## TO CUT OR SPLIT GLASS.

### If You Know How, it Can be Done Done Without a Diamond.

It often occurs that glass tubes of various dimensions have to be cut where a diamond is not at hand, as in shops and power plants where oil and water tubes must be neatly fitted. The usual method adopted is to file a small groove around the tube, and separate the glass with a sharp rap at the place weakened by the file. The result is not always satisfactory, because the ends often break unevenly owing to the difficulty of making a straight groove with the file. Better results are obtained when only a small incision is made with a file, just enough to cut through the enamel of the tube, on one side, and not all around. While the tube is still warm from the friction of the file, the tube is then taken between the thumbs and forefinger, the thumbs opposite the file incision, and the forefingers around the tubing, close to but not covering the incision. Pressure of the thumbs invariably causes the tube to break in as straight and clean a line as though cut with a diamond.

Another method is to use a fine saw blade, (the finer toothed the better, for a saw is only another form of a file), and this should be kept fed with fine emery, carborundum, or pulverized silica sand of hard grit, moistened with camphor, oil, turpentine or water. A straight, steady and even stroke should be made, and when the work is carefully done against a gauge the cut will be as true as though it had been ground. Nor is even a toothed blade necessary, if a suitable hard and finely gritted abrasive is used and regularly fed between the glass and fine wire, watchspring, or blunt but even blade of an ordinary table knife. The latter will be somewhat slow, of course, but a fine steel wire run at high speed like a bond saw, if regularly fed with fine emery or carborundum, will give very satisfactory results, not only for cutting either straight lines or curves in window, but plate or optical glass, in such thickness as makes cutting with a diamond difficult, precarious or impossible.

Window glass, especially single thick, can be accurately split either in straight or curved lines by first making an incision through the enamel of the glass, and then holding a hot iron close to the incision. The fracture is started. The fracture will follow the hot iron with considerable fidelity. The iron should be perfectly round and somewhat pointed, with a bulky head (like many fire pokers), so as to retain heat well for long cuts, especially for thick sheets, to keep the cutting going when once started. Sometimes two heated irons have to be used.

## NEW SOURCES OF RUBBER.

### Discovery of a Plant Found on the African Plains.

Professor Jadanist, in the course of investigations, says the Scientific American, has within a few weeks ago, in the region of the French Congo, discovered a plant the bark of which yields a large quantity of fibrous rubber. At the time scarcely any attention was paid to the discovery, owing to the scarcity of rubber and its high commercial value, which was so prohibitive as to prevent the very wide employment of the article. Attempts are being made to turn this new discovery to commercial use. The plant thrives profusely in the Nigeria, and it is these districts are to be exploited. A specimen of the plant has been analyzed by the botanical authorities of Kew Gardens, London, and these investigations show that the rubber contained in the roots in sufficiently large quantities to warrant development. The name of the plant is Landolphia. It is to be found in many places on the west coast of Africa. One firm which is largely engaged in the manufacture of rubber is placing it upon the market at 75 cents a pound, and it is of a quality in respect equal to the original rubber has become such an indispensable material in the arts and industries that users will be glad to learn that a fresh source of supply is likely to have been found in the white mangrove tree, which grows plentifully in the swamps and creeks along the coast of Central Africa. The sap is obtained by making incisions in the bark of the tree and allowing it to run into tins. Specimens of the rubber thus obtained are said to have brought $1 per pound in England. An idea of the importance of the rubber trade may be gathered from the statement that the United States and England alone each use over fifty million pounds annually.

## POLITE CENSORSHIP.

The censorship over the press in Japan is something to make westerners stare. When a paper ventures to criticise and the censor is called upon to write the order of suspension he does it, but polite—wonderfully polite. The following is the official original, as nearly as English can express it: "Deign honorably to suspend honorably publishing august paper. Honorable editor, honorable publisher, honorable chief printer, have honorable to enter august jail."

## BISHOP SUPPORTS CREMATION.

The report of the Manchester, England, Crematorium, issued recently, points out that the new Bishop of Manchester is a strong supporter of cremation, not only because it is preferable for sanitary reason, but because it is preferable, most reverent, and decent treatment of the bodies of the dead, and is in accordance with the Christian belief. During the year 92 cremations, making a total of 738, have taken place at the Manchester Crematorium.

# About the ....House

### TESTED RECIPES.

White House Cookies.—One cup each of butter and sugar; the yolks of three eggs and whites of two; two teaspoonfuls of vanilla and the same quantity of baking powder, two tablespoonfuls of sweet cream, and flour enough to make the dough roll well. Beat the white of the left-out egg to a stiff froth, brush over the dough, dust with powdered sugar and bake in a fairly hot oven.

Sour Cookies.—Two cups sugar; one cup each of butter and sour cream; three eggs; one teaspoonful soda. Mix soft, roll rather thin, sift granulated sugar over them, gently roll in, and bake. Sour milk can be used in place of the cream, but the cookies will not be quite so rich.

Nut Cake.—Cream one cup of butter with two cups of granulated sugar, beat four eggs, yolks and whites separately; add the yolks with a half cup of milk to the creamed butter and sugar. Add a cup of chopped seeded raisins and a cup of chopped hickory nut meats, two cups of flour and the whites of the eggs, beaten stiff. Flavor with the grated rind of a lemon and a teaspoonful of lemon juice. This makes one large or two small loaves of a delicious cake that, frosted, will keep for weeks without deterioration. No soda or baking powder is used. The Country Gentleman vouches for this as a thoroughly reliable recipe.

Cheese Omelet.—Beat the yolks of three eggs, add three tablespoonfuls of milk and a little salt, then the beaten whites. Melt one dessertspoonful of butter in a frying-pan; when bubbling pour in the omelet, let it cook till a light brown underneath. Sprinkle over the top one or two tablespoonfuls of grated cheese. Place in the oven to dry, fold and serve very hot.

Soft Toast.—Toast evenly a light brown some slices of stale bread, not rather thin; put them on a hot plate and pour over them boiling water, cover quickly with another plate and drain off every drop of water; remove the upper plate and butter the toast, set it in the oven for a moment and serve covered with a hot plate.

Pudding.—One-half pound of flour, one pint of milk, one-half pound of sugar, some preserve; boil the milk to water till nearly soft, then add milk and boil again, stirring it all the time; add the sugar; dip the sponge cakes in water, fill the dish when soft, turn on to a flat dish; serve with preserve of any kind, or sugar and cream, or custard.

### "BETWEEN-MEAL" CLOTH.

When the dining table is cleared at every meal, its appearance at times is a matter of regret to the housekeeper, especially since the old-fashioned spread, which certainly had a cosy, homey look, is unknown in the present. The highly polished surface of the table is so ornamental that it must not be covered up, and in consequence the housekeeper has a new worry in the care of that same highly polished top.

A dish, a little hot water, a drop of alcohol, produce a mark on the surface which is anything but ornamental and which is not easily removed. Precautionary measures are indispensable. A thick cotton pad is woven especially for the purpose, which with the table mats proves a great protection.

The asbestos mats are slipped into embroidered linen cases and thus become ornamental, or embroidered mats are laid over them. Heavy crocheted mats are often employed, and mats of coiled corset laces are used, on account of their thickness.

Sometimes a thick blanket is laid under the regular hush cloth; in this the housekeeper takes every means to protect the varnish of the table.

But this top must be displayed so much as is relegated to obscurity. Lace or circle of embroidery, of Battenberg work or of other lace, not too large, is placed in the centre, and a small but large jardiniere stands upon it. This is the only decoration admissible. Often the table is entirely hidden by the owner's eye gloating upon its mirror-like surface. The children are forbidden to touch it; "Hands off" is the cry, and rubbing and polishing and dusting are added to the housekeeper's tasks.

Oh for "the good old days" when things were not "in the saddle," and riding poor tired housekeepers to death! The elegance and elaborateness which can be secured by the rich only, and which we try to imitate in our humbler way is driving women to despair. The "girl" becomes more and more necessary to relieve the hard-worked woman, and she grows less and less obtainable.

### TOILET TABLE ACCESSORIES.

One of the prettiest of novelties for the toilet table is a mat simulating a ring in form and modes of making, composed of narrow silk and satin ribbon of different shades, braided and sewed together to form an oval underlay for various knicknacks. The ribbon is braided in four strands as follows: The first three strips are braided as ordinarily, which brings the first strip next to the fourth; the fourth is then turned under the first and is used as the third strip in the next turn, while the first takes the place of the fourth; again, braid as ordinarily, beginning at the left and repeat as before, turning what is now the fourth under as in the first turn.

A pincushion fastened in the frame of an oval hand mirror, the glass of which has broken and removed, is another new and original decoration for a bureau or dresser. The foundation of the cushion is of thin cardboard, oval shaped to fit the inside of the frame, and on this are placed several layers of cotton wool, covered smoothly with green velvet, of a pretty pale sea-green shade, with the edges pasted on the under side. The cushion is then fitted in the frame and glued in place.

A dresser scarf is made of four or five strips of scrim, according to the width and length of the dresser, and hemmed by machine. The strips are then basted onto stiffening and connected by faggoting with cream or colored thread. The same kind of thread is used for the fringe which finishes the edges and is made by hand.

### WEIGHTS OF GROCERIES.

Ten common-sized eggs weigh one pound.

Soft butter the size of an egg weighs one ounce.

One pint of coffee and sugar weighs twelve ounces.

One quart of sifted flour (well heaped) weighs one pound.

One pint of best brown sugar weighs thirteen ounces.

Two teacups (well heaped) of coffee and sugar weigh one pound.

Two teacups (level) of granulated sugar weigh one pound.

Two teacups of soft butter (well packed) weigh one pound.

One and one-third pints of powdered sugar weigh one pound.

Two tablespoonfuls of powdered sugar or flour weigh one ounce.

One tablespoonful (well rounded) of soft butter weighs one ounce.

One pint (heaped) of granulated sugar weighs fourteen ounces.

Four teaspoonfuls are equal to one tablespoonful.

Two and one-half teacups (level) of the best brown sugar weigh one pound.

Two and three-fourths teacups (level) of powdered sugar weigh one pound.

One tablespoonful (well heaped) of granulated or best brown sugar equals one ounce.

One generous pint of liquid, or one pint of finely chopped meat, packed solidly, weighs one pound.

### HINTS TO HOUSEKEEPERS.

By removing the sinews from the leg of a turkey or chicken, the "drum-stick" is made one of the choice fid-bits. To do this, take the foot of the turkey in the left hand, reverse side up. Cut the skin all around exactly over the sinews at the knuckle; now cut one long slit from the foot to the knuckle, take each sinew separately—there are seven—and pull.

Where the new plan of roasting the turkey with a couple of stalks of celery in his interior instead of the usual stuffing is employed, the stuffing is made and baked separately, to be served with the meat carved.

One may have warm "riz biscuit" for tea these cold nights by making them up when the bread is made in the morning, and letting rise all but the last time. Set them in a cool place till just before tea time, then put into a rather brisk oven to bake. Or, after the dough has risen ready to mold into biscuit set it away in a cool place till wanted, then make up. The dough must not freeze, of course, but will keep several days in cold weather.

Rice and tapioca make agreeable changes from the inevitable pie these days, and apple tapioca, served with cream, is a delicious dessert.

## THE COUPLE IN THE MOON.

### Only Head and Bust of the Two Figures are Shown.

People of artistic sense and refined taste are no longer disposed to tolerate any allusions to the rotund and jocular visage of the "man in the moon." The time has gone by for that childishness. The demand of to-day is for art, and if you are bound to find art in whatever you look at, it must sooner or later appear—even in such an effete object as the moon. Strange as it may seem to such as are not on familiar terms with the fulness thereof, there is now on exhibition—on evenings when the curtain of the sky is not drawn—a very idyl of art in the centre of the silvery orb, portraying with a delicacy like that of an engraving a refined human couple whose faces are near enough to be "significant of much."

There is an aesthetic discovery worth noting, for most of the moon's familiars have never seen aught more interesting there than a lady unattended. That is because they did not use their opera glasses. From the observer's standpoint the figure on the right, which is the more prominent of the two, is unmistakably feminine, with the face of three-quarters front and eyes looking down. The figure on the observer's left, which does not stand out so plainly—for reasons best known to the owner—is distinctly mannish, with face turned anxiously toward the interesting and perhaps blushing one. Both figures show the head and bust only, and the pose of each is distinctly. As to size, the feminine figure seems nearly two-thirds the diameter of the moon's disk, from the crown of the head to the waist.

### A CARGO OF CASES.

Customs Officer—"What does your cargo consist of, captain?"

Captain—"Two thousand cases of eggs."

Customs Officer—"Yes; anything more?"

Captain—"One thousand cases of oranges."

Customs Officer—"Yes?"

Captain—"And two cases of fever."

A mistletoe famine doesn't worry the girl who is pretty.

## THE WATERLOO OF TO-DAY

### HOW RELICS OF THE BATTLE ARE PRESERVED.

### Aptitude of Hotelkeepers in Supplying Demand For Souvenirs.

Waterloo and lace are the two great attractions that draw thousands of tourists to Brussels every year. There are of course other objects worthy of attention in the capital of the little Belgian kingdom. Its wide boulevards, handsome parks, and artistic buildings are reminiscent of Paris, so much so that the term "le petit Paris" has been generally accepted as descriptive of the beauties of Brussels.

There are three ways of reaching the battlefield of Waterloo, by rail, by steam tram car, or by coach. The trip by coach is decidedly preferable, as one gets an excellent opportunity to see the country and observe farm and village life in Belgium. It is seldom difficult to secure seats, for if the one regular and stylish coach is filled, two old-fashioned vehicles of ample dimensions will be brought into service. It is always an attractive sight to see the coach as it leaves the Place Royal to the musical echoes of the horn as the farewell blast is blown, but when the three coaches are in line there is always a big crowd on hand to cheer the departing visitors.

The field of Waterloo is about twelve miles from Brussels, and the coach fare there and back is surely reasonable enough, seven francs, about $1.40, with an extra franc for the driver. This, of course, does not include the table d'hote lunch at the bustling Museum Hotel, where the coaches stop preparatory to a partial inspection of the field; neither does it assist in reducing the numerous half-franc admissions which occur so frequently as to cause wonder and consternation to those not possessing a comfortably filled pocketbook.

If the road to Waterloo, after leaving the park, were only as comfortable to the body as the beauties of nature are to the eye, the limit of perfection would be reached. Every foot of the road, except a narrow strip at one side, is paved and with such large, rough stones as to occasion such a prodigious amount of jolting that the mere memory of it is misery. It is, therefore, a grateful relief to the passengers to clamber down from their seats and enjoy the freedom of pedestrians when the driver pulls up for his first stop at an unprepossessing-looking inn in the unpicturesque

### VILLAGE OF WATERLOO.

This inn, moreover, is the first war museum that the tourist encounters, and, although he may refuse the liquid refreshment that a bustling Frenchwoman stands ready to provide he cannot gracefully escape the payment of his first extra half-franc for the inspection of Waterloo souvenirs.

The battle was fought from three to five miles beyond, but the village of Waterloo has given its name to that momentous struggle of June 18, eighty-nine years ago, because it was the Duke of Wellington's headquarters previous to the battle, and many of his letters and despatches were sent from this inn. On that account it is one of those places which must be seen when doing the battlefield.

The museum consists of two rooms immediately over the ground floor. One is very small, and contains nothing of interest. The other is considerably larger. Scores of old muskets, sabres, and other destructive weapons are suspended from the walls. In glass cases, amid a jumble of minor relics, are two or three skulls and a number of small bones plowed up in 1895, gruesome reminders, indeed, of that fearful carnage that has made the year 1815 memorable. All these, however, are of secondary interest, compared to the three great relics in the room—two old bedsteads and one miserably tattered armchair. The latter was the Duke of Wellington's chair when he occupied the room, and a small desk is also shown which is said to have been used by him.

The Duke slept in one of the beds previous to the battle although not on the eve of the conflict, for he was at the famous ball given by the Countess of Richmond in Brussels. Upon the other bed, Col. Sir Alexander Gordon, one of England's most popular officers, died, a few hours after being brought, mortally wounded, to the house. Col. Gordon was a brother of the Earl of Aberdeen, and the day after the battle the Duke wrote a very touching letter to the Earl, informing him of his brother's death, adding: "He lived long enough to be informed by myself of the glorious result of our action, to which he had so much contributed by his active and zealous assistance."

### RELICS OF THE FIGHT.

Leaving the unattractive Village of Waterloo, with its dirty children, whose only diversion seems to be to run after the coach and keep up an incessant cry for centimes, the journey is continued along the same road which was tramped by thousands of the allied troops on their way to action. Within less than two miles, the little village of Mont St. Jean is reached. This formed the centre of the allied forces, and a mile beyond marked some of the fiercest fighting of the day. The farm of La Haye Sainte was close by, and that was the only position occupied by the allied troops that Napoleon captured. A little less than a mile beyond the village are two monuments, one to the memory of Col. Gordon, and the other in honor of the Hanoverian officers of the German legion. Near by, there formerly stood a large elm tree, which for years bore the name of Wellington's elm, as the Duke is said to have stood under it during the day, watching the progress of the battle. It has long since disappeared, carried away piecemeal by relic hunters.

A few yards beyond this spot and towering over everything else on the battlefield is the mound of the Belgian lion. The mound rises two hundred feet above the surface, and so much earth was taken for its erection that the original level of the ground for nearly a mile around has been lowered several feet. On top of the mound, upon a granite pedestal, is the enormous Belgian lion, weighing nearly twenty-eight tons, and made from cannon captured from the French during the conflict. It is a simple, dignified, and majestic monument of the great battle that shaped the destiny of Europe for the nineteenth century. A splendid view of all the points of interest over the wide field is obtained from its summit. The land presents no sharp features beyond slightly undulating hills, and it is cultivated, almost entirely with grain. When seen in the harvest season, the yellow, gently waving tops, spread over hundreds of acres, present a wonderfully peaceful, restful sight, and it is difficult to imagine that this is the graveyard of over

### 20,000 HUMAN BEINGS.

Waterloo has always had a peculiar fascination for old soldiers, and ever since the days of Major Cotton one or more retired English soldiers have passed the closing years of their lives there, eking out a fairly comfortable subsistence as guides. The dean of his class now is an old but cheerful member of a Highland regiment. He wears an imposing costume of brown, heavily trimmed with black braid. His little cane is never at rest as he points hurriedly here and there over the field in the midst of his fluent description of all the military tactics employed by the opposing armies. It is a genuine pleasure to accompany him to Hougomont, for the intensity of interest which he infuses into his words recalls the fearful charges of the French and their heroic repulse by the English with startling vividness. The care that is bestowed upon the ruins of Hougomont to keep them in a properly ruinous condition is also of material aid in these reminiscences of 1815.

The usual half-franc admission is exacted before entering the gate of the chateau. In New England the term chateau would be simplified into that of farmhouse. None of the beauties, ancient or modern, that the word chateau anticipates is to be seen. The buildings are very plain and are occupied by farming people. The old chapel, now separated from the main house, is one of the most interesting of the ruins. The French shells set fire to a portion of the chateau, and before they were extinguished one end of the chapel was burned and the wooden crucifix over the altar was scorched. To this day it is said that the flames stopped when they reached the figure of Christ. The figure has always remained in its original place, but a wire screen now protects it, for about two years ago some tourists, the guide refrained from intimating that they were Americans, cut off one of the legs. The image has been repaired, and a closer watch is kept over the ruins of Hougomont.

### THE FIGHT AT THE ORCHARD.

The brick wall surrounding the inner orchard is still perforated with the same loop-holes through which the British fire mowed down the French as they came up to the very muzzles of the guns, some, indeed, leaping upon the wall only to meet instant death. The French never got inside the orchard. Napoleon sacrificed thousands of his best troops in a vain effort to capture this improvised fortress. If not the key to the British position, it was one of the most important points. Had Napoleon been successful, it would have enabled him to turn the flank of the allied army, and instead of St. Helena a renewed residence in the Tuileries would undoubtedly have awaited him.

In front of the entrance to Hougomont stand three veteran chestnut trees. They are the only living survivors, perhaps, on the entire battlefield, of that fateful day. After the conflict, hundreds of trees that formed the thick wood around Hougomont were so badly torn and scorched by powder and ball that they never put forth the next season's leaves. Even those that lived always bore unmistakable evidences of their fearful baptism by fire. It is so to-day with these three survivors. They present a rugged and battle-scarred appearance. The marks of age and decay are upon them, and as one leaves the place he feels like giving a respectful salute to those grand, mute witnesses of so much that represented the horrible realities of war and yet of so much that represented human heroism and endurance.

## SPINSTERS AND BACHELORS.

The census for England and Wales according to a digest made by Mr. William Sanders and Mr. Thomas G. Ackland, shows there is a geographical distribution of spinsters as well as an age distribution. In the London counties they are generally in excess of the bachelors, and so, too, in those countries where women take part in the staple industry. In Surrey the unmarried women are nearly 12,000 in excess of the bachelors, while in South Wales she bachelors are 18,429 in excess of the spinsters. In Kent, Wiltshire, Rutland, Lincolnshire, Hunts, and other agricultural counties spinsters are in the minority. Hastings has an excess of 6,000 spinsters, and Brighton of 6,800.

### WILLINGNESS.

"But would you die for me?" persisted the romantic maiden.

"I would," replied the frank and elderly suitor. "Even now I am using a high-priced preparation warranted to restore hair to its original color."

## KILLED A REGICIDE.

### Two Coreans Murder One of the Assassins of the Late Queen.

One of the murderers of the Queen of Corea, who fled the country and has been living in Japan, has fallen a victim to her avengers. Two men were sent to kill him, and they have fulfilled their mission. The matter has been kept quiet because Japan cannot execute them without giving grave offence to one of the political parties of Corea. The facts, however, were published in that country recently.

After Japan's triumph over China, the dominating influence in Corea was Japanese. The King and Queen soon found that the liberal laws and many reforms introduced by Japan had stripped them of most of their power. The strong-minded Queen was beside herself with rage, and, rightly or wrongly, she was accused of plotting to assassinate the new Cabinet installed under Japanese influence.

Native friends of the Japanese decided to kill her, and one night a party of armed men burst into the palace and stabbed her to death. None of them were caught, and all got safely out of the country. Prominent among them was a man named U-Pom-sun, who fled to Japan.

Most Koreans were tired of the Japanese regime, whose reforms were a little too rapid for their conservatism. They were horrified also at the murder of the Queen, and when it became certain that U-Pom-sun was a refugee in Japan there was loud demands that he be sent home for punishment; but Japan refused to surrender him, asserting that his crime was political and

### HE WAS NOT EXTRADITABLE.

A band of Coreans took a vow that they would never rest till U-Pom-sun had paid for the tragic death of the Queen with his life. But the man whom they sent to Japan to kill the regicide could not find him. He was living in retirement and under an alias. It was not till October last that his out of the way place of concealment was discovered and the man recognized.

One day two men came to the hamlet where U-Pom-sun made his home. They did not deny that they were Coreans. They were traveling through Japan studying the country and having a good time. Their intended victim had no suspicion as to their real character. He had never seen them before. They drank and played cards with him and the three became quite friendly. Strangely enough, they lived in the same house with him for three or four days and he was not at all disturbed by their presence.

On the evening of Oct. 25 the three men were drinking together, when one of them pretended to take offence at some remark made by U-Pom-sun and suddenly whipped out a knife and stabbed him. At nearly the same instant the other man struck the victim on the head with a piece of iron, fracturing his skull. His death was almost instantaneous. The name of the man who stabbed him was Ko Yung-geun; the other assailant was No Wen-myeng.

The men were at once arrested as common murderers. Each of them drew from his pocket a paper declaring that they had been deputized to go to Japan to avenge the death of the late Queen.

At last accounts the murderers were still in jail. It is not believed in Corea that Japan will inflict severer punishment for their crime.

## CODENSED ORCHARDS.

### How Trees Can Be Made to Produce Great Crops.

A certain boy with a famous appetite for fruit discovered early in his career that the trees with the best fruit were to be found in what was called the "hospital" of his grandfather's fruit nursery, a piece of ground devoted to refuse trees, which were too small for customers, and which were often taken up and replanted. Many a fine feast the boy enjoyed in the hospital, says a writer in Pearson's Magazine, but it was not until he came to a thinking age that he realized why these particular trees bore fine crops, although they never made a strong growth.

The reason was simply that they were often moved, and that the ground round them was often dug over. Understanding this, he began to introduce a new system of fruit cultivation, that of making the trees fruitful and healthy by keeping their roots near the surface, pruning the trees frequently, and moving the trees if necessary once in about two years. In this way the trees are kept dwarfed, and great crops are produced.

In old-fashioned orchards trees are allowed to grow to whatever size and in whatever shape they will, and the grass is allowed to grow beneath, for food, it may be, for cattle. But now the orchards are orchards in miniature, condensed orchards, with trees only a few feet in height, and generally either pyramidal in shape or like little bushes, and the ground beneath them is carefully cultivated.

An apple-orchard of one acre planted with dwarf trees will contain more than five hundred trees, shaped either as broad little bushes or as regular pyramids; and there will be space for some seven hundred smaller bush fruits between the trees. The effect on the fruit trade that has been wrought by such revolutionizing ideas cannot be calculated. The little bush or pyramidal trees make very fine ornaments for lawns or gardens.

Still more interesting is the method of growing fruit-trees in pots as ornaments for conservatories. The trees, with their beautiful foliage and fruit, are as decorative as any exotic flower, and would be well worth growing for their beauty alone, even if their fruit were uneatable. In the gardens at Sawbridgeworth, in England, small orchards are grown in pots under glass—orchards are grown in pots under glass—orchards of peaches, nectarines, cherries and plums, while pears are grown in pots in simple orchard houses, without artificial heat.

## SOME ELECTRICAL PROBLEMS.

### DAMAGE DONE BY THIS MOST SUBTLE POWER.

### Takes Short Cuts, and Does Mischief to Gas and Water Mains.

A novel and very peculiar action was recently tried in an Admiralty Court.

The Captain of a North Italian port brought action against the owners of certain copper-bottomed wooden vessels to compel them to remove these crafts from the neighborhood of a number of steel vessels, lying in the same part of the harbor.

It appears that the two metals, copper and iron, being immersed in salt water, actually produce electric action, with the result that the iron was electrolytically corroded by the currents set up from the copper bottoms of the wooden ships.

The plaintiff established his case, and an order was made for the immediate removal of the copper-bottomed ships from that part of the harbor.

In these days, when electrically charged wires, used not only for lighting but for driving engines for other purposes, underground, in every thoroughfare in the town, this problem of electrolysis is rapidly becoming very serious. The corrosion exercised upon the lighting water-pipes exactly resembles that duced by powerful acids.

### IRON ROTS AWAY.

The iron of the pipes becomes honeycombed with small pores, which gradually grow larger and larger until eventually the affected pipe gives way like so much rotten wood, and the life of the main is soon over. An iron pipe, when thoroughly electrolyzed, can be pressed into powder with an ordinary hammer.

A very odd point about the loss of electric damage is that, while in some occasions the mischief is the work of years, at other times a thick pipe will be destroyed by the current, of exactly the same power, within three months. Electric currents are the principal

Theoretically, the electricity flows down from overhead wires, used for driving vehicles in such a way as to return to the power-house through the earth. But electricity, in moving along the lines of least resistance. Therefore, if a water-pipe is a better conductor than the earth, the current is apt to pass into it, and with shocking ingratitude it then proceeds to abuse the borrowed right of way.

### WHEN MOST WANTED.

The damage goes on entirely underground, and the first intimation is the sudden bursting of the pipe. This, of course, usually happens at a time when there is extra pressure, such as occurs during a fire.

Very much more serious was a Jubilee frolic in Vienna on May 8th, 1902. A heavy fall of snow took place during the night. It froze as it fell, and covered the wires with a great thickness of ice, which eventually brought them down.

The streets were filled with live wires. Dozens of horses were killed and policemen were stationed at every corner to keep pedestrians from touching the wires. In spite of all precautions, however, persons were killed and a number severely shocked.

A very odd occurrence is reported recently from Middletown, Ind. A house on the Pike, which is carried with electricity, caught fire. The clothes of its inhabitants emitted sparks, and when two persons came in contact were pulled over. One touching another there was a loud crackling sound. The phenomenon lasted for several weeks, and at last the people became so alarmed that they moved out of the house and left it deserted.

## THEORY OF MAGNETISM.

### Depends in First Place Upon Molecular Arrangement.

The modern theory of magnetism, known as Weber's, aided greatly by the work of Professor Ewing, maintains that even the smallest physical quantity—the molecule—possesses a bar magnet is itself a magnet. Hence the power of the magnet depends entirely, in the first place, upon molecular arrangement.

This can be easily seen by filling a glass tube with steel filings loosely packed; at first these are all in disorder, but if a magnet is drawn over the tube they begin to turn themselves into one direction. Perfect alignment takes place when the tube acquires the properties of a magnet.

The breaking of a magnet into pieces, each piece in turn becoming a magnet, confirms this theory, so does saturation, as it is called, when the molecules are arranged, and no further effect takes place. This theory of magnetic keepers closing the lines of force, thus preserving and not dissipating the power, is also in accordance with this. The primary source of magnetic power is still unknown.

## COLLECTORS SEEK KEYS.

"Clefmania" is a comparatively modern form of the collecting craze. It consists of an irresistible impulse to gather together keys of all sorts, sizes, and shapes. One victim to the habit, a woman, openly confessed recently to having traveled over 10,000 miles in pursuit of her hobby, during which time she had acquired, entirely on keys, quite a respectable fortune. Her collection comprised the key of the Nuremberg iron virgin; one said to have belonged to Cleopatra's jewel case; a huge iron specimen from the tower of London, picked up in a Wardour street shop; the one that used to unlock Anne Hathaway's cottage at Stratford-on-Avon; and many others equally curious and interesting.

## PILOTS OF "DOWN BELOW"

### SHOALS IN THE ST. LAWRENCE RIVER.

### Carry Boats Through Dangers—Look Forward to Retirement.

The fifty-five men who act as pilots between Montreal and the port of Line, and whose stipend amounted to $2,917. There were several who reached over the $1,960 mark.

### BRINGS LONG LIFE.

From this sum the amount runs down to a few hundred dollars obtained by men who for reason of sickness did not work, or by the new men who only acquired their branches a few months ago.

It would appear that piloting on the river is conducive to long life good health, for there have always been among the St. Lawrence pilots a large percentage of men who in other walks of life would be considered old, but who as pilots have as keen eyes and as steady hands as have their children or grandchildren.

For instance, there is Elzear Belisle, who has now turned his 69th year, and who is to-day able to hold a wheel with any of them, and to whom the shoals and currents of the old St. Lawrence are as plain and familiar as the stanzas of his oft-read poem. Old man Belisle, however, has passed the day when he is anxious for work, for he has been guiding ships up and down the river for a third of a century, and considers that he has done a fair share of his life's work.

### A PEACEFUL LIFE.

There are seven pilots in active service who are now upward of sixty years of age, while no less than fifteen have turned the half century milestone. There are a total of nineteen who are upward of forty years of age, while the remainder of the fifty-two vary from 21 to 39 years of age.

The youngest pilot of the group is J. Arthur Garrieps, who has turned his 24th year, and who was granted a branch in 1903.

There are five pilots on the active list who have been plying their profession since 1870, four since 1872, two since 1874, and one was granted a branch in 1875.

According to the rules which have been in force pilots who are sixty years old or upward, must once each year come before a competent medical, appointed by the Board, and have their sight examined. It has been found in the past, however, that few fail in this examination, the old men as a rule having every bit as good sight as the younger generation.

However, the old man finally resolves to drop out, and then one day an application is read at the Harbor Commissioners' meeting, asking that he be put on the retired list, with the customary pension. This is granted and the old pilot is heard of in busy Montreal no more, being content to live his life out in his little native village, where lived, maybap, his father and the grandfather who piloted before him.

## SURPRISING THE BOARDER.

When the new boarder went into the dining-room and sat down there was only one other person at the table. The new boarder had a kind heart, and he thought he would be affable.

"I guess you've boarded here for some time?" he said to the other man.

"Yes. Quite a long while."

"How is it? Any good?"

"Yes, pretty fair. I have no complaint to make."

"Landlady treat you decent?"

"Well, perhaps I ought to," and then he hesitated.

"Oh, never mind, old man," said the new boarder. "That's all right. I'm on. But say, maybe you never tried chucking her under the chin once in a while. That's the way to get on with 'em. I never had a landlady that didn't treat me A1 yet. It's all in the way you handle 'em. Call 'em 'sister' and give 'em soft, sweet, cosy talk about their looks. That's the way to fetch 'em. Let I can live here for a month right now without being asked for a cent. Watch me nudge her when she comes in. Before the time to-morrow she'll be telling me her family history. Poor old girl! She looks as if she'd had her troubles. Probably got tied up to some John Henry who was about man enough to 'shoo' critters out of the yard, and that's all. My name's Hudson. Let's see, I haven't heard yours, have I?"

"No—no, I believe not. But, it doesn't matter. I'm just the landlady's husband."

## WHERE THEY CAME FROM.

Tom's mother had made him a pair of knickerbockers out of a pair of his father's left-off trousers.

Tom is five, and, of course, was very proud of the garment.

One day a lady called on his mother when he also happened to be at home. After the usual greetings, the lady turned to Tom and said:

"Why, Tommy, what a swell you look in your new knickerbockers, to be sure!"

Thereupon Tommy stands up proudly and exclaims, looking at them—"Ain't they fine? My papa was married in these knickers."

A dinner recently given by a hostess whose hospitality is notoriously inadequate, was of the usual kind that her friends expected. It served merely as an appetizer to one hungry visitor, and when the coffee was served, indicating that the dinner was at an end, his dissatisfaction was amusing to the other guests. The hostess did not notice it, however, and said to him, amiably, "Now, do tell me when we may have the pleasure of you dining with us again." "Immediately, madam, immediately," was the unexpected reply.