TO CORRESPONDENTS.

All communications for this paper should be accompanied by the name of the author; not necessarily for publication, but as an evidence of good faith on the part of the writer. Write only on one side of the paper. Be particularly careful in giving names and dates to have the letters and figures plain and distinct. Proper names are often difficult to decipher, because of the careless manner in which they are written.

THE SONGS MY MOTHER SUNG.

I hear the songs they sing to-day,
But never one is sweet
As those my mother sang to me
When sitting at her feet.
My thoughts go back to childhood years,
When hope and I were young.
And as of old I hear to-day
The songs my mother sung.

At twilight's hour I often dream
I am a child once more;
I seek the house where I was born,
I pass the open door.
There mother rocks beside the hearth,
Her little ones among,
And life forgets its cares to hear
The songs my mother sung.

O, long the grass has grown above
That loving mother's face,
But still in faithful hearts she keeps
Her old, her dear old place.
No other songs can be so sweet
As those we heard when young.
When sitting at our mother's knee—
The songs our mother sung.
—Eben E. Rexford, in Detroit Free Press.

SLEEPING ALL WINTER.

Problem of Hibernation in the Animal Kingdom.

Subsisting for Months Without Food or Air—Curious Instances of Suspension of Nature's Functions—The Explanation.

We are apt to forget how large a part of the animal creation goes to sleep for the whole winter. The dead season of the year is obviously an appropriate name so far as regards the trees and plants, but it is just as correct a term for numerous species of living creatures. Nearly all the insects, crustaceans, worms, snails and the like, go into winter quarters; frogs, and all the reptile kind, bury themselves in the mud, or under stones, and even a few animals of man's own class spend several months of the year in a state of unbroken sleep. This is the problem of hibernation—a great deal more debated in former times than now. Aristotle began the speculations about it, and extended his inquiry to certain of the fishes of the Ægean Sea. Hardly any naturalist of note missed writing about it towards the end of the last century, or in the early part of the present one. The curiosity has always been greatest in reference to those few of the higher animals who have the faculty of coiling themselves up in a hole in the ground, and going to sleep for months together. The water vole is one of these:

"Down into his burrow he cozily creeps,
And quietly through the long winter time sleeps."

Gilbert White was told by a farmer in the parish of Selborne that his plow had turned up a vole's winter nest in a field some hundred yards from the water, with a gallon of potatoes stored at one end of it. Our other common winter sleepers are the hedgehog, the dormouse and the bat. Otters, badgers and squirrels seem to have the faculty of lying perdu for days at a time in a very hard season; but they do not count among the winter-sleepers proper. In Alpine countries the various species of marmots are well-known hibernators; in Russia and Siberia there are several such species, and all over North Germany the most familiar instance is a curious animal, called the hamster, something between a large rat and a rabbit. In Canada an interesting observation was made by General Davies on the profound winter sleep of the jumping mouse, and published, with a picture in the "Linnæan Transactions" for 1797. The little animal, which was a curiosity in the summer time for its flying leaps through the long grass, was lost sight of about the mouth of October, and was not seen again until the month of May. General Davies solved the problem of what became of it all these months. A laborer, digging the foundations of a garden-house near Quebec in the spring, turned up with his spade a lump of clay like a cricket ball; on breaking the clod he found a nicely-molded round space inside, within which lay a jumping-mouse, with its long hind legs folded against its breast and its head sunk deeply between them. It was placed in a chip box in a warm room until it should awake; but the change of atmosphere was too abrupt for it, and it never awoke. The The jumping mouse cozily sleeping in a smooth nest of clay two feet below the ground brings us face to face with the whole problem of winter sleep. The animal had neither food nor air for some six months of the year, and yet it was alive, and would resume all its old agility with the warmth of summer.

It is clear that winter-sleepers subsist for months without food, but it is not so easy to understand how they can do without air. There is, however, no doubt about the fact; their breathing becomes gradually slower during the first week or two of their hibernation, and soon ceases altogether. Nearly all their manifold functions come to rest. Taking no food, they have nothing to digest; their senses are lost for the time, and they are insensible to pricks or pinching of the skin. A sleeping marmot has been trundled along the ground like an inanimate ball. The only organ that keeps working all the time without a moment's rest is the heart, and even the heart is brought down to less than half of its usual waking force. All these facts have been confirmed, it is needless to say, by the most minute observations. Learned Germans, Italians and others have kept bats, hedgehogs, marmots and hamsters in their bedrooms and back kitchens, and have watched and investigated the creatures in all sorts of ways. There is no doubt at all that, unless when they are unusually distubed, they do not breathe, do not feel, do not exercise any of the ordinary functions of their waking state, except the great and indispensaable function of the heart. Their internal heat is kept a little higher than the temperature of the air. It is far below the ordinary blood heat, but it is just high enough to prevent their being frozen. The water of their tissues is mostly dried up, and even the blood is thicker than usual. Their muscles, both the voluntary and the involuntary, are in a state of rigid contraction—all except the heart, of course; and even the heart's action becomes of the slow and massive kind as in the muscles of a snail or of a cold-blooded vertebrate. It is certainly a very marvelous adaptation to the animal's circumstances. All its fires burn lower; there is a surprising economy of the living fuel, and, consequently, little or no waste. Its "establishment" is reduced, its scale of living contracted, its expenditure made to suit its income, or rather its want of income. The astonishing thing is that an animal, with all the organs and functions of man's own class, can do this and still keep alive and ready to begin its active summer existence, none the worse for its long, death-like trance.

The explanation is that the winter-sleepers have resources within themselves. The stores that some of them, like the vole and the hamster, lay up in their holes underground are not intended as food during the winter; nor is it probable that the honey stored by bees is ordinarily so intended. In those cases where an external store is provided it seems rather to serve as a supply for the first days or weeks after waking, when the creatures would not have the strength, even if they had the opportunity of going in search of their food. The real winter store is within them. A winter-sleeper, such as the bat, or the dormouse, or the marmot feeds upon itself. The case is not the same as in a sheep buried in a snow-drift, or as in the famous case of Martell's fat pig. These animals also feed upon themselves, but their life goes on at full blast, their breathing and their other functions being hardly less active than usual. The hibernator makes fewer calls upon its husbanded resources. The great and incessantly active muscle of the heart is the only tissue that needs to be supplied with force-producing material, although all the muscles get a share of the muscle-food that is in the blood, and are in a peculiarly overcharged or irritable state in consequence of having nothing to spend their force upon. The grand resource of the winter-sleeper is its store of fat. It accumulates a quite unusual amount of fat in the summer and autumn, and disposes it mostly in certain interior deposits, which are abundantly provided with blood vessels. Now, in ordinary circumstances, fat is of no use for living force and heat unless there be plenty of fresh oxygen constantly carried to it by the blood to burn it; it is like the combustion of a candle, which can not go on except in the presence of air. But the sleeper does not breathe; the blood carries no fresh oxygen from the air to the fat or to any other tissue. We require another kind of process to convert the fat into force, or into muscle-food for the heart. The explanation of this is found in the vegetable kingdom. Many seeds, and in a less degree, some bulbs and tubers, have their winter store partly in the form of oil or fat; when they begin to sprout in spring, the first change in order to make the fat available for the materials of growth is to have it converted into sugar and starch. That is done by means of a ferment-action, or change of state, the ferments being various. The same subtle transformation takes place in the winter-sleeper's store of fat; if it depended upon burning its fat in the usual way, by constant supplies of fresh oxygen, it would be in the fatal position of having abundant assets, but no means of realizing them. The liquidation of its resources is effected by a subtle ferment action, which not only requires no oxygen, but is actually most effective when oxygen is excluded.

And now comes the strangest thing in the whole problem of winter sleep. The animal goes into winter quarters with a great store of fat and comes out with its fat tissues all wasted, shriveled and used up. On the other hand it comes out of its sleep having lost little or nothing in weight, and with an abundant store of another kind, which has accumulated entirely while it was asleep. The new store has accumulated at the expense of the fat, or the store of the latter has been slowly changed into another store of a substance specially suited to feed the heart all through the winter and to feed the organism generally in the first days after its awaking. This store is the so-called hibernating gland. It follows the same main lines of disposition as the fat store, being a store tissue in the proper sense of the term. It is of the color of liver and is mostly packed upon the back, between the shoulder-blades, sending extensions under the collar-bones, and down into the chest around the heart and the great vessels, and among the muscles of the neck and shoulders. It is as closely in contact with the blood-vessels as the fat store itself; the blood takes up the liquidated assets from the latter and deposits them in the former, whence they are carried as they are wanted to feed the heart during the long winter, and the organism generally in the first days of bestirring itself. No one has yet chemically examined that derived or secondary store into which the fat is changed. But there is no doubt that it is animal starch or sugar, just as in seeds the oils change into vegetable starch and sugar. Animal starch or sugar is the proper food of muscle; it is the food that the heart has required the whole winter long to keep it going as an unceasing muscular force-pump, and what remains of the store (a large quantity) is quickly used up by the other muscles when the hibernator begins to be lively, and in producing the sudden increase of internal heat which the waking state demands. All the hibernators have that peculiar gland or store of animal starch, and some animals have it which are not winter sleepers in the strict sense. The animals that have it are those that live in holes underground, with little air, and go abroad at night. A special provision suited to their habits has been turned to account by some of them so as to enable them to pass the whole winter in profound sleep, without food and without air. It is one of the strangest chapters in the economy of nature. Oddly enough it has been so much disregarded by naturalists and physiologists during the last forty years that hardly one modern text book gives a dozen lines to it, and even Darwin has made hardly any use of this general habit of the lower animals, and of some of the higher, among his charming illustrations of the animal economy.—London Standard.

HOME GOVERNMENT.

Some Regrettable Features of the Present Lax System.

A few years ago Frank R. Stockton wrote an essay on "The Training of Parents," which, although semi-satirical, had in it a substratum of wholesome truth. Briefly stated, his argument was that a great change had taken place in the constitution of the family, especially in the United States; that the child had usurped the former prerogative of the parent, and, therefore, that it was time for us to recognize the altered condition and to give to the children of the present day assistance and counsel in the judicious training of their parents.

Among the rules suggested for the government of parents the primary proposition was that filial control should begin in the first years of parental life, when the minds of the parents would be in a pliant and moldable condition. If it should become necessary to punish a parent the child must not forget the importance of tempering severity with mercy; that once having taken the reins of government in hand it must never resign them, but constantly keep a guiding and controlling power over both the father and the mother. In fact, all the old-fashioned rules that were supposed to be applicable to the training of children were used as illustrations, the sum of advice to children being: Train up a parent in the way he should go, and when you are old you will know how to go that way yourself.

Allowing for the humorous exaggeration of Mr. Stockton, it can not be denied that the deference paid to-day by many parents to the wishes and opinions of their children has often a serious effect upon their mental and moral growth, and is directly responsible not only for parental disappointment but also for heavy sorrow. The Puritan sternness at one time in vogue, the loveless and repellant character of the creed, the constant iteration of duty and the curbing of every innocent and joyous emotion, simply incited a longing to break such irksome bonds; and when the opportunity to do so offered itself the other extreme was reached, and license took the place of repression. And yet it may be questioned if this "keep-off-the-grass" method of training was more hurtful than that which either looks upon a child as a delicate exotic, too refined and tender to be brought into contact with the less favored mortals, or else abandons all efforts at control, consoling itself with the well-worn reflection that the child can take care of itself.

Of these two methods the latter seems to be the most popular. The feeling of independence and self-assertiveness that is characteristic of the average American mind is too much relied upon. It is presumed that the let-alone policy will stimulate this spirit; whereas, on the contrary, the natural result is to bring into existence a feeling of disregard for the rights of others and an obtrusiveness and a hardness which speedily degenerate into the worst type of selfishness. In the streets, in stores and hotels, on street and railroad cars and steamboats, there can be daily seen the outcome of such pernicious training, the most regrettable feature of the matter being that the parents seem completely indifferent, or else lend a tacit approval to that which thoughtful people look upon with alarm. Pertness is considered to be precocity, rudeness is simply youthful exuberance, while selfishness is held to be nothing but an indication of a progressive business spirit which will hold its own and not allow itself to be cheated out of its just due.

Never has the cultivation of the graces of obedience, respect, reverence, manliness and womanliness been more profoundly needed than now. These graces lie at the root of all good social intercourse. Like mercy, they are twice blessed; wherever they radiate they illumine and beautify. Let us try to cultivate such virtues in our children.—Philadelphia Record.

SOMEWHAT UNPLEASANT.

A Detective Sent to a Penitentiary to Worm a Secret Out of a Convict.

One of Pinkerton's men told me of a little experience in Ohio which has a humorous side.

"I was called into the office about a month ago," he said, "and told to report to Akron, where I would receive instructions. No details were given. I arrived at Akron and was told my business, which was to be sent to the penitentiary, where I would be confined in a cell with a man who was doing ten years. I was to find out the name of the convict's accomplice. Though I didn't half like the job, my hair was cut and my mustache shaved off, and I was put in a cell with the legend 'Four years and a Half' over the door. The second day a keeper came along and marched me out to the stone-breaking pile, and I was given a hammer to pound up rock. I was kept at work, too, and treated just the same as the others. This lasted two days, and then another keeper watched me for a a time, and at last broke out to one of the guards, 'That man is too big and burly to work on that small rock. Take him up where some of the big ones are.' I wanted to refuse, but I couldn't. I had to go up and wield a ten pound breaker, and that night I was almost fit for a hospital. I was at the big stones for five days, and was nearly dead. The man I was to pump was almost dumb about himself, and I began to believe that I would really have to serve the four years and a half or confess myself beaten; but on the tenth night he gave me my information. You can bet I was thankful and left the penitentiary as joyful as if I had been a real convict pardoned out. Being annoyed because I hadn't been warned of the nature of the job, when I reached the office I laid down my report and my resignation. Was it accepted? Well, no. Every body thought it was laughable, but I don't want another experience of the kind."—N. Y. Sun.

SCIENCE AND INDUSTRY.

—The nettle is cultivated in Germany, its fiber having proven valuable for a variety of textile fabrics.

—The American currant is largely cultivated in France, where its bright red juice is used to color wines.

—Assuming the average depth of the Atlantic and Pacific oceans to be 2¾ miles, it is calculated that there is 312,850,000 tons of salt in the water under each square mile of surface.

—The mocroscopist of the Department of Agriculture, Prof. Thomas Taylor, has discovered that pepper is adulterated often as much as fifty per cent. with the seed or stone of the olive, which are obtained in large quantities from the olive oil factories.

—The statement is made that aluminium has been successfully manufactured from Kentucky clay. A plant was erected at Newport capable of turning out a ton a day at an approximate cost of $44. The price of aluminium is now $6 per pound.

—A German electrician has devised an ingenious scheme for the regulation of dynamos. The field magnet cores, instead of being solid, are made of tubes, in which a solid core is inserted. This core can be withdrawn by hand or automatically, and the strength of current thus regulated.

—Raising flowers for the manufacture of perfumery is becoming a new industry in Florida under the encouragement of Northern capital. The two varieties of roses grown are the musk and the damask, and other flowers that are used for distillation, such as the jesamine, violets, lilies and jonquils, are hardy and yield rich harvests under cultivation.

—In a paper recently read before the Medical Society of Virginia, Dr. C. E. Busey, of Lynchburg, stated that the people of those nations which are given to the general cultivation of vocal music have broad, expansive chests, and are much less afflicted by consumption and other lung diseases than nations which do not cultivate vocal music. The doctor said that these facts are well known to the medical fraternity.

—At the royal powder factory of Wetteren, in Belgium, a new gunpowder is being made. They call it poudrepapier, or paper-powder, and it is said that a charge of 2½ grammes (39 grains) gives, in a rifle of small caliber, an initial velocity of 660 yards to the ball. This is equal to, if it does not beat, the Lebel powder. The additional advantages are attributed to it of not smearing the barrel, of producing no smoke and causing little recoil.

—Investigation has shown that porous terra-cotta bricks and blocks best resist the action of fire, water and frost. Next to these as fire-resisting materials come concretes and burnt clay work. For buildings intended to be fire-proof, the best materials are iron work encased in porous terra-cotta, with tile or brick work in roof and floor, and tile construction. The hollow tiles are faced with vitreous tile, slate or any good weather-proof coating, or with a single thickness of brick.

—In regard to the injurious consequences upon the nervous system entailed by residence in cities amid continuous noise, the London Invention says: "It is doubtful if any nervous system ever becomes so indurated to this incessant strain as to feel no harm. The yelling of steam whistles, the hiss of steam pipes, the rattle and clash of wheels on stone covered streets, the rumble of street cars, the clangor of bells, the howling of hucksters, keep up a condition in which a healthy nervous system of natural strength and sensitiveness is impossible."

BRITONS HAVE TIME.

Odd Experiences of an American Who Lost His Railway Ticket.

An American gentleman recently had an amusing experience on an English railroad which demonstrates the Briton's fondness for red tape. He had bought an excursion ticket to some point a few miles outside of London, the fare being about three shillings for both ways, and in getting on the train coming back to town he found that his return ticket was missing. When the guard came around for his ticket he told him that he had lost it, whereupon the guard demanded fare from the station at which the train had been made up, amounting to seven shillings and sixpence. The passenger, of course, protested against this and mentioned the station at which he had boarded the train, and the guard replied that he had no assurance that the passenger had gotten on at that point. Then the passenger refused to pay at all and stuck his card into the guard's hand. Two or three days subsequently the passenger received a letter from the railroad company saying that a report had been made to them of the loss of his ticket, and hoping that the affair "might be amicably adjusted." To this communication he paid no attention whatever. Three or four days afterward he received a formidable envelope, with the name of the railroad printed in full in one corner, and the document within protested against the silence with which the previous note had been treated, and after going over the whole details of the matter ended by declaring that some settlement would have to be arrived at. Then the passenger sat down, very much amused over the amount of stationary and postage the railway was spending about a railway ticket worth, perhaps, a shilling, and wrote out a long and humorous account of how he had determined on this suburban excursion and exactly what his movements were from the time he took the cab to drive to the London station on his outward journey until he missed his ticket after he had started to return home. This contribution was received in all seriousness at the railroad office and in a few days he had an answer to it stating that they were much obliged for the careful and explicit statement and that the railroad company would not press for any further payment. Obviously they have time to do things in England which they have not time to do here. If this story did not come from a thoroughly responsible and reliable source one would be inclined to doubt its truth, but without doubt it is a simple statement of fact.—N. Y. Mail and Express

WASTE OF WATER.

A Matter Which Should be Investigated by Farmers Everywhere.

The value of irrigation for crops is never fully appreciated, nor the various modes fairly understood, until one has experience in them. Professional treatises on the subject are helpful, and a study of them necessary to best results, but a little practice, with a good judgment and some genius, are of much more value; besides, one never comprehends the usefulness nor the practicability of it under the many and various circumstances where it might be practiced, until he has gone and done it himself. I remember many places in the Eastern States where not only irrigation of gardens and lawns, as well as great fields, is practicable, easy and cheap, but I call to mind many a household where they pump and draw all their lives every drop of water used, and for all their stock, and where the "dry spell" cuts off their garden stuff and the grass dies into brown patches and the shrubbery suffers in the front yard, all because they never had attention called to a source of supply of water, abundant, clear and excellent, so near and so located that a few days' work would bring it to the very door; where a beautiful spouting fountain and a refreshing pool with pretty fish playing in it and bordered with magnificent water plants might take the place of the dusty chicken-wallow; and grass, green and fresh all summer, that of unsightly weeds. I know many a place where a lovely brook might be brought to the farm buildings, and after supplying, by pipes or troughs, every other need could be so turned as to carry every particle of useless slop and refuse and offensive matter away to the fields and meadows, where it would be useful; contributing at the same time to the cleanliness and healthfulness of the surroundings and to the cultivation of refined habits in the growing family. If every farmer who may chance to read this, all over the Middle and Eastern States, and especially the southern part of the country, where almost all of them assume, without thought that their only dependence for watered fields is the clouds—if they would look over the geography of all the land around for a mile or two, and take a water level along to examine the grades of the surface, the majority of them would be surprised to find that a living brook might have been flowing for an age past through their fields and by the house and barns and to the lawn and gardens, and even to furnishing an abundant and refreshing drench of water to whole fields of crops struggling through protracted drouth.

The commonest error is to presume that irrigation is not needed to any important degree, and therefore not practicable, in those regions subject to regular rains; to suppose that the practice is costly and, therefore, it would not pay, is also not necessarily true. I could find dozens of places in almost every community where, if several farmers would join, water might be had for all future time for a few days' work with plow and scraper on the supply ditch, and the irrigating ditches made in a few hours with the plow alone. And then when the "dry spell" is at hand, one man with judgment could turn the water into three, five, or even ten and more acres every day, to the joy and gladness of his heart in watching the thirsty soil drink it in, and to behold the grateful countenance of the parched crops as they put on holiday attire and start afresh toward the goal of a bountiful fruition. I am well acquainted with the regions of Ohio, Indiana and Illinois where tile draining has almost redeemed the land and made it habitable, and I do not hesitate to say that even in those very regions, at least a partial system of irrigation, in the most practicable places, would pay as great a profit on the cost as the draining, and even in the more unpromising sections, the advantage of water in every field, added to the other, would in time make the practice generally popular. There is many a village and town could have a pretty, babbling brook flowing in every gutter if they only knew it, and it is surprising to me, now that I look back, to see how people and places are blind to their advantages. One needs to spend a season where water is appreciated, and its value and various uses discovered, to get his eyes opened to the blessing of having plenty of it everywhere—under control. Take the average farm of the Middle, Western and Southern States where house and barns water is pumped for every purpose, add where only the best of them are provided with ponds in the fields, and the owner, if he could have a brook where he could want it, would place a value on it of $500 to $2,000 or more and the selling price of the farm would be increased to that extent by providing that almost priceless boon—"living water for stock in every field." The possibilities almost everywhere are great; the practicability in thousands and thousands of cases would astonish all who would investigate the matter. —J. G. Irwin, in N. Y. Tribune.

—Last year's twigs may be cut freely from all fruit trees that bear from spurs on the older wood; always, however, leaving a best placed leading shoot to continue the growth, unless the branch is too much crowded and summer shaded, when it is best cut entirely away, as all the buds finally left should have free room of at least six inches before meeting the foliage of any other branch, even on a currant or gooseberry bush. Any mild winter day suits for this necessary work.

—The Kennebec Journal says it happened to one of Colby's professors when a young teacher to "board around" one winter. His arrival at one rural home took place just at dinner time, and he at once sat down with the family to enjoy the repast. The professor doesn't remember that his appetite was particularly sharp that day, but at the close of the meal the mistress of the house looked across at her husband and remarked, "Well, John, I guess you might as well kill that heifer."

ECONOMY IN FUEL.

Scientific Reasons Why Hard Coal Is Really Cheaper Than It Appears.

In all businesses like the coal trade, in which a purchaser simply orders what he wants and has to trust to the honesty of the dealer, he is liable to be the victim of fraudulent practices over which he has practically no control. Do consumers of coal get just weight? is a question often asked. Irrespective of purposed dishonesty in the matter of short weights, are coal dealers strictly honest in allowing their coal to lie out exposed to the weather; or, as is often the case, in turning the hose upon it before delivery? It is no uncommon occurrence for purchasers to find a little stream of water running from the base of their coal heaps shortly after the fuel is delivered. Merely to prevent dust is the reason alleged for this practice. Is this the whole story?

At the instigation of the News, Prof. D. H. Galloway secured a number of samples of different kinds of coal and subjected them to careful tests with a view to ascertaining how largely they were receptive of water. After results had been obtained from the samples in a dry state the coal was placed in water for a short time and again tested. The process employed leaves little room for error or uncertainty as to the percentages obtained.

"Anthracite coal is a poor absorbent of water," said Prof. Galloway, "and if it have a dry appearance the purchaser may be sure he is paying for little water. One sample would yield results that would be typical of most kinds of anthracite coal. I tested a piece of bright, dry, hard coal which I got from Robert Law's yard, and found that it contained 4.7 per cent of water. The same coal, after absorbing all it would, gave 5.92 per cent of water, the sample having been carefully wiped before tested. If not wiped the sample would probably show twice the increase in the amount of water taken up. From two to three per cent, I think, would represent the outside limit of fraud with anthracite coal, and the figures can only be that high when the coal is manifestly wet.

"Cannel coal, too, is a poor absorbent, especially as it comes in large lumps. The specimen I tested was a fair average sample. When dry it was found to contain 1.3 per cent of water, and, after soaking, only 2.4 per cent. I should think the average absorbing qualities of cannel coal and anthracite coal are about equal and that from forty to sixty pounds a ton would be all the weight to be gained by wetting.

"Bituminous coal, however, is another thing. Some of it will take up water like a sponge, and that, too, even though the coal looks bright and hard. Probably 12 per cent. would be about the average amount of water contained by bituminous coals in a dry state. One sample of dry Springfield coal showed 13.2 per cent. of water, and, after, lying two hours in water and being carefully wiped, 16.1 per cent. Another sample of Grape Creek coal yielded 7.5 per cent. of water when dry and 15.13 per cent. after a little soaking. In general terms, I think that most kinds of soft coal can be made by judicious wetting to contain fully 20 per cent. or even more of water. Hence on this cheaper article there is a wider scope for fraudulent practices. Consumers necessarily have to pay for about 200 or 250 pounds of water on the average in every ton of bituminous coal they buy, and it is possible, you see, to double this amount and still have the coal not appear wet.

"The value of all kinds of coal for heating purposes depends upon its carbon, or, in other words, upon the absence of water and ash. I don't think that soft coal usually has more ash than hard coal, but irrespective of its larger per cent. of water there is little economy in its use. The volatile substances that produce the flame have really a higher heating power than pure carbon, fully twice the power. But much of these hydro-carbons escape in the smoke and is thus of no use whatever to the consumer. In a general way we may say that coal that burns with a flame is poor in heating qualities, for the simple reason that the carbon can not be utilized. Hard coal, properly speaking, has no flame, the little blue tongues sometimes seen over the fire pot being almost wholly due to the air.

"Counting the larger scope of fraud in weights, and the impossibility of utilizing the hydro-carbons, I am inclined to think that hard coal for mere purposes of heating is cheap coal. The Springfield coal that had 13.2 per cent. of water when dry and 16.1 when soaked had 4.9 per cent. of ash. The hard coal and cannel coal had 1.6 and 6.4 per cent. of ash respectively. One specimen of Illinois coal had 10.1 per cent. of water and 12.32 of ash. Thus it appears that economy doesn't lie in price per ton merely, but in factors the public rarely stops to think of."—Chicago News.

The Force of Habit.

There was once a horse that used to pull around a sweep which lifted dirt from the depths of the earth. He was kept at this business nearly twenty years, until he became old, blind and too stiff in the joints to be of further use; so he was turned into a pasture and left to crop the grass without any one to disturb or bother him. But the funny thing about the old horse was that every morning, after grazing awhile, he would start on a tramp, going round and round in a circle, just as he had been accustomed to do for so many years. He would keep it up for hours, and people often stopped to look and wonder what had got into the head of the venerable animal to make him walk around in such a solemn way, when there was no earthly need of it. But it was force of habit. And just so the boy who forms good or bad habits in his youth will be led by them when he becomes old, and will be miserable or happy accordingly.—Christian at Work.

—Attend to the ventilation of the stables. An unhealthy cow can not give healthy milk, neither can a healthy cow remain so in an unhealthy atmosphere.

MISCELLANEOUS.

—Shelby County, Missouri, has a minister who for usefulness breaks the record. In one day he preached two sermons, married two couples and set three broken ribs.

—One of the largest private landholdings in the world is the Haggin & Carr ranch in California. It contains 400,000 acres, covers 640 square miles, and is over twenty-five miles square.

—A little girl living in Moon township, Pa., died from eating too many chestnuts. Shortly after eating them she complained of severe pains about the heart, and before medical aid could reach her she was dead.

—A Maine historian says that in old times the fine ladies of Eastport—then a very gay, flourishing town—used to acquire beautiful complexions by sleeping with their heads out of the windows in foggy weather.

—It is odd, observes the New York Tribune, that passengers on the elevated roads will twist about, strain their necks, and even rise up from their seats in order to see a clock down on the sidewalk, when they have the correct time in their own watch pockets.

—A Kansas City justice of the peace decided that a woman whose husband feeds her on pancakes exclusively for a whole week has a proper ground for legal complaint against him, and that an effectual way to bring such a husband to time is to put him under bonds to pay $5 a week to live on.

—A down-town restaurant has three young women in its employ. One is cashier, the other is bookkeeper, and the other is in charge of the cake and confectionary department. Last Christmas these young ladies thought to surprise the proprietor by giving him their photographs in a group. The proprietor gave the group to an artist, who made a lithograph of the same, and this was attached to a neat calendar which the lunch-house gives to each of its patrons. It takes a Chicago man to get there. Hundreds of young men are trying the bakery for the purpose of getting a calendar. Not a bad dodge, and the young women seem as proud over the scheme of the proprietor as he is.—Chicago Mail.

—Trees of the palm family have larger leaves than any others. The Inaja palm, which grows on the banks of the Amazon, have leaves which reach a length of from thirty to fifty feet, and are ten or twelve feet in breadth. Specimens of the leaves of the Talipot palm, a native of Ceylon, have been met with that are twenty feet long and eighteen feet broad. These leaves are used by the natives to make tents, and form very efficient shelters from the rain. The leaves of the double cocoanut palm are often thirty feet long and several feet wide. When the wind is strong they clash together with a noise that may be heard at a great distance. Only one leaf is produced each year, and they are so firmly attached to the stem of the tree and so strong in themselves that a man may sit on the end of one and rock to and fro in perfect safety.

FATHER NICHOLAS.

A Russian Artist's Description of a Unique Russian Type.

I watched this priest as he was going the rounds of the peasants' houses, collecting sour cream and eggs, on the last day of the Lent preceding St. Peter and St. Paul's day.

I could not understand at first what he was doing. Clad in an old cassock, the white underwear plainly exposed beneath it, the old man carried a pail in one hand and a wooden bowl in the other; going from house to house, he would knock at the door of each, and peep in at the windows. At first I thought he had been kept out late and was asking for a night's lodging. But no; after knocking vainly at one peasant's house, he passed on to another, and then still to a third. Eventually women carrying trifling donations began to come out from the back yards, some making gestures which seemed to explain why it was that the donation was so small; some to kiss the priest's hand; some others to simply bow to him and pour their sour cream into his pail, laying down a couple of eggs in the bowl. The priest did not once lose patience, and such peasants as did not answer his summons at his first knock brought out their offerings to him on his return trip. In place of sour cream I sent him out a ruble of money; and the good man put down his pail, and taking off his hat, crossed himself thrice at the church.

Father Nicholas did not complain of the peasants, but remarked to me that they were much weighed down by poverty. "No little money is spent on drink, and that is a truth," he would say; "but then, if we let the holidays out of the count—the only days when they might be taking a drop too much—one has to wonder, indeed, what it is that they only live upon. Poorly, very poorly off are our peasants!"—Vassili Verestchagin, in Harper's Magazine.

THOUGHT CONCENTRATION.

A Personal Power That Will Lead Its Possessor to Success.

Concentration of thought and effort is a measure of personal power. The man who can put himself wholly and absolutely into the one thing which demands his attention for the time being, has more power for that one thing than if he were twice or ten times the man he is, and divided his energies on two things, or ten, accordingly. Indeed, the man who compasses most in this world, doing the greatest variety of things, and doing them all well, is invariably the man who attends to but one thing at a time, and gives himself up to that while he is doing it, as if he had nothing else but that to live for. And the man who always seems to be thinking of something else while he is assuming to give his attention to a matter immediately in hand, or who bears himself as if he wanted to get this thing out of the way in order to get at another, is sure to fail of being a first class man in any sphere of endeavor. The best way, in fact, of getting ready for the next thing you have to do, is by attending faithfully to the thing now demanding attention.—S. S. Times.