Useful Information.

How a Feather Grows.—In the skin of a bird where a new feather is to grow, there is a little pit, and at the bottom of this an elevation or pyramid; extending up one side of this pyramid is a groove or furrow, deepest at the base, and gradually growing shallower until it disappears, near the top; from this furrow a great many smaller grooves extend around to the other side of the pyramid, and these also decrease in depth and at last disappear just as they are about to meet on the side opposite the large furrow. The whole pyramid is covered with skin, and the surface is made on the same scale, or flattened cells that are made over the rest of the surface of the body, but, instead of falling off when they are pushed out by the new ones below them, they become united or welded to each other, so as to form a horn coat over the surface of the pyramid, with ridges on its lower or inner surface corresponding to the grooves on the pyramid; and as new cells grow at the base, this coat or cast of the surface is pushed upward till it breaks at its thinnest part which, is of course, the smooth part without ridges opposite the large furrow; and then as it is pushed onward and flattened, it assumes the form of a feather, the ridge formed in the main furrow being the shaft, while the casts of the side grooves form the separate barbs of the vane. When all of the vane has been formed and pushed forward, the pyramid looses its grooves and becomes smooth, and the wall now formed on its surface, being of the same thickness in all parts, does not break, but remains tubular, and forms the quill, which is attached to what is left of the pyramid. A finger-nail or shair is formed from the same kind of scales in the same way, the process differing only in those features which give to each organ its special character. Feathers, scales, hair, claws, all are made alike from the dead, flattened cells crowded to the suface by the process of growth.

Economic Consumption of Smoke.—The operation, at Glasgow, of a patent self-stoking smokeless furnace, is thus spoken of in the Glasgow *Herald:* It meets the case more thoroughly than any invention of a similar kind that has hitherto come under notice, and is as simple in construction as it is efficient in operation. The coal is placed in a hopper, over the front part of the furnace, into which it drops in small quantities through a couple of apertures. It is not necessary to open the front door of the furnace, except to see how the fire is getting on, for by a simple mechanical readjustment, the man in charge of the furnace may regulate the quantity almost to an ounce. As it is added to from above, the coal sinks down and slides slowly until it reaches the bars from the bottom of the furnace. These bars are acted upon by plungers, which carry them forward together, with their layer of coal on top, and then, an eccentric being applied, every third bar in the series is brought back to receive a fresh supply. In this systematic and continuous way the furnace is fed with coal, which passes right through in slow and easy stages, the same quantity of fuel being at all times in exactly the same state. Combustion is, therefore, perfect.

Durable Soap Bubbles.—To obtain soap bubbles that will show the changing colors of the rainbow the directions are as follows: Take half a pint of water that has been boiled and become cold, and put into it a quater of an ounce of Castile soap, cut up fine. Put this in a pint bottle, and set it in hot water in a saucepan, on the fire; there let it remain an hour or so, now and then give it a good shaking till the soap is disolved. Let the flud stand quiet for the impurities and coloring matter of the soap to settle; then pour off the flud and add to it three or four ounces of glycerine, and your soap-bubble solution is ready. In an ordinary way you may blow the bubbles easy with a tobbaco pipe, but if you wish to attain scientific perfection, you had better empoy a glass pipe. By adding a larger quantity of glycerine you may make these bubbles so stong that you can play battledore with them.

Making Animal Hair.—A method of treating animal hair for the use of the hatter, which has been kept secret for a long time, is now found to consist in the application of a solution of the nitrate of mercury, for the purpose of preventing the putrefaction of the fibre. This substance, however, is very deleterious, it is said, both to the health of the workmen and to the implements of the trade, and recently carbolic acid or creosote has been used to great advantage as a substitute. This has the property not only of preserving the animal matter, but of causing the hairs to contract, thus rendering them more apt to felt. The subsequent treatment of the fibre is according to the process usually pursued in this industry, and the carbolic acid may be added to the oleaginous or astringent elements used by hat manufacturers.

How to Sharpen Steel Drills.—It is not generally known that steel can be made so hard that it will pierce any known substance but a diamond. Many jewelers and lapidaries have great trouble in getting the points of their drills hard enough to pierce an amethyst. For the benefit of miners and others using drills that require a hard point we recommend the following manner of manipulation. The drills should be held, if small, by hot pinchers or tongs, while tempering. First heat the tool to a white heat and then press it into a stick of sealing wax, leave it but a second there, and then stick it into the wax in another place. This operation is rapidly repeated until the graver is too cool to enter the wax. In turning or drilling the tool is moistened with oil of turpentine.

Casting Ingots.—Mr. Leffler, of Sheffield, iron merchant, has patented some improvements in moulding for casting ingots. The novelty of these improvements consists in forming a central mould, and in surrounding it with moulds in such a manner that each side of the central mould shall form a side or end of one or more of the surrounding moulds by means of hollow iron pieces or iron plate linings, fitted closely into holes or appertures made in the lower parts of the sides of the central mould and covering the surrounding moulds with a stopper, having a hole for the escape of air and gasses, and in forming the moulds by preference open at the bottom, and placing them, during the process of casting, upon a bottom plate.

A Long Continued Fire.—The longest blast of a charcoal furnace yet announced is that of the Shelby Iron company's furnace, at Shelby, Alabama. It has now been working continuously for three years and seven months, and has made an average of 100 tons per week since it blew in. The greater part of the production has been an excellent iron for car wheel purposes, and its quality ranks it among our very best American irons. The ores used are limonites, yielding, when roasted, about 53 to 54 per cent. in the furnace. The consumption of charcoal has been 130 bushels (of 18½ lb.) per ton of pig iron produce. The lining of the furnace is of fire brick, made at the works from clay found in the neighborhood.

It is said that a rifle bullet cannot penetrate thirty sheets of paper.

Hardening Steel.—Instead of hardening steel by plunging it into cold water and afterward lowering the temper, which is thus made too high, Captain Carson recommends the use of water which is warm enough to produce just the desired hardness. The temperature of the water will depend not only on the temper desired but also on the size of the article, and is easily ascertained by trial. For the springs in the needle gun he used water about 130 degrees F.; for some kinds of steel boiling water is preferable. The effect of cooling in hot water on soft steel containing 0.2 0.4 per cent. carbon is to increase its tenacity and elasticity without much change of hardness.

Your Own Mason.—Small holes in white walls can be easily repaired without sending for the mason. Equal parts of plaster of Paris and white sand—such as is used in most families for scouring purposes—mixed with water to a paste applied immediately, and smoothed with a knife or a flat piece of wood, will make the broken place as good as new. The mixture hardens very quickly, so it is best to prepare but a small quantity at a time.

What Coal Loses by Being Made Into Coke.—From an exchange we learn that Connelsville coal, which may be taken as the standard of coking coals, weighs 80 pounds to the bushel. When properly coked, 100 bushels of coal yield 125 bushels of coke, weighing 40 pounds to the bushel; that is, 8,000 pounds of coal produce 5,000 pounds of coke, or, in other words, the coal gains 25 per cent. in bulk and loses 35⅛ per cent. in weight.

Good Health.

Imaginative Medicine.

Charms, amulets, talismans and phylacteries all belong to the list of articles which produce imaginative cures; seeing that the persons who trust to them believe in some good obtainable from them, in purse or in person, in health or in welfare; and if the good does come, more assuredly the imagination is the channel through which it approaches. Two or three years ago, at a town in Worcestershire, after the inquest on the body of a man drowned in the Severn, a woman applied to the chief constable for permission to draw the hand of her son, a boy eight or nine years of age, nine times across the dead man's throat, in order to bring about the removal of a wen from the boy's neck. In another instance, in the same county, this was actually done, with fatal results; for the man had died of typhoid fever, which was in this way communicated to several living persons. A ring made of the hinge of a coffin, and a rusty old sword hung by the bedside, are (in some districts) charms against the cramp; headache is removed by the halter that has hung a criminal, and also by a snuff made from moss that has grown on a human skull in a graveyard. A dead man's hand, and especially the hand of a man who had been cut down while hanging, dispels tumors. Warts may be removed by rubbing them with a bit of stolen beef; the chips of a gallows, worn in a little bag round the neck, will cure the ague; a stone with a hole in it, suspended at the bed's head, will prevent nightmare. Many verses are known, which if repeated aloud, are credited with curing cramp, burns, and other bodily troubles. When you have the whooping-cough, apply for a remedy to the first person you meet with riding on a piebald horse—a ceremony that Dr. Lettsom, the physician, was fated more than once to become acquainted with.—*All the Year Round*

How Poor Eyes are Made.—I have, during the past two months, seen lace veils drawn tight over the face in church, both morning and evening. I have seen ladies teaching in Sunday-school and in sewing-schools, where the expression of face has so much to do with claiming and retaining the scholars' attention, with the inevitable veil covering like a mask both faces and expression. Ladies were seen at the evening receptions at the Metropolitan museum of art, looking at pictures and porcelain through lace veils, which in one or two instances were beaded. I myself saw a lady at the Astor library procure the seventh volume of Froude's History of England, which she proceeded to read through a dotted lace veil. And last, but not least, I am told by a friend who attends the art school at the National Academy of Design, that young ladies go there and draw from plaster casts for hours at a time without lifting their black lace veils.—*Cor. New York Evening Post.*

A Word About the Lungs.—In nearly all cases the natural capacity and area of the chest are sufficient for all the uses of respiration. But the capacity of the chest may be diminished by the habit of stooping, or by the abominable practice of tight-lacing. The false grace of the wasp form in woman is almost always gained at the expense of the lungs. The tight belt and the armour above it fatally compress the air-cells, and forbid all easy union of the oxygen of the air with the currents of the blood. The lungs cannot well spare one square inch of the space which they naturally fill. Consumption is the sequel of corsets. The war of hygiene upon tight waists must be positive and unceasing, for fashion is in nothing more destructive to human life than in this. The lungs are also injured by being over-worked, strained, or made to do more than any reasonable estimate of their powers would allow.

Walking as an Exercise.—There is no exercise so fine as walking, if one knows how to take it. When a disease in one part of the body becomes incurable, the physician will sometimes attack some other part with the design of diverting the sickness from its stronghold. So a man who uses his head till his brain is weary needs to tire his legs. One complains that he cannot walk. It is because he does not observe the rules. Walk easily. Take time and do not hurry yourself into exhaustion. By walking a short distance at first, and gradually increasing it, one soon is able to walk eight or ten miles without fatigue, and with good results to health. "At the end of a mile," says an old pedestrian, "walking is delightful. You wouldn't ride if you could." The road to health is too narrow for wheels.

Dyspepsia.—"Dyspepsia is the demon of America," says the Philadelphia *Bulletin.* "Making haste to get rich, America has neglected her stomach; she has forgotten to learn how to enjoy her riches, and her generations of sallow, nervous, unstrung men and women will not be reconstructed in the sturdiness of their forefathers until men and women reach a point where they can take time to dine."

To Stop Nose Bleeding.—Two small arteries branching up from the main arteries on each side of the neck, and passing over the outside of the jawbone, supply the face with blood. If the nose bleeds from the right nostril, for instance, pass the finger along the edge of the right jaw till the beating of the artery is felt. Press hard upon it for five minutes, and the bleeding will cease.

A Boy with a Beard.—A family named McKee, recently arrived at Los Angeles, have a boy of fifteen, who weighs 200 pounds, and sports a heavy beard and moustache.

Horticulture.

Seasonable Hints.—No 3.

[From the Pacific Rural Press.]

Nobody who possesses a home is satisfied without a few climbers, to twine around the pillars of a verandah or porch, to cover trellises and conceal unsightly corners and offices. We are often asked what are the best, and we always answer "roses." Honeysuckles and jessamines, the old familiar forms which, intrinsically beautiful, are so precious from association. To have a posy for every day in the year, one need only to make a judicious selection of climbers. This is a good time to plant them. Let us select with a view to the closeness and cleanness of verdure, as well as flowers. First of all, therefore, we must choose the Lady Banks and Cherokee rose. Suppose we have a bay window of the usual size. We will plant a Lamarque, and on either side a white and buff Banksia, putting the buff on the side nearest the door or corner of the house. As near the latter as we can have it and cultivate well, we will plant a Wistena. On another side of the door, or near the next window, we will plant Plumbago Capensis, and with it the Trapoleum, which is annual in habit, and requires frequent renewals; or the Persian Jessamine. We will keep our honeysuckles for the rear of the house, and on the lattices we will have a profusion of them, the evergreen and ever-flowing, the blessed old scarlet and orange trumpets, though its foliage is so homely—and a great bush of *Cleanthurs* or lobster's claw. With our honeysuckle, sweet clemates, some perrennial peas, *Solanum jasminordes*, and the rich foliaged Japan honeysuckle, we can cover up a multitude of architectural sins. Our investment made, in about two years we may look out for a dividend. Lamargue, the banksias and wisteria have kept an even pace roof-ward, and hang around our cornices in a soft lovingness which expresses all that the precious word home should mean.

The large, full Lamargue roses are cups of flower cream, the little daisy-like banksias foam over like froth. The purple clusters of lilac bloom are flower grapes, made to feed the finest sense. The pale buff of the colored banksia gives relief to the purple lines, and one sees how great an impertinence the presence of any other plant would be in this company.

So with the blending of tones with plumbago and trapoleum. Keep other things at a distance. The fringed, delicate growth of trapoleum makes a setting for the plumbago.

Clematis requires delicate treatment. The new, large flowered kinds require protection, and should never be exposed to a "norther." The heavy ones ought to trail over a screen of Cherokee rose.

Any one who likes to play at geometric gardening can find amusement in planting banksia roses in the form of a star, putting a strong root at the points, and a very rich red climbing rose in the center. When they begin to run, fasten them to stakes, and keep them quite near the ground, preserving the form intended by clipping unmanagable shoots. In the season of bloom you will get a mass of flowers which seem like a heap of snow with a live coal in its heart. Cleanthus should have a pillar or a whole window to itself. One bignonia or trumpet creeper should be in every collection, though it is rather cool for it around the bay. It is a rampant grower and full bloomer in the winter. J. C. Carr.

Beautiful Horticultural Importations.

[From Pacific Rural Press.]

The horticultural missionaries, who manifest their zeal in the good cause, by entreating the heathens of California to plant trees, should be informed that tree-planting in this, as in most other parts of the United States, has been almost a mania for the last ten years. Consequently all such appeals are like sending flannel shirts to the babies of Africa.

No stimulus is needed in this matter, and if any advice is to be offered for directing this tree-planting movement, it must come from the highest and best informed sources to be of any avail; for it is evident that a high degree of taste and practical judgment are, and have been employed in this great work.

In California, especially, the progressiveness indicated in this direction is remarkable. From information derived from our exchanges, and from inquiries and facts communicated by correspondents, we are impressed with the conviction, that not only are trees being planted in abundance, but that there is a sufficiency of taste and judgment employed in the matter. The State University is keeping pace with the popular taste in this direction, and is doing much to add to the wealth of California in its timber, fruit and ornamental possessions, and capitalists are manifesting a commendable interest in this subject, and are spending their money in thus improving the property owned by them; while people of more limited means are steadily improving and beautifying their possessions in cities and villages as well as in the country.

The recent importations referred to are twenty-four varieties of maple from Japan which we had the satisfaction of examining at the establishment of R. J. Trumbull in this city. The trees were accompanied with beautifully colored plates descriptive of the foliage of all the varieties. These plates were executed by the Japanese, the coloring as well as other parts being done by hand. A leaf of every one of the 24 varieties is given, its form and color being represented in all their minutia. The varieties of foliage displayed here is remarkable, many of the leaves being extremely unique in form and color.

The importation consists of six trees of each variety; all grafts and all in excellent condition for planting. They were sent here to a gentleman who recently visited Japan, and observing these trees in full foliage there, resolved to try them in California. A large portion of them were engaged before the box was open, and on learning the names of the parties who obtained them, we were satisfied that they had fallen into good hands. The growth of this interesting family of maples will be watched with a good deal of interest by horticulturists generally, as well as by those who were fortunate enough to procure them.

Names of Plants—English vs. Latin.—My friend asks, "What is this pretty flower?" "*Galasine azurea.*" "What a long name!" "I cannot shorten it." "But why have a Latin name? Better call it Blue Smiler in plain English." "Then you like such names as Shamrock, Blue-bells, Eglantine and Culowkeys?" "Certainly, every one can understand them." "You can recognize the plants?" "Easily." "Well, I can show you in point endless discussions as to what they are. On the other hand, I defy you to produce two persons who disagree as to what is meant by *Eucharis Amazonica.* Paradoxical as it may seem, Latin is, in such matters, more intelligible even to an Englishman than English."—*Cor. Journal of Horticulture.*

Curious Trees.—Just beyond the Darbonne or Calcasieu river, in the parish of Calcasieu, is a white-oak tree, about two and a half feet in diameter. There are no branches for 25 or 30 feet up. About 12 or 15 feet up, a pine limb or top part of a pine tree, six or eight inches in diameter, and 12 or 16 feet long, runs at right angles through the center of the tree, sticking out about the same distance on either side. It tapers a little to one end, where there are two or three knots, giving it the appearance of a tree top. The oak, where it passes through, is grown closely around it. The pine is rich in turpentine and will not decay. There is no fork or hollow in the oak; but it has the appearance as if a hole had been made and the pine stuck through, after which the oak closed on it by growth. The question is, how did the pine get through the oak, or the oak round the pine? In Mallet woods there is another white oak, of considerable size, that divides into two prongs about one a half feet from the ground, which after running up like a pair of bowlegs, about fifteen feet, unite in one round compact stem. The prongs are about one and a half feet in diameter; and where they unite above, the tree is larger than either of them, but smaller than both together. A man can walk between the two prongs, and the tree stands on a land boundary line. Forked trees are very common; but the question here is, how did the two prongs unite so perfectly into one stem above?—*Opelousas, La., Journal.*

Thos. A. Garey's Nurseries, at Los Angeles, must form one of the interesting business features of Southern California. The *Mutual Aid* alludes to Mr. Garey as follows: As a semi-tropical nurseryman, Mr. Garey occupies the most prominent position of any man on the Pacific coast. During the past nine years he has built up a business that now reaches gross sales of $75,000 per annum. During the past two years his sales have been so large that he has been compelled to purchase trees to supply his trade, as the quantities raised by him were entirely inadequate to the demand. Especially was this the case as regards the different varieties of Northern fruits. Finding that the semi-tropical fruit tree trade was growing beyond his reach, Mr. Garey and other nurserymen, in June, 1873, incorporated the "Co-operative Nursery and Fruit Company of Los Angeles County," with a capital stock of 250,000. This stock was all taken and at a premium before a dollar had been paid in. The company has bought 283 acres of land within and adjoining the city limits, 100 acres of which will be planted out to standard four-year-old orange trees, as an orchard, in the spring of 1875, and the same ground will also be covered with nursery between the orchard trees, the plants for which (750,000) are now growing in beds, and average one foot in hight. Mr. Garey is a large stockholder in this company, and is also a director and the president of the company. In January, 1877, he will turn over his entire semi-tropical nursery business to the company and take charge of its affairs.

The Sacramento Beet Sugar Company.

The Board of Directors are H. G. Smith, Philip Scheld, Samuel Lavenson, W. E. Brown, and Julius Wetzlar. The officers are: President and Treasurer, Julius Wetzlar; Secretary, A. J. Wetzlar. The location of the works is two miles from Sacramento, at the intersection of J street and the levee. The land owned by the company comprises about 700 acres, added to which is 600 acres of leased land, making a total of land operated by the company 1,300 acres. The capacity of the works is 80 ton per day, (24 hours); the yield of Beets, per acre, average 12 tons; the varieties of Beets grown are the White, Sicilian and Imperial. The percentage of saccharine matter averages 12¼ per cent, and of first quality Sugar, 5⅜ per cent. The capital invested is $300,000. The cost of machinery was $140,000, that of buildings $40,000, and that of teams, tools, etc., $20,000, making a total of $200,000. The buildings consist of a frame factory 100 by 45 feet; a frame Sugar storehouse 30 by 40 feet; a frame Superintendent's dwelling 20 by 35 feet, 2 stories; a frame boading house 35 by 45 feet; eight frame dwellings 24 by 30 feet; one frame Chinese quarters 50 by 30 feet; a blacksmith shop 30 by 20 feet; three frame granaries, the first 85 by 30 feet, the second 20 by 40 feet, and the third 10 by 15 feet; three large frame cattle stables 100 by 40 feet each; one large frame tool and implement storehouse-shed 20 by 30 feet; and four large frame stables, the first 60 by 30, second 30 by 40, third 35 by 20, and the fourth 60 by 25 feet. They raised their own seed this year, at a saving of $4,500. They formerly imported 10,000 pounds. The cash business for 1873 equalled $190,000, and that for 1874, $300,000. Of the land operated, 385 acres are located in Davisville, Yolo County, Cal. The number of white men employed is 150, and that of Chinese, 500. The company owns its own barrel machinery. The works were in operation in 1873 for five months, and in 1874 for nine months. The machinery consists of five steam engines: No. 1—30-horsepower, square beam, and drives eight pumps; water, vacuum and feed pumps for boilers, gas pumps for carbonic acid gas, and hot water pumps. No. 2—15-horsepower, drives Beet washing machine, elevators and Beet cutters. No. 3—8-horsepower, drives the centrifugal machines, Sugar grinders and the Sugar packing machines. No. 4—5-horsepower, and works the washing machines, elevators and drawing machines. The water is obtained from wells, and the fuel used is wood, of which from 11 to 12 cords every 24 hours are consumed. So carefully has these works been managed, that but one small accident has occurred in two years. These engine works require all the steam that can be generated in three tubular boilers, 48 feet in diameter. A diffusion battery is used to extract juice in this establishment. The process of manufacture is as follows: The Beets are taken out of the ground by a two-tined fork, the heads or green part of the Beet is then chopped off with a large cleaver knife, the Beets are loaded on a wagon, transferred to the cars, hauled to the Beet factory storehouse, thrown into a washer, and at the same time assorted (that is, bad or damaged Beets thrown out), passed from there by an an endless belt with cups to the chopper, chopped into ribbon strips and dumped into the batteries, where steam is inserted; the juice is then forced by water and steam into the bottom of the battery and carried through pipes into a steam drum, forced thence through lime and bone coal into the filterers, returned from there purified into the copper boiler, boiled down to a crystalization point, drawn out from there into tanks, allowed to cool and stand, and then introduced into the centrifugals, from which they come out as pure Sugar, leaving a refuse which is again boiled down and worked over. The Sugar is then taken to the crusher room, either ground or crushed, boxed or barrelled; is then loaded on cars and sent to a ready market.—*Journal of Commerce.*

Danger in Champagne.—A girl in South Carolina, while playing with an empty champagne bottle, fell down, broke the bottle, and cut her throat with the glass. As a gun is dangerous without lock, stock or barrel, so is a champagne bottle dangerous, whether it is loaded or not

Planetary Distances.—An Armstrong gun throws shot at the rate of 400 yards a second, at its initial discharge. If it should continue on at this rate it would take it 13 years to reach the sun. The rate of motion at which the earth travels in space would take our planet to the sun in 125 days.

Domestic Economy.

The Christmas Pudding.

B—"Jeannette and Jeannot."

If you wish to make a pudding in which every one delights,
Of a dozen new-laid eggs you must take the yolks and whites;
Beat them well up in a basin till they thoroughly combine,
And shred and chop some suet particularly fine.

Take a pound of well stoned raisins and a pound of currants dried,
A pound of powdered sugar and a pound of peel beside;
Stir them all well up together with a pound of wheaten flour,
And let them stand and settle for a quarter of an hour.

Then tie the pudding in a cloth, and put it in the pot,
Some people like the water cold, and some prefer it hot;
But though I don't know which of these two methods I should praise,
I know it ought to boil an hour for every pound it weighs.

Oh! if I were Queen of France, or, better still, Pope of Rome,
I'd have a Christmas pudding every day I dined at home;
And as for other puddings, whatever they might be,
Why, those who like the nasty things should eat them all for me.

Unfermented Wine.—This article is coming quite extensively into use for church purposes and when mixed with water it also forms a very refreshing summer drink. In order to prepare it the grapes should be allowed to thoroughly ripen. They are then picked and the stems and all green and rotten grapes removed. The grapes are then crushed and pressed in the usual manner. The juice may be put directly into bottles, or it may be first concentrated somewhat by boiling, and then bottled; in either case the bottles are put into hot water and brought to the boiling point, where they are maintained for half an hour. At the end of this time remove them from the fire and cork them tightly, while still hot, wiring in the corks. Then replace them and continue the boiling another hour. Glass bottles are better for this purpose than tin cans, though the latter may be used. An analysis of a specimen prepared in New Jersey gave the following result: alcohol, none; sugar and extract, 23.00; ash, .40; water, 76.60; total 100.00. This had probably been concentrated somewhat before bottling. The flavor was fine. Some acid tartarate of potassium had crystallized out.

Home Made Candy.—Use a new tin basin; put into it four tablespoons of water, one pound of coffee sugar, one teaspoonful of good cream tartar; boil, stiring constantly to avoid burning. After it begins to have a sappy appearance try it often by dropping a little in cold water and if done it will at once become brittle. Butter an earthen dish and pour the hot candy into it, that it may cool just enough to handle. Flavor to taste with oil of peppermint, wintergreen, sassafras or lemon. Two drops of oil will flavor it strong. For variety, divide into three or four parts and flavor differently by touching one kind of oil to each. Work in the hands at once; the more it is pulled the whiter it will get.

How I Made My Catsup.—I selected fair ripe tomatoes, cut out all blemishes, also the hard parts about the stem end, then slice them into a porcelain kettle, filling it full; added a red pepper and put the kettle over a slow fire to stew gradually stirring to prevent burning. When reduced to half the original quantity I strain the whole through a common wire sieve. To five pounds of the pulp I added one and one-half pounds of sugar, one pint of cider vinegar, one tablespoonful of cloves, one of allspice, two of cinnamon, one of salt. I put the mixture back over the fire and boiled until the thickness suited. When mine was tested the only fault found was that it was too good to last.

Scotch Broth.—Put a teacupful of pearl barley into 4 quarts of cold water and let it boil; add 2 pounds of scrag of mutton or thin flank of beef, 2 onions, 2 turnips, 2 carrots cut in dice, and 1 carrot grated; boil slowly for three hours; add salt and pepper to taste before removing from the fire.

To Sweeten Salt Pork.—Cut as many slices as will be required for breakfast the evening previous, and soak till morning in sweet milk and water; then rinse till the water is clear, and fry. The pork will be found very near as good as fresh.

German Toast.—To one egg, beaten well, add one cup sweet milk or cream, season with a little salt and pepper. Cut in slices stale bread, and dip in the milk to moisten, and fry in butter on griddle. This we think is an extra nice dish for breakfast.

Nice French Cake.—Two cups of sugar, one half cup of butter, four eggs, one cup of milk, three cups of flour, one teaspoonful of soda, and two teaspoonsful of cream of tartar. This makes two loaves.

To Disguise Castor Oil.—Rub up two drops of oil of cinnamon with an ounce of glycerine and add an ounce of castor oil. Children will take it as a luxury, and ask for more.

Accidental Discoveries in Science.—Accident has had much to do with chemical discoveries, more perhaps in former times than now, when researches are undertaken with some definite end in view; but how many of the discoveries which have led to the most brilliant and important results, may not be called accidental? We may question if Davy expected to find potassium when acting on potassa with a voltaic battery, although, having already observed the decomposition of other metallic oxides he may have had an inkling of the fact. Bunsen did not expect to find two new metals when examining the residue from the Durckheim waters. Crooks, when looking for selenium, accidentally found thallium. Perkins, when he found that aniline, when acted on by chromic acid, gave a fine color, could scarcely have expected the enormous manufacture of those analogous dyes which is carried on at the present day.

Difference of Temperatures of City and Country.—The temperature in the city is higher than in the country, where in general it is cooler, especially during clear nights, when the difference may amount to 13° Fahr. Then the extreme temperature for heat is higher in the city, while that for cold is lower in the country; but in the average differences between heat and cold the country surpasses the city, which is more moderate.

The American Electrical Society.—An association to be known under the above name, was recently organized at Chicago, Illinois. The objects are an interchange of knowledge, professional improvement of members, the advancement of electrical and telegraphic science, and the establishment of a central point of reference. General Anson Stager, of Chicago, was elected president, and Mr. C. H. Haskins, of Milwaukee, vice president.