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The New England Kitchen, of Boston, serves a five-cent lunch, consisting of hot soup, bread and butter, sandwiches, buns or cookies, to the pupils of the Boston high schools.

The San Francisco Argonaut exclaims: A toy has wrought a revolution in this country. Theatagitation in favor of good roads, begun by the bicycle manufacturers some years ago, and taken up and given force by the riders, has at length reached the masses of the people.

The improvement of the channel at the mouth of the Mississippi River has been a great benefit to the Crescent City. Among the vessels which have recently visited New Orleans are many of the largest freight carriers afloat, and many of the cargoes carried out would have been considered impossible some years ago.

This season's crazes in Europe have been collected by an Italian editor. In England it is clay modeling, the chief victims being Mr. Gladstone and Sir William Harcourt; in Paris it is riddles, in Italy and Southern France it is jumping beans, painted to represent prominent persons; they jump best on hot plates. In Belgium they have slow-smoking races; the pipes are filled with half an ounce of tobacco each and the winner is he who can hold out longest without relighting. The record so far is sixty-seven minutes.

Secretary Morton declares that the plow used by the American farmer is a humbug and an enemy to fertility. Said the Secretary: "We have improved our plows less than any other implement man uses. The plow used in Nebraska and other stoneless soils impacts every furrow it passes over and renders it as impervious to rainfall as possible. The draft of a plow is downward to such an extent that the full force of the team's strength is exhausted in pressing the bottom of the furrow into a polished trough for the conduction of rain down the side-hills. We must have some method of tillage which shall stir up the soil and subsoil to the depth of eighteen inches and more. If it were possible to loosen the soil and subsoil down for three feet all over the State of Nebraska, we could then, with an annual rainfall of twenty inches, make abundant and profitable crops. Until deep plowing—through subsoil tillage—becomes universal in that commonwealth there will be, year in and year out, no certainty of remunerative crops. Professor Shaler, of Harvard, estimates that the present inefficient and ill-representing methods of plowing, especially upon undulating lands, cost the farmers of the United States 250 square miles of soil each year by erosion. Everywhere in Nebraska where torrential rainfalls are so frequent the side-hills mutely verify Professor Shaler's theory as to the annual waste of washed lands. This is a matter of such vast importance that I have asked Chancellor Canfield, of the University of Nebraska, to bring it before the 1600 students in that institution and ask them to try and think out a new implement of agriculture which shall supersede the plow. It is a subject upon which the inventive minds of educated farmers should be concentrated. A proper solution of the difficulty will facilitate subsoil tillage and at the same time save both the crops and the soil. In my judgment the coming implement should spade the land and turn it over, as a man who pushes the spade with his foot into the ground and drawing the spade out turns the soil upside down by the twist of his wrists. Possibly a rotary spade could be invented. Possibly an implement consisting of a large number of revolving knives could be made so that in passing over the surface of the field it shall chop up the soil and subsoil for two feet in such a manner as to render the percolation of the rainfall down to the depth at which the ground has been stirred very easy and perfect."



REMEDY FOR RATS AND MICE.

These small but greatly destructive vermin of the farm may be kept in subjection without much trouble if the right methods are taken. First, the buildings should be constructed with special reference to them; this, however, is rarely thought of by builders. No hiding places should be permitted under the floors or behind the fittings; the floors should either be on the ground and made of concrete, through which rats cannot burrow, or raised so high above it that cats and dogs can go everywhere in pursuit of their natural game. Three or four good cats, preferably mottled ones, and one good terrier—a fox terrier is the best—or all of these, will, if well fed, spend the greater part of their time in hunting, and so very soon exterminate the vermin. Otherwise poison should be used in such a way as to avoid danger to other animals. This may be done by mixing a very little powdered strychnine with some fat in which cornmeal is mixed; and putting small quantities of this in holes bored in blocks of wood, so that the vermin can get at it and other animals cannot. These traps are scattered about where the vermin will be likely to get at the bait.—New York Times.

HOW CREAM IS RIPENED.

The cream is best skimmed when rather thick, that is, when it may be almost rolled up on the pan and lifted up in a sort of cake. It will then contain about twenty per cent. of milk, and some milk must then be poured into the cream jar with the cream, and the whole stirred to mix the two intimately. This stirring is done every time the cream is added, and the third milking should be the last before the cream is churned. The cream will ripen all itself if it is kept in a warm place all this time, not less than sixty degrees of temperature. At the end of this time the surface will glisten like satin when it is stirred, and this is a good indication of its full ripening for the churning. Otherwise, the cream may be set on the addition of the last cream, by mixing half a pint of the buttermilk from the last can, churning to five gallons of the cream and stirring it well; then, at a temperature of sixty or sixty-five degrees, the cream will be ready for churning in twelve hours. This will yield the finest flavored butter, that is fit for the table in a few hours after it is made, or for some tastes it is churned for every meal, and eaten as it is churned. Cream thus ripened will make a very delicately flavored butter.—American Farmer.

HOW TO RAISE YOUNG CHICKS.

When the chicks are all hatched leave them under the hen undisturbed for one day. They are tender and delicate and need the vitalizing heat of the mother. Let them remain without food until the second day. When the hen is taken from the nest dust her thoroughly with fresh insect powder. Grease her legs lightly with melted lard and apply two or three drops to the back of her neck. Do not put any under her wings, as the chicks are apt to get it into their eyes, causing blindness. Lie pass from the hen to the chicks, so if there is one louse on the hen it is one too many. The first four or five days feed stale bread or cracker crumbs moistened with sweet milk. Do not make it too sloppy. The principal food should be bread made of equal parts fine oatmeal, bran, shorts and corn meal. Add enough soda and salt to season, and three teaspoonfuls of ground bone. Mix with sweet milk and bake in the oven. Crumble the inside of the bread and feed it dry. Take the crust and moisten with a raw egg until the whole is a stiff dough. Young chicks will keep healthy and grow fast on this food. Egg is the natural food for young fowls and should be given once or twice a day. Raw egg will prevent bowel trouble, while too much hard-boiled egg will produce it.

Feed regularly every two hours until the chicks are a week old, then four times a day will do. Give them all they will eat up clean but do not leave any in the trough to sour. As soon as chicks require food they require water. Milk may be given, but it should be sweet. If the weather is cold have the water tepid. Construct the drinking dishes so that the chicken can drink without getting wet. Never feed raw corn meal to chicks. Bran is better than corn meal, as it contains more mineral matter and is one of the best bone-forming foods that can be given to growing fowls; but it should always be scalded. As they grow old feed grain, either whole or cracked. Table scraps and garden greens may also be given. Keep pulverized charcoal and fine gravel within their reach all the time. The young chicks must be kept warm and dry until they are six weeks old; a single night's exposure may bring on bowel disease. When this appears it is generally attributed to the food, but the real cause is cold.

Do not keep the hen confined in a coop unless it is a large one, and then only in bad, wet weather. It is almost impossible to keep a confined hen free from lice. If she has her liberty she will dust daily and rid herself of the pests, and the little chicks will learn at an early age to wallow in the dust. Let them roam over the garden and fields and they will gather a large part

of their food, and benefit the farm and garden by ridding them of insects.—American Agriculturist.

CARE OF ORCHARDS.

Extracts from a very interesting paper read by J. H. Fishell before the Indiana Horticultural Society: The care of orchards for best results is a subject which concerns all of us. There is too much lack of horticultural knowledge among farmers. They are not as well posted on fruit-growing as they should be. It certainly would be to the advantage of every wide-awake farmer and fruit-grower to join and attend regularly the interesting meetings of such societies as this. Those who make a success in fruit growing do so by intelligent industry. It has been said "if a man would know anything he must think; if he would have anything he must work." Now if he will do either, all things are so arranged that he may receive rich rewards.

From the earliest times men have turned to the soil for their support. The products were few because their wants were few. In process of time agriculture was divided into departments. The man who cultivated field crops on a large scale was called a husbandman or agriculturist. Others that cultivated fruits, roots and vegetables were called horticulturists, and one branch of the latter is my subject. Fruit is the poor man's friend, the rich man's luxury, the laborer's physician, and the foe to quack doctors. There is no more royal road to health than that lined by trees of ripened fruit. The growth of trees, whether in the forest, or in the orchard, takes from the soil the necessary nutrient both for the formation of wood and the development of fruit. To secure the most satisfactory development of fruit requires health and vigor of wood. But the growth of trees in a soil continually cropped in soil exhaustion, and if continued for a term of years with no restoration of fertilizing material, the conditions become unfavorable to any healthy growth of wood fibre. It is under such conditions as these that fruit rapidly deteriorates or fails of production.

The orchard set in young trees should be cultivated annually and some fertilizing material applied for the benefit of the trees as well as the vegetables or small fruit raised, until the trees come into bearing; then the cultivation should cease for a time. Fruit trees require care and nutrient, and without these the results are not satisfactory. Healthfulness is indicated by a vigorous growth and a foliage of dark green, and when these conditions exist the fruit will be found smooth and of good size. Orchards may be fertilized by spreading manure over the surface of the ground, especially that portion of it through which the roots of the trees extend. Potash is a valuable fertilizer for all kinds of fruit and can be applied in the form of unenriched wood ashes, and being largely soluble are easily conveyed to the roots and immediately appropriated to profitable use.

We would lay down these rules in commencing: Select a situation best adapted for the purpose, taking every thing into consideration. If not well drained see that it is. Scatter well composted manure over the ground, plow deep, and then if you can get them scatter wood ashes over the ground and work them well into the soil with a harrow. And depend upon it there is no amount of pains which you can take in this respect that will not amply repay you in the end. We look upon it as of the utmost importance to the future welfare of the tree that it should have a good start in the beginning and make an early and rapid growth; this will enable it to resist the attacks of disease and insects the better.

FARM AND GARDEN NOTES.

Charcoal is a good corrective of bowel disorders in poultry. Save the poultry droppings. Store them where they will be kept dry. Wheat and oats mixed in the proportion of two to one, and then ground, is reported to be an excellent food for nilch cows. Diversify, diversify. That is not the only secret of success, but is essential when no special crops will pay, as is the case at present. The first thing to do in the spring is to apply a liberal allowance of soluble fertilizer on the asparagus bed, as asparagus comes early in the spring. It is said that watermelons will keep nicely until Christmas if they are cut from the vine with the stems on and buried in sand out of the way of frost. Buy farm machinery as cheap as possible, but do not buy cheap machinery. The poorly constructed machine bought at a low price is often the most costly one in the long run. Farmers who figure on their profits should endeavor to estimate the expense incurred in loss of fertility sold in the produce. This fertility must be returned to the soil or the succeeding crops will be lessened correspondingly. Potash is essential to land bearing fruits, and, therefore, ashes is a valuable fertilizer for such ground. In using ashes use it alone, for it has wonderful power of liberating some of the most valuable elements in nitrogenous fertilizers.

OUR NAVAL GUN FACTORY.

WHERE UNCLE SAM TURNS OUT ENGINES OF DESTRUCTION.

Various Processes of Making a Big Gun Described—Shrinking on the Jacket of a Cannon.

THE main building of the naval gun factory at Annapolis, which is about 650 feet long, with a width varying from eighty to 130 feet, is a wonderful place, says the Chicago Record. It is a high, bright room, and so full of machinery that it seems impossible at first sight for workmen to make their way around. Overhead moves a traveling crane of majestic proportions that will easily lift and carry steel guns weighing more than 100 tons. At the north end the large cannon are made, and the south end is devoted to the "barkers," or little guns. Between the two is the "shrinking-pit," from which arises a gust of air hot enough to persuade the uninitiated visitor that it opened directly into the infernal regions.

In the first place the gun is born in the head of the factory draughtsman, who sits in a clean little office where the hum of the shop is but barely audible. He makes his drawings on paper and figures out every dimension to the thousandth part of an inch—for the least error may involve the ruin of a gun and the loss of thousands of dollars.

From the draughtsman the specifications go to the shop, where the forgings of steel from the Bethlehem works are already in waiting. Then the process of "building up" the gun begins. It has been discovered that when a gun is made up of a central "tube" covered by a "jacket" and "rings" on the outside the metal is more homogeneous and will withstand much greater explosive pressure.

The process of putting these pieces together is known as "assembling" and the work is done in the "shrinking-pit." But before the gun is ready for assembling it must have been graduated from a long course of lathes and boring machines. All one end of the big building is filled with them, and the mechanism is so perfect that after they are started they will run with almost no attention until their work is completed. One of these lathes is 130 feet long and has a swing of eight feet. It is capable of boring or smoothing a gun fifty feet long and weighing more than 120 tons. So complete is the arrangement that the gun may be turned on the outside and bored on the inside at the same time. Smaller lathes of every imaginable variety are used in making smaller guns of various kinds.

On leaving the lathes the traveling crane overhead carries the gun along to the rifling machine. This plows the interior surface of the gun with a spiral groove by which a rotary motion is imparted to the shell when it is fired. It is an operation requiring the greatest care, for if the cutting machine varies the thousandth part of an inch or if a particle of metal crumbles off the efficiency of the gun is seriously injured. Such delicacy of adjustment in such a ponderous machine is one of the marvels of the shop.

The operation of "assembling" the gun is the climax of the whole process, and it is critical enough to make the superintendent's face very serious for several days. The principle of the whole process lies in keeping the "tube" or main part of the cannon cool and expanding the jacket by means of heat so that it will slip easily over the tube. Upon cooling the jacket contracts and grasps the tube almost as closely as if they were both one piece of metal.

Formerly the jacket was heated in the "shrinking" by means of burning charcoal or wood, but this was found to produce unequal expansion and warping. At present the heating is done entirely by hot air. In the pit there is one furnace filled with coils of pipe through which air is forced by a compressing pump. Underneath is a gas fire which heats the air to a high temperature. In this condition it is forced into the cylindrical apartment in which stands the gun-jacket, and, after passing through it, is carried off by a chimney. After having been heated for a day or two the master workman has the lid of the jacket apartment lifted a little and the top of the great cylinder of iron is measured to see if the expansion has made it large enough to fit over the tube. When its inside diameter is one-tenth of an inch greater than the exterior diameter of the tube the moment for shrinking has arrived. In the meantime the tube of the cannon has been placed upright in the pit, with the upper fifteen feet turned perfectly smooth and shiny for the reception of the jacket. Inside of it cold water is kept flowing so that the steel will be as cold contracted as possible.

The crowd of spectators had gathered; the workmen from all over the shop pause in expectancy; the master workman from his perch on a little platform blows his whistle. Instantly the lid of the jacket apartment is thrown open and the iron clamps of the ponderous traveling crane reach down, like the arms of a devil fish, and grapple the jacket. Although it is seventeen feet long and weighs about twenty-four tons, the crane draws it up and swings it in the air as if it were a paper box. Instantly the workmen rush up and with long brush-tipped poles wipe out the inside, for even a particle of foreign matter may ruin the gun. Then while the spectators hold their breath the jacket is swung above the tube and accurately plumbed so that it will slip down over the tube without touching. It is a critical moment. The jacket is fast losing heat and with it the diameter is

decreasing. If there is too much delay the master knows that the minute fraction of an inch of space—less than one-twenty-fifth of an inch—between the tube and the jacket will grow still smaller and increase the likelihood of "sticking"—thus ruining the whole shrinking process. When the work comes the jacket moves slowly downward until it fits full fifteen feet over the tube, and then the spectators draw sighs of relief. The operation is complete, having taken about fifteen minutes in all. The gun remains in the pit for forty-eight hours to cool and then goes to the lathes again and is prepared for the "hoops" or cylindrical pieces of steel, nine of which are shrunk on while the gun is in a horizontal position.

The largest gun made at the factory has a thirteen-inch throat, is forty feet long, four feet in diameter and weighs about sixty tons. It takes 550 pounds of powder to the load, and the projectile weighs more than 1000 pounds. Its energy is sufficient to send the ball through twenty-six inches of steel at a range of 100 yards. At an angle of forty degrees the gun will throw shot to a distance of fifteen miles.

It requires six and one-half months to build a gun, and the cost is from \$15,000 to \$20,000.

These guns are used in the turrets of the new war vessels. The power of one of the shells fired from such a gun was impressively illustrated at the battle between the Chinese and Japanese fleets of the Yalu River in September last. A shell weighing nearly 1000 pounds struck the Chinese battleship Ping Yuen, crushing through the armor of the armored deck and leaving a great hole through which a torrent of water poured into the hold. A few minutes later the ship went down, carrying her officers and crew with her. The cost of the shell was about \$500 and the cost of the ship \$3,000,000.

A Great Bird Colony.

Within the arctic circle are the great bird colonies. The largest and most remarkable is that of Svaerholt Klubben.

Every inch of this wonderful cliff, which rises about 1000 feet from the water's edge, and is of considerably greater breadth, may be said to be used by the birds. The discharge of a small cannon in the immediate neighborhood will darken the air with millions of birds, but even then a fieldglass will reveal the innumerable ledges white with their undisturbed millions. These consist almost entirely of the small gull, and they are a source of considerable income to the owner of the colony, who lives at the little fishing station close by. About the middle of May every year, by means of a long ladder placed against the foot of the cliff, he proceeds to collect the eggs. Of these there are at most three to each nest, and the number taken averages from 5000 to 10,000 annually, or the produce of, say, 3000 pairs of birds. Hopes are not used for this purpose at Svaerholt, as they are in the Faroe Islands; so that the highest of the above figures represent only a very small percentage of the yearly production of the colony, as far the greater portion of the cliff face, where the nests are packed as closely as they can be, remains absolutely untouched.

The food of these multitudes of birds during the summer months consists for the most part of fish spawn (more particularly that of the codfish, which is abundant in these northern waters,) and of the small crustacea, which are driven to and fro by the currents along the coast in immense masses. To the latter belong the tiny organisms Calanus, Finmarchicus and Euphausia inermis, the favorite food respectively of the whales, Balanoptera borealis and B. Sibaiddii, when these giants approach the mouths of the great fjords in July and August. In winter the famous cliff is completely deserted. By the end of August the young gulls are able to take care of themselves, and all take their departure, to return no more until the following year in the month of March.—Fortnightly Review.

A One-Wheel Sulky.

A Hartford (Conn.) man has invented a one-wheel sulky for trotting horses. It is certainly original enough to receive attention. The seat of the sulky will be directly over the back of the horse—occupying the same relative position over the horse that the ordinary riding saddle does. This would necessarily bring the sulky wheels on the sides of the horse; in case the animal was a sixteen-hand the occupant of the sulky seat would be about as prominent as a pilot on a steamer. The harness would be also of a different pattern than is now in use. The swaying motion of the horse is to be regulated by a steel brace from the shaft tips. The traces will be set on an angle from the wheels to the seat that will aid the propulsion of the sulky. The horse actually trots within the sulky in this new idea, while the rider sits astride and is braced just as in the ordinary racing vehicle, only directly over the horse instead of behind him.—Washington Star.

Wonderfully Prolific.

A sow in Scotland recently dropped a litter of twenty-three pigs, twenty-one of which were alive. Six of these were killed in order not to tax the sow too much, but the other fifteen are all alive. The sow has now had five litters, and the total of the pigs she has brought forth comes to eighty-five, or an average of seventeen per litter. The sow is of no particular breed.—New York World.

Great Britain raises \$95,000,000 from the liquor taxes and \$40,000,000 from the tax on tobacco.



SELECT SIFTINGS.

Lawyers were known in Babylon 2300 B. C.

The inhabitants of Eap Island, in the Pacific, have pink hair.

Before the advent of foreigners in Japan the Mikado lived in absolute seclusion.

Russia and the United States send the greatest number of visitors to the Holy Land.

Of all the Nations of the earth the women of ancient Sparta proved themselves the most heroic.

Three farmers in Fort Fairfield, Me., are going to build a starch factory to work up their potatoes at home.

A Seneca Falls (N. Y.) iceman has placed beneath a thousand tons of ice a roast of beef, which he expects to eat in July.

There is a specimen of the Mission grapevine at Carpenteria, Cal., which has a girth of six feet four inches at the base and is still growing.

A new set of postage stamps has been issued by the Chinese Customs Postoffice to commemorate the sixtieth birthday of the Empress Dowager.

"The Wild Man from Madagasgar" is dead. He was born in Green County, Indiana. He left \$40,000. It is evidently pay to be a "wild man."

At the outbreak of the war seven men were boarding at the Herndon House, Omaha, Neb. Each of the seven afterward became a United States Senator.

The Chinese believe that the water from melted hail stones is poisonous, and that the rain which falls on certain feast days is a sure cure for ague and malarial fever.

Queen Victoria's father, the Duke of Kent, lived for some years in Sorel, Quebec, Canada. A clock supposed to have belonged to him there is now owned in Phillips, Me.

Miss Ellen Tickle, of Heno, Butler County, Ohio, is said to be the smallest full developed woman now living. She is thirty-one years old and weighs but twenty-eight pounds.

Five years ago C. C. Chadwell, colored, removed from Virginia to Madison County, Kentucky, and located on a farm. He was a total stranger, and was so poor that he was compelled to subsist on bread and water the first year. His property is now assessed at about \$2500.

An eccentric peddler recently died at Louisa, Ky. He had represented himself as a foreigner speaking English imperfectly, but was identified after his death as an American and a graduate, with honors, of Harvard. He was disappointed in love thirty years ago, whereupon he fled from home and became a peddler in Louisa.

A United States War Vessel.

Captain R. D. Evans has forwarded an official report to the Navy Department concerning the performance of the New York on her recent trip from New York to Hampton Roads. The average speed of the vessel under natural draft is given as eighteen knots, with a maximum of 19.6 knots. On her official trial in May, 1893, the horse power developed was 7401. On the 12th inst. it averaged 7170.78 for the main engines and 7212.75 as the collective horse power for the main engines, air and circulating pumps. During the trip the auxiliaries in use, in addition to the air and circulating pumps, were one electric light engine, one ice machine, four ventilating engines, one flushing pump, three main feed pumps, four engine room bilge pumps, one auxiliary condenser and one steering engine. The coal used was bituminous and the average amount burned per hour was 7.85 tons. Regarding the average speed of eighteen knots, the speed per ton of coal was 2.23 knots. Captain Evans said: "The coal used caused considerable clinker, and after four hours it was found impossible to remove the clinker from the back of the furnaces, as the sludge bars would slide up over it. With Pocahontas coal and similar conditions I believe the New York could maintain an average speed of nineteen knots under natural draft and probably twenty-two knots under forced draft." Rear Admiral Meade's endorsement on the report reads: "Approved and forwarded, except that I do not quite agree with Captain Evans as to the ship's probable speed of twenty-two knots. I think twenty-one knots the very outside limit, and with the ship's present force that could not be maintained for many hours."

Blessing the Fishing Boats. At the little Breton town of Paimpol the quaint ceremony of blessing the Iceland fishing fleet took place a fortnight ago. It was announced by the clamor of the bells, and after vespers the procession, with sailors at the head, traversed the principal streets, which were doctored for the occasion. On the breakwater the curé of St. Saviour's preached to the 1316 hardy mariners in front of the fifty-six stout boats that were to carry them to the far North. Then, preceded by the cross, the canon blessed each vessel separately, the flag of each dipping in response.—Chicago Times-Herald.

"The Poet of Family Life."

Jonas Lie, the Norwegian author, is known to his countrymen as "The Poet of Family Life." When he celebrated his sixtieth birthday recently, the streets of Christiansand, his home, were decked with flags and bunting; the musical societies combined and sangodes composed in his honor. In the capital itself a grand banquet was held to express the admiration of Norway's most cultured society for their great fellow-countryman.—New York Sun.

Women dentists flourish in Paris. The only drawback to their success is the fact that they are very few of them ever took a course in dentistry. Until recently such a course has not been necessary for those wishing to practice the art, and after a few weeks' private study in an office women have blossomed forth as dentists, to the pain and distraction of their patients.