food, and plenty of it; variety from day to day, but not too great a variety at each meal.

The prevalent custom of loading the table with a

great number of viands, upon occasions when guests are to be entertained in our homes, is one to be deplored, since it is neither conducive to good health nor necessary to good cheer, but on the contrary is so laborious and expensive a practice that many are debarred from social intercourse because they cannot afford to entertain after the fashion of their neighbors. Upon this subject a well-known writer has aptly said: "Simplify cookery, thus reducing the cost of living, and how many longing individuals would thereby be enabled to afford themselves the pleasure of culture and social intercourse. When the barbarous practice of stuffing one's guests shall have been abolished, a social gathering will not then imply, as it does now, hard labor, expensive outlay, and dyspepsia. Perhaps when that time arrives, we shall be sufficiently civilized to demand pleasures of a higher sort. True, the entertainments will then, in one sense, be more costly, as culture is harder to come by than cake. The profusion of viands now heaped upon the table, betrays poverty of the worst sort. Having nothing better to offer, we offer victuals; and this we do with something of that complacent, satisfied air with which some more Northern tribes present their tidbits of whale and walrus." E. E. K.

BOILING in strong soap suds will remove char from lamp burners.

NEVER sacrifice the more precious things—time, health, temper, strength—in attempting to save the less precious,—money.

IF matting, counterpanes, or bedspreads have oil spots on them, wet with alcohol, rub with hard soap, and then rinse with clear cold water.

A FEW HINTS ON HOUSE-CLEANING.—From several years of observation of the different methods employed by women in their annual house-cleaning, we are convinced that most of them make themselves a great deal of unnecessary hard work when putting their "houses in order." The usual way is to go at it as if the fate of the nation depended on having it done at a certain time. "Taking it leisurely" is something they do not seem to think of. We know one woman who has completely revolutionized the old

system. She begins with the closets. She empties one at a time, cleans it and its contents, returns them to it, and goes on to the next, never hurrying the work, and consequently never making herself sick by overdoing, as so many women do every spring. When the closets are in order, she begins with the rooms, taking those upstairs first, one at a time, and working her way down to the cellar. There is no bustle, no confusion, and no "picked-up" meals.

When the house is cleaned in this leisurely fashion, it is easy to get the men to help put up shades and curtains, because they do not get "out of sorts" from the general topsy-turvy condition of things. When the work is completed, the woman of the house is not "all used up." She may be tired—without doubt she is—but she soon rests up, and is all right again, while in many cases the woman who cleans house in the old fashion, pays for her over-zealous ambition by sickness brought on by not working according to her strength.—*Sez.*

FLATIRONS never retain the heat again so well after having been once red hot, and will always be rough. Do not keep them on the stove when not needed, but after using stand them on end upon the shelf.

CARE OF OILCLOTH.—A good serviceable oilcloth is one of the best of floor coverings for some purposes, and it can with but little effort and strength, be kept in excellent condition, and it can also be as easily destroyed with improper care. A few bad washings will do more harm than can ever be remedied, therefore it is especially important that the oilcloth be washed properly.

If you would have your oilcloth looking clean and bright, never use a mop when washing it, as this is sure to leave it grimy and streaky. Have a pail of clean, lukewarm water or milk and water, and use two clean flannel cloths, one for a wash cloth and one to wipe with. Go over the whole surface of the oilcloth, washing a small space at a time, and drying it thoroughly. When dried well, warm some linseed oil, and with a soft cloth rub it over the oilcloth, using a very little oil and rubbing it in well. This will improve the appearance of the cloth wonderfully. If linseed oil is not convenient, kerosene may be used, but linseed is much the better for this purpose. Equal quantities of beeswax and linseed oil melted together is used by many as a good dressing for oilcloth, applying it the same as the plain oil. a little at a time.—*Boston Budget.*

SOME SEASONABLE RECIPES.

MIXED MUSH.—Into a quart of boiling water stir three fourths of a cup of crushed wheat and one fourth cup of oatmeal well mixed together. Cook in a double boiler in the same manner as other grains.

BANANA DESSERT.—Heat a quart of milk in a double boiler to boiling temperature; add one fourth of a cup of sugar and four tablespoonfuls of corn-starch rubbed smooth in a little cold milk. Cook until it thickens, then set aside to cool. When nearly cold, add three thinly sliced bananas. Serve with whipped cream, flavored with orange or lemon.

SPINACH.—Carefully examine the leaves, discarding all that are bruised or diseased. Wash thoroughly through several waters, and cook in a double boiler without the addition of fluid. Spinach is best thus cooked in its own juices. When tender, if containing too much liquor, drain in a colander; chop fine and serve hot with a dressing of lemon juice, or if preferred, it may be reheated in cream, and seasoned with salt or a very little sugar.

GRANOLA CRUST.—For pies made of sifted prunes, apricots, dried peaches, apples, and similar dried fruits, requiring an under crust only, the prepared granola manufactured by the Sanitarium Food Co., makes a superior crust. To prepare, moisten with thin sweet cream or rich milk,—one half cup of cream for every two thirds cup of granola is about the right proportion, and will make sufficient crust for one pie. Flour the board thickly, and lift the moistened granola upon it, spreading it as much as possible with the hands. Dredge flour over the top, and roll out gently, without turning, to the required size. The material being coarse and granular, will break apart easily, but may be as easily pressed together with the fingers. Change the position of the rolling pin often in order to shape the crust without moving. When well rolled, carefully slip a stiff paper under the whole, first loosening from the board with a knife if necessary, and lift it gently onto the pan. Press together any cracks formed, trim around the edges, fill, and bake at once. Use just the least flour possible in preparing this crust, and fill and bake as soon as made, before the moisture has become absorbed.

LITERARY NOTICES.

"LOOKING FORWARD FOR YOUNG MEN; THEIR INTEREST AND SUCCESS," by Rev. George Sumner Weaver, D. D., 218 pp., cloth. Fowler & Wells Co., Publishers, New York. A series of very excellent lectures — sixteen in number — written originally by a popular New England pastor for the young men of his congregation, but finally gathered up into book form to be sent abroad to a wider audience.

The Cultivator and Country Gentleman is an old, established weekly newspaper, devoted to agricultural, horticultural, and stock-raising interests, having also a cosy corner for the home and fireside. First-class in every respect, its columns are filled with matter of which no land owner, large or small, can afford to be ignorant. Luther Tucker & Son, Editors and Proprietors, Albany, N. Y.

THE May installment of *Our Little Ones and The Nursery* seems a particularly worthy number of this popular little magazine. Instructive without being dry or dull, simple and pure without being weak or silly — it affords an admirable combination of entertaining matter for the little folks who do not prove unmindful or unappreciative. \$1.50 a year. Russell Publishing Co., 36 Bromfield St., Boston.

THE *Bacteriological World* is a monthly illustrated journal of over three hundred pages, devoted to the study of micro-organisms and diseases of parasitic origin. It is edited by Paul Paquin, M. D., V. M., Director Bacteriological Laboratory, Missouri State University, who reckons among his collaborators the name of Paul Gibier, as well as many others of wide medical or scientific reputation. \$3.00 per year. Address, *Bacteriological World*, Columbia, Mo.

"BIOGRAPHY OF DIO LEWIS, M. D.," by Mary F. Eastman, 400 pp., cloth. Fowler & Wells Co., Publishers. Beginning with his early boyhood, the story of Dr. Lewis's useful life has been here well told. The author, too, has placed before us the man, gentle, social, kindly, his large heart and abounding sympathies ever alive to the needs of his fellows, his active and original mind ever occupied with plans for their bettering. Apart from this, the biography possesses another and added interest, since no history of Dr. Lewis's life could be written without giving also the history of the most remarkable temperance movement of the age,—the woman's crusade of 1873, of which

he was the prime mover, and identified with it from its inception to its close; the unique plan of whose campaign, also, was of his own devising. Known in both hemispheres as teacher, writer, lecturer, philanthropist, the friend of woman, and one whose voice was always lifted against wrong-doing, Dio Lewis will not soon be forgotten. And truly this book — from first to last a labor of love — will help to keep his memory green.

THE April number of the *Jenness-Miller Magazine* contains many good things, and the opening paper, "Physical Culture," by Malcolm Davenant, is one of them. There is a fine paper of liberal research, by Mrs. M. E. W. Sherwood, showing how the manner of its decorations hand down the history of a nation, as the arrangement of one's room might reveal the life of the individual. "Normal Woman" is one of a series of articles on the physical evils of modern dress, coupled with conventional restrictions, compiled from the best authorities. There are also, "Baby's Inherent Rights," "Cycling as an Exercise," besides papers on artistic dress and needle-work, most of which are amply illustrated. An excellent article in the department, "The Doings of Busy Women," is the report of the National Woman's Council, in Washington, by Mrs. Clara Bewick Colby. The Jenness-Miller Publishing Co., 363 Fifth Ave., New York.

St. Nicholas for the month of flowers opens with the unique little poem, "Morning," by Emily Dickinson, followed by a stirring illustrated ballad of "The Siege of Calais," by Nora Perry, so perfect in its measure and so spirited in its action that one can almost hear the blare of trumpets and triumphant note of bugles rising high as King Edward and his glittering line — "Rode into the sunset red." There is, also, the second paper of Mrs. Mary Mapes Dodge's "Land of Pluck,"—so "taking" in its way that many of the elders will be won from their big histories, cyclopedias, and tables of statistics, by the charm of its freshness. Other good things follow — so many we have no space to enumerate — new installments of entertaining serials, useful and scientific articles, dainty conceits, merry jingles, and each lit up by pictures, grave, gay, fanciful, or realistic. Surely, no young subscriber will willingly lay down *St. Nicholas* until he or she has read through its last item. The Century Company, Union Square, New York.

PUBLISHERS' DEPARTMENT.

THE editor is absent as this number goes to press, attending the annual meeting of the American Medical Association, at Washington, D. C.

* *

THE readers of GOOD HEALTH will notice a new name among the contributors to the journal, Dr. J. H. Neall. We are glad to announce that the doctor has determined to devote his energies to the development and promulgation of the principles which have so long been advocated by this journal. We feel sure that our readers will peruse with pleasure the contributions which they will frequently find from his pen in the future columns of GOOD HEALTH.

* *

THE Board of Trustees who have in charge the selection of the site and erection of the James White Memorial Home, have purchased a beautiful site about one half mile from the Sanitarium. It is in full view of the Sanitarium, and overlooks many miles of most beautiful surrounding country. The site is one of the most picturesque which could be found anywhere, not being an even plane, but presenting several large remarkable depressions separated by ridges wide enough for beautiful drives. At one end there is a very excellent situation for the main building. The surroundings are all that could be desired. A large amount of land has been purchased, to afford ample room for such agricultural operations as may be carried on advantageously in connection with the Home.

There are many hundred cases which need immediate attention, and it is hoped that the work of collecting the necessary means for the enterprise may be carried forward with vigor, that work may be begun upon the building at an early day.

* *

THE ORGANIZATION OF A VEGETARIAN CLUB.—At a meeting held a few evenings ago, in the lecture room of the Hospital, the subject of vegetarianism was enthusiastically discussed. A considerable number of persons gave their experience in the practical application of vegetarian principles, some present having been rigid vegetarians for more than a quarter of a century. Nearly a hundred persons signed the following pledge, and a committee was appointed to draft a Constitution and By-Laws for the organization of a vegetarian club which will hold monthly meetings.

VEGETARIAN PLEDGE OF THE INTERNATIONAL HEALTH AND TEMPERANCE ASSOCIATION.

I hereby promise to abstain from the use of flesh food, and to avoid taking the life of animals, except under circumstances which render these acts necessary.

Signed,

The readers of GOOD HEALTH will hear more of the proceedings of this organization in the future, as it promises to engage in active work in the promulgation of the principles which it represents.

* *

THE second session of the Sanitarium Medical Missionary School closed April 19. Thirty-six persons were granted certificates for the completion of courses of preparation for various lines of medical missionary work. The following is a list of names of those who were granted certificates:

W. N. Hyatt, H. W. Reed, Miss Evora Bucknum, Miss Eva Wick, Mrs. D. H. Kress, Miss Laura Bee, Mrs. W. N. Hyatt,

Mrs. C. E. Hutchins, Miss Carrie Bond, Mrs. D. A. Fitch, Mrs. Mina Babcock, Minnie Prince, Sara Hutchins, Eliza Jones, Fannie Bogue, Mrs. Franc Nielson, Carrie Goddard, Stella Colvin, Oscar Emery, Geo. W. Spies, M. E. McMeans, W. D. McMickle, Geo. Miller, Mrs. Geo. Miller, Mrs. H. W. Reed, Mrs. L. A. Wing, Mrs. M. D. Mattson, S. W. Armor, Gertrude Gifford, I. A. Cleveland, E. M. Woolgar, U. T. Cady, Hattie Matteson, J. B. Johnson, Robert Young, Mrs. Gillespie.

The success of this school has been far beyond the expectation of those who have been chiefly interested in the enterprise. The work already done by those who have taken the course of preparation has been productive of most excellent results, and the larger and more efficiently trained corps of workers now entering the field promise well for the future of this new line of philanthropic effort. The purpose of the Sanitarium Medical Missionary School is to prepare young men and women to labor in the capacity of what might be termed Sanitary Evangelists. Those who are qualified to do so will labor as lecturers, teachers of cooking-schools, organizers of physical-culture and dress-reform clubs, and in whatever way opportunity may offer for the advancement of the principles of hygienic and sanitary reform. The many calls for such laborers which are constantly received by the Executive Committee of the International Health and Temperance Association, indicates that there is an urgent demand for work of this kind, and it is hoped that a still larger number of young men and women may be found to enlist in this interesting and most beneficent labor.

Mrs. Kress, one of the graduates of the Sanitarium Medical Missionary School, is already at work with success, in the city of Greenville, Michigan. She reports a physical-culture class of one hundred, composed of the leading ladies of the city. She is also carrying on two cooking-schools, both of which are very largely attended. Mrs. Kress is a person likely to succeed in whatever she undertakes, and we are not surprised that she is making a success of the work to which she has devoted her life. We hope there will soon be many similar workers in the field.

* *

CHICAGO, MILWAUKEE, AND ST. PAUL RAILWAY.—Electric-lighted and steam-heated vestibuled trains, with Westinghouse air signals, between Chicago, St. Paul, and Minneapolis, daily. Electric-lighted and steam-heated vestibuled trains between Chicago, Council Bluffs, and Omaha, daily. Through vestibuled sleeping-cars, daily, between Chicago, Butte, Tacoma, Seattle, and Portland, Ore. Solid trains between Chicago and principal points in Northern Wisconsin, and the Peninsula of Michigan. Daily trains between St. Paul, Minneapolis, and Kansas City, via the Hedrick route. Through sleeping-cars, daily, between St. Louis, St. Paul, and Minneapolis.

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OPINION OF THE PROFESSION.

Dr. Geo. B. Hope, Surgeon Metropolitan Throat Hospital, Professor Diseases of Throat, University of Vermont, writes in an article headed "Some Clinical Features of Diphtheria, and the treatment by Peroxide of Hydrogen" (*N. Y. Medical Record*, October 13, 1888). Extract:

"On account of their poisonous or irritant nature the active germicides have a utility limited particularly to surface or open wound applications, and their free use in reaching diphtheritic formations in the mouth or throat, particularly in children, is, unfortunately, not within the range of systematic treatment. In Peroxide of Hydrogen, however, it is confidently believed will be found, if not a specific, at least the most efficient topical agent in destroying the contagious element and limiting the spread of its formation, and at the same time a remedy which may be employed in the most thorough manner without dread of producing any vicious constitutional effect."

"In all the cases treated (at the Metropolitan Throat Hospital), a fresh, standard Marchand preparation of fifteen volumes was that on which the experience of the writer has been based."

"A steady, coarse spray, with an air pressure of twenty pounds or more, will in a few moments' time produce a more positive action than prolonged efforts to reach the fauces by means of cotton applicators. The force of the spray should be sufficient to cleanse at once the surface accumulations, as it destroys the necrosial elements with which it comes in contact. In this manner the removal of the debris and the action on the deeper structures go hand in hand."

"How frequently the treatment is to be followed up depends to a considerable extent on the density as well as the area of the surface involved. It may be said, however, that two applications a day, in the great majority of cases, should be sufficient, if thoroughly performed, to arrest all danger of extension and accomplish the gradual resolution of the local formation."

Dr. E. R. Squibb, of Brooklyn, writes as follows in an article headed "On the Medical Uses of Hydrogen Peroxide" (*Gaillard's Medical Journal*, March, 1889, p. 267), read before the Kings County Medical Association, February 5, 1889:—

CAUTION.—I would earnestly impress upon the profession the very great importance of prescribing only my Peroxide of Hydrogen (Medicinal), from which all hurtful chemicals have been eliminated. By specifying in your prescriptions "Ch. Marchand's Peroxide of Hydrogen (Medicinal)," which is sold only in ¼-lb., ½-lb., and 1 lb. bottles, bearing my label and signature, you will never be imposed upon. Never sold in bulk. PREPARED ONLY BY

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☞ Mention this publication.

"Throughout the discussion upon diphtheria very little has been said of the use of the Peroxide of Hydrogen, or hydrogen dioxide; yet it is perhaps the most powerful of all disinfectants and antiseptics, acting both chemically and mechanically upon all excretions and secretions, so as to thoroughly change their character and reactions instantly. The few physicians who have used it in such diseases as diphtheria, scarlatina, small-pox, and upon all diseased surfaces, whether of skin or mucous membrane, have uniformly spoken well of it so far as this writer knows, and perhaps the reason why it is not more used is that it is so little known and its nature and action so little understood."

"For example, some albuminoids are instantly changed by contact with hydrogen dioxide, as is shown by rinsing the mouth with a dilute solution, when the albuminoid matters of the secretions are at once coagulated. Then, as all virus is albuminoid, whether propagative or not, it is destroyed or by coagulation rendered inert by simple contact with this agent, just as it is by contact with corrosive sublimate. This simple experiment of rinsing the mouth with a dilute solution of hydrogen dioxide and examining the discharged liquid can hardly fail to convince any one of the destructive potency of this active oxygen on some albuminoids, and of its thoroughly cleansing effects upon the mucous surfaces."

"Now, if diphtheria be at first a local disease, and be auto-infectious; that is, if it be propagated to the general organism by a contagious virus located about the tonsils, and if this virus be, as it really is, an albuminoid substance, it may and will be destroyed by this agent upon a sufficient and a sufficiently repeated contact."

"A child's nostrils, pharynx and mouth may be flooded every two or three hours, or oftener, from a proper spray apparatus with a two volume solution without force, and with very little discomfort; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, and thus the effect of corrosive sublimate is obtained without its risks or dangers."

Further on Dr. Squibb mentions that Charles Marchand is one of the oldest and best makers of Peroxide of Hydrogen, and one who supplies it to all parts of the country.

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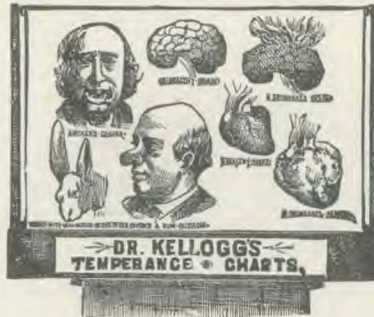
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 PLATE 4. Stomach of a Hard Drinker.
 PLATE 5. Stomach in Delirium Tremens.
 PLATE 6. Cancer of the Stomach.
 PLATE 7. A.—Healthy Nerve Cells. B.—Fatty Degeneration of Nerve Cells. C.—Healthy Blood. D.—Blood of an Habitual Smoker. E.—Blood of a Drunkard. F.—Blood Destroyed by Alcohol. G.—The Drunkard's Ring. H.—Healthy Nerve Fibres. I.—Fatty Degeneration of Nerve Fibres. J.—Healthy Muscle Fibres. K.—Fatty Degeneration of Muscle Fibres.
 PLATE 8. Smoker's Cancer. A Rum Blossom. A Healthy Brain. A Drunkard's Brain. A Healthy Heart. A Drunkard's Heart.
 PLATE 9. A. A Healthy Lung. B.—Drunkard's Consumption. D.—A Healthy Kidney. E.—Enlarged Fatt' Kidney of Beer-Drinker. F.—Atrophied Kidne, of Gin-Drinker. G.—Healthy Liver.



H.—Liver of Drunkard. Showing Nutmeg Degeneration. I.—Magnified Section of Fatty Liver of Drunkard. J.—View of an Eye Diseased from the Use of Tobacco and Whisky. K.—View of the Interior of a Healthy Eye.

PLATE 10. Alcoholic Drinks, showing the percentage of Alcohol contained in the common Alcoholic Beverages. Adulterants of Alcoholic Drinks, showing a list of poisons used in adulterating the various liquors. Sphygmographic Tracings of the Pulse, showing the effects of Alcohol and Tobacco upon the pulse. A.—Pulse of a Healthy Person. B.—Pulse of a Moderate Drinker. C.—Pulse of a Drunkard. D.—Pulse of an Old Tobacco-User. E. Pulse of a Young Smoker.

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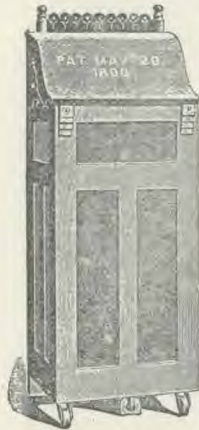
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|-----------------------|-------|------------------------|-----------------------|-------|
| P. M. | 4.25 | Ar... Allegan... Lv | A. M. | 10.55 |
| A. M. | P. M. | Ar.. Battle Creek. Lv | A. M. | P. M. |
| 1.45 | 2.46 | | 8.00 | 12.27 |
| P. M. | A. M. | Lv.... Toledo... Ar | P. M. | P. M. |
| 6.30 | 10.30 | Ar.... Bryan... Lv | 6.30 | 11.53 |
| A. M. | P. M. | Lv... Cincinnati... Ar | P. M. | P. M. |
| 12.35 | 3.11 | | 1.45 | 7.40 |
| P. M. | A. M. | | | |
| 5.00 | 7.20 | | | |

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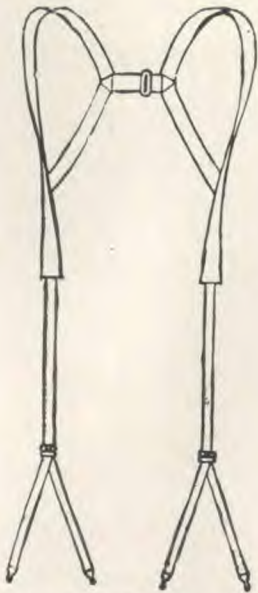


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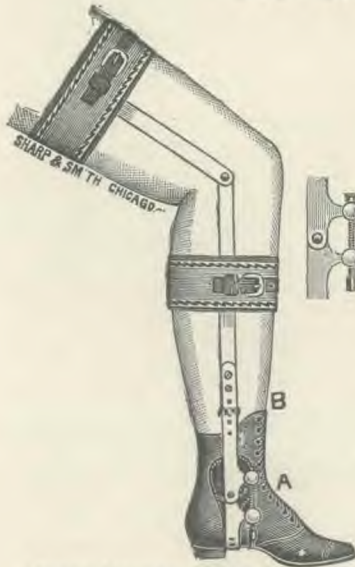
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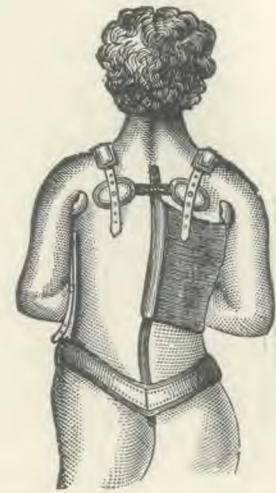
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|-----------------|----------|---------------|--------------------|-------------------|--------------------|-----------------|-----------------|
| STATIONS. | | | | | | | |
| Chicago..... | am 7.05 | am 9.00 | pm 12.00 | pm 3.10 | pm 10.10 | pm 9.25 | pm 4.50 |
| Michigan City | 9 10 | 11 10 | 1.55 | 4.48 | am 12.20 | 11.25 | 7.00 |
| Niles..... | 10.2 | pm 12.45 | 2.53 | 5.55 | 1.45 | am 12.40 | 8.25 |
| Kalamazoo .. | 11.50 | 2.20 | 3.58 | 7.04 | 2.35 | am 2.17 | pm 10.05 |
| Battle Creek .. | pm 12.55 | 3.08 | 4.30 | 7.37 | 4.29 | 3.04 | am 7.15 |
| Jackson..... | 3.10 | 4.30 | 5.33 | 8.52 | 6.2 | 4.45 | 9.55 |
| Ann Arbor.... | 4.45 | 5.32 | 6.29 | 9.45 | 7.50 | 6.65 | 11.00 |
| Detroit..... | 6.15 | 6.45 | 7.30 | 10.45 | 9.20 | 7.9 | pm 12.10 |
| Buffalo..... | am 8.25 | am 8.25 | am 3.2 | am 6.25 | pm 4.55 | pm 2.15 | 8.31 |
| Rochester.... | | | 6.00 | 9.20 | 8.00 | | 11.20 |
| Syracuse.... | | | 8.00 | 11.35 | 10.20 | | am 1.30 |
| New York.... | | | pm 4.0 | pm 8.50 | am 7.20 | | 9.42 |
| Boston..... | | | 6.00 | 10.57 | 9.35 | | pm 2.50 |
| STATIONS. | †Mall. | †Day Express. | *N. Shore Limited. | *Chicago Express. | *Pacific Express. | †Km. Accom'n | †Eve'g Express. |
| Boston..... | | am 8.30 | pm 2.15 | pm 3.00 | pm 7.00 | | |
| New York.... | | 11.50 | 4.50 | 6.00 | 10.00 | | |
| Syracuse.... | | pm 8.30 | 11.55 | am 2.10 | am 8.30 | | |
| Rochester.... | | 10.40 | am 1.42 | 4.20 | 10.45 | | |
| Buffalo..... | pm 11.30 | 11.30 | | 5.30 | 11.50 | am 8.45 | |
| Spen. Bridge | am 12.8 | am 12.28 | 3.05 | 6.25 | pm 12.50 | | |
| Detroit..... | 8.30 | 7.50 | 9.25 | pm 1.20 | 9.5 | 4.4 | pm 7.45 |
| Ann Arbor.... | 9.43 | 8.55 | 1.19 | 2.17 | 10.30 | 5.18 | 8.58 |
| Jackson..... | pm 11.23 | 10.05 | 11.18 | 3.20 | 11.50 | 7.15 | pm 10.20 |
| Battle Creek .. | .55 | 11.35 | pm 12.22 | 4.30 | am 1.23 | 8.47 | 11.57 |
| Kalamazoo .. | 1 | pm 12.12 | 12.59 | 5.02 | 2.17 | pm 9.31 | am 12.50 |
| Niles..... | 4.10 | 1.2 | 2.0 | 6.17 | 4.05 | 7.40 | 3.10 |
| Michigan City | 5.25 | 2.31 | 3.18 | 7.20 | 5.45 | 8.55 | 4.30 |
| Chicago..... | 7.65 | 4.35 | 4.50 | 9.10 | 8.05 | 11.20 | 6.40 |

*Daily. †Daily except Sunday. ‡Daily except Saturday.
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Time Table, in Effect Dec. 7, 1890.

| GOING WEST. | | | | STATIONS. | | | | GOING EAST. | | | |
|-------------|-------|-------|-------|--------------------|-------|-------------------|------|-------------|-------|-------|-------|
| pm | am | pm | am | | | | | am | pm | pm | pm |
| 8.00 | 7.00 | | | Boston..... | | | | am | pm | pm | pm |
| 5.00 | 3.00 | 8.00 | | New York..... | | | | 11.10 | 7.40 | 5.22 | 10.10 |
| 6.20 | 7.22 | 1.00 | | Buffalo..... | | | | 9.50 | 5.40 | 4.25 | 9.00 |
| 7.45 | 8.40 | 2.45 | | Niagara Falls..... | | | | 8.15 | 3.17 | 3.10 | 7.10 |
| | | | | Boston..... | | | | 8.30 | 9.50 | | |
| | | | | Montreal..... | | | | 8.10 | 7.45 | | 7.45 |
| | | | | Toronto..... | | | | 8.45 | 5.50 | | 8.20 |
| | | | | Detroit..... | | | | 9.45 | 7.45 | | 11.50 |
| 5.59 | 4.14 | 1.34 | 8.59 | 7.24 | 7.16 | Dep. | Arr. | pm | am | am | pm |
| 7.28 | 5.40 | 2.44 | 10.10 | 8.55 | 8.31 | Port Huron..... | | 10.31 | 1.05 | 7.35 | 8.21 |
| 8.48 | 7.23 | 3.10 | 10.43 | 9.45 | 9.03 | Lapeer..... | | 8.55 | 11.48 | 6.17 | 7.01 |
| 10.00 | 8.25 | 4.25 | 12.33 | 11.30 | 10.30 | Flint..... | | 8.0 | 11.17 | 5.40 | 6.27 |
| 10.37 | 8.58 | 4.58 | 1.06 | 12.05 | 11.00 | Durand..... | | 7.20 | 10.48 | 5.03 | 6.00 |
| 1.00 | 10.00 | 6.00 | 2.00 | 1.00 | 12.05 | Lansing..... | | 6.37 | 9.51 | 4.00 | 5.00 |
| 1.48 | pm | 2.50 | 1.48 | 12.50 | | Charlotte..... | | 4.58 | 9.27 | 3.25 | 4.33 |
| 1.38 | | | 1.58 | 1.00 | | BATTLE CREEK..... | | 4.05 | 8.45 | 2.35 | 3.55 |
| 2.52 | | 7.17 | 4.43 | 2.45 | 1.50 | Wicksburg..... | | 2.55 | 8.01 | 1.48 | 5.15 |
| 3.40 | | 7.55 | 4.25 | 3.35 | 2.35 | Schoolcraft..... | | 2.42 | 1.38 | | |
| 4.55 | | | 4.52 | | | Cassopolis..... | | 1.50 | 7.17 | 12.45 | 2.35 |
| 5.15 | | 9.15 | 5.55 | 5.10 | 4.00 | South Bend..... | | 1.00 | 6.35 | 12.00 | 1.67 |
| pm | | 11.15 | 8.05 | 7.30 | 6.20 | Haskell's..... | | 11.41 | | | |
| | | | | pm | am | Valparaiso..... | | 11.25 | 5.15 | 10.30 | 12.40 |
| | | | | pm | am | Chicago..... | | 8.40 | 3.15 | 8.15 | 10.50 |

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