



AS TO SWEET POTATOES.

Method of Cultivating by Which They Can Be Raised as Cheaply as Irish Tubers.

I made a ridge from 6 to 18 inches high, waited till it rained, after which I waded to my ankles in mud and punched holes with a sharp stick along the top of the ridge, about six inches apart, then stuck the plants down and pressed the mud about them. I did it because I saw others do it; thousands are doing it yet. Don't make a ridge unless you want strings instead of short, thick potatoes. It is time and labor worse than throw away.

When the ground is well pulverized

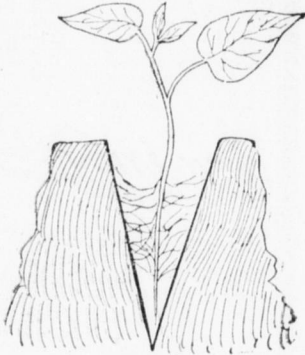


Fig 1 WRONGLY SET PLANT.

and level, I take the double plows and mark off the ground into rows, leaving ridges two or three inches high, in which I plant. This keeps the dirt from covering the plants in cultivation, and a higher ridge than this is unnecessary. Don't plant in the mud. Don't water when planting. It does more harm than good and is a waste of time and labor. Before planting wet the roots thoroughly and sprinkle rich dirt on them till it adheres to every little rootlet. Plant them then before they dry, and every plant will live.

Don't plant too soon. Wait till you see the blackberry bloom. Never plant closer than 18 inches if you want fine potatoes. Don't punch holes. Look at Figs. 1 and 2 and see the right and wrong way. Don't leave half the plant

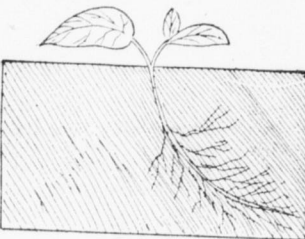


Fig 2 PLANT PROPERLY SET.

above ground to wither and die; one bud out is enough. Don't put in little, short plants, but have them eight to ten inches long, with plenty of roots. Don't set them perpendicular, but as in Fig. 2. Don't leave the dirt loose over them, but slap your foot down over the roots and firm them.

Don't dig holes, but take the plant in your left hand, thrust the right into the loose soil, and lift the dirt you see above the plant of Fig. 2. Just as you raise it, thrust the plant under the back of your hand. Then let the dirt fall into the plant and set your foot on it as you step to the next plant. An expert will take a bunch of 50 plants in his right hand and a foot adz in his right, and, lifting the dirt with the adz, will plant as fast as he walks. My boys can plant by hand 150 feet of row in five minutes. Don't plant the roots toward the south, else the sun will hit the young plants hard. Aside from raising the slips, I can raise a bushel of sweet potatoes as cheaply as I can Irish potatoes.—W. L. Anderson, in Farm and Home.

Three Kinds of Bacteria. Bacteria are merely minute forms of vegetable life. They do not, however, require contact with the earth to grow. Some of them can grow in nothing but air, and others in liquid. Some feed upon the components of the milk and change it into other forms of solids and liquids. Some live in acids. So when the milk is rendered sour by one set of bacteria another set at once begins work to change even that sourness into something else. These changes are indicated by the gases that come from the milk and that give us the sense of smell. There are three general classes of bacteria that work in milk; the harmless, the beneficial and the harmful.—Farmers' Review.

Plant More Gooseberries. The gooseberry delights in a deep, exceedingly rich soil, in partial shade, as recommended for currants, and in thorough mulching. Who, that is acquainted with its different uses and knows the delights of a gooseberry pie, would ever again willingly be without this most healthful of fruits? Currants and gooseberries have never received the attention they deserve. The markets are hardly ever fully supplied. Each year the demand is greater, and no one will make a mistake by planting quite liberally of these most healthful, invigorating fruits.—Midland farmer.

It has taken many years and many generations of cows to produce the special dairy cow. One cross on another breed may undo all the work and care of years. Don't work backward.

COUNTRY IMPROVEMENT.

Cultivation of the Beautiful Now Goes Hand in Hand with Cultivation of the Useful.

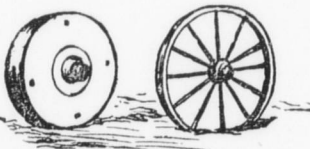
There are places in the country that will not admit of the word improvement, but as we travel about among the farms we are compelled to acknowledge that town improvement societies are very much needed. At Idaho Falls, in Idaho, one of the largest clubs in the state is the Village Improvement society, entirely composed of women. The object of these clubs should be to make the streets clean and beautiful, to encourage private owners to keep their lots and farms beautiful, and their homes teachers of refinement. The women of Clinton, N. Y., have placed boxes in the streets to receive waste papers and similar rubbish. The Rural Art society, of the same town, is planting linden trees, laying out small parks and looking out for similar enterprises, which, while not of little value, are not of much cost. In one of the Ohio towns I notice that two rival clubs are in the field. This is perhaps a good idea, for competition in doing good works as well as in business affairs. The present outlook is for a rallying of all enterprises for the public welfare around the schoolhouse as a center. If this can be brought about town organization will mean something very different from the present disorganization, which gets the state charter. It will place intelligence at the front and tend to disable the saloon and similar influences.

Meanwhile civic improvement goes forward on parallel lines with country improvement. It seems to be accepted as an assured fact that cities are to spread out hereafter over a very much larger territory. The executive board of the American League for Civic Improvement met recently at Springfield, O. The league is to hold a week's convention at Chautauqua for discussing all sorts of municipal reforms. It is believed that political reform and physical reform must go on together. The Spokane Floral association, which is a committee of the State Federation on Forestry and Outdoor Art, issues a year book showing how best to advance the study and the work of civic improvement, especially in the way of planting flowers and trees. There really is no way any longer of keeping civic art and rural art separated. We believe the day is not far off when every farmer will consider the cultivation of the beautiful just as much a part of his business as the useful. Then our farms will be connected together with long lines of highways—mostly trolleyways—all of which constitute extended public parks.—E. P. Powell, in N. Y. Tribune.

BROAD-TIRED WHEELS.

They Are Far Better for Ordinary Farm Work Than Those Now in General Use.

This picture of two wheels, one a wide tire and the other a narrow, shows why the former is easier to draw and is better for ordinary farm work than the latter. The narrow tire sinks into the soft soil and the team is all the time drawing the load uphill, while the wide



WIDE AND NARROW TIRES.

tire rolls over the surface on a level. Besides the difference in draft the rut cut by the narrow tire works injury to the crop by mashing it below the surface, and checking it from preventing all further growth, and by making drains into dead furrows or down hills to carry off soluble fertility, or, perhaps, start gullies. Every farmer needs one wagon with low, broad-tired wheels.—Farm Journal.

Cheap Material for Roads.

It has been discovered that burnt gumbo is a most serviceable material for use on country roads. It is not quite as durable as is crushed stone, but is far superior to dirt. Its cost is slight, as it can be produced without the use of skilled labor. The burning of the gumbo removes the quality that when the clay is wet causes stickiness. This burnt clay is used for capping the road. The road-bed must be well drained and well built before the top of burnt clay is put on. It is claimed that if people will adopt the burnt-clay idea, roads as good as those in France can be constructed in this country with no additional expenditure over that now being required by the roads.

How to Put Up Alfalfa.

This is the way a South Dakota farmer puts up alfalfa: For stack bottom use any old material eight or ten inches deep, seven or eight feet wide and as long as you need. Have some good dry hay or straw ready. Cut the alfalfa when about half in bloom in driest part of day and let it thoroughly wilt or cure until you can press it into a wad between your hands. Haul to stack and put a layer of eight or ten inches of alfalfa; then dry hay or straw, then alfalfa a foot; hay or straw eight or ten inches, and so on until as high as wanted. Dry material must be eight inches in middle to nothing at the edge of stack. This is the scientific and only way to cure alfalfa, and it makes the best all around food in the world for all farm animals.



THE POWER OF SPEECH.

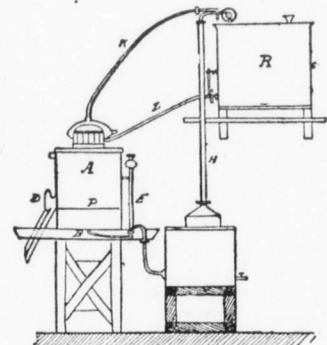
Prof. Cunningham Describes It as the Result of a Slow Process of a Natural Growth.

Speech is the result of a slow process of natural growth, and there is no human race that does not possess it. In the present state of the world some philosopher were to wonder how man ever began to build those houses, palaces and vessels which we see around us we should answer that those were not the things that man began with. The savage who first tied the branches of shrubs to make himself a shelter was not an architect and he who first floated on the trunk of a tree was not a navigator. So it is with speech, which grew from rude beginnings. All the more intelligent animals can express simple conditions of mind both by sound and gesture. The dog can emit four or five sounds each fully understood by his companions. The common barnyard fowl has from nine to twelve distinct vocal sounds, all of which are comprehended by its chickens and by other fowls. There can be no doubt that the speech of man arose, in the beginning, from similar sources. Gesture speech was frequent. Many sounds were imitative. Purely conventional and non-imitative sounds were adopted for convenience, just as deaf mutes now invent arbitrary sounds to stand for the names of friends, etc. It is not precisely true, then, to say that "language begins where interjection ends." However it originated, it is the condition of progress. As Romanes said: "A manlike creature became human by the power of speech." When did speech originate? Romanes thinks that our human ancestor may have been in the age of flint when he added to gesture, vocal tones and facial grimaces the power of speech. The foregoing sentences are a very free condensation of an address by Prof. Cunningham.

AN IDEA FROM FRANCE.

Method of Extracting Oil from Olive Pulp Likely to Prove Useful in United States.

A method of extracting oil from olive pulp which has long been in vogue in Southern France is probably available for vegetable oilcane also, and is likely to prove useful in America. Consul General Skinner, writing from Marseilles, describes it, in a letter to the state department. The essential feature of the system is that some chemical solvent, like naphtha, is employed to withdraw the oil from the pulp, and is then separated from the oil by distillation. Naphtha, gasoline or "petroleum essence," as the French call it, was long the favorite agent, and some of the big oil manufacturers at Havre operate their own petroleum refineries in connection with their olive oil works. But sulphide of carbon is now coming into favor, because it is non-explosive and cheaper. In Mar-



FRENCH OIL EXTRACTOR.

seilles large quantities of sulphide are produced for this purpose. However, the oil obtained with the aid of naphtha, while sold for soap making and not for the table, has a better odor than that which is extracted by the sulphide. The remaining meal is promptly dried to prevent fermentation, and sold for fertilizing purposes.

The general arrangement of the apparatus is shown by the accompanying diagram. The raw material is placed in the receptacle A, and an equal quantity of sulphide drawn through the pipe L from the reservoir R. The stuff rests on a false bottom, P, under which are coils of pipe. Steam from E is introduced thereto, and the mixture comes to a boil. Much free sulphide evaporates, passes up through K, and, condensing, falls into the reservoir for use again. After a time the oil and remaining sulphide in A drain off through the pipe B into a tank C. Here the temperature is kept high enough gradually to vaporize most of the solvent, which goes up through H into the reservoir above. A little live steam is now let into C to drive off the remaining sulphide (or naphtha), thus leaving the oil odorless. If there be any sulphide left in the pulp, some steam is turned on in A to save it by sending it up in the form of vapor to R. The pulp is discharged through an opening at D.

Wasps as Pulp Makers.

The nest of the tree wasp or hornet is made of a true paper, wood being ground to pulp by the jaws of the wasp and treated with an adhesive matter secreted in the creature's mouth.

THE WATER-SCOPE.

A Man Standing in Hogshead with Glass Bottom Can Scan Depths of River or Lake.

The men who drive logs along the swift rivers and across the shallow lakes of northern Maine lead lives that are full of peril. At the sharp turns of the rushing streams, where logs are prone to run aground and form dangerous and expensive jams, men stand in the cold water waist-deep for hours at a time to fend off the oncoming timbers, and if one chances to meet with a log under strong headway, he is frequently swept from his feet and goes down stream among the great sticks of spruce and pine.

On the lakes, where the rafts have to be propelled by headwork and oars, the danger is none the less imminent. A misstep on a rolling log or a bad



LOG-DRIVER'S WATERSCOPE.

calculation in leaping from one timber to another means a cold bath in the lake, and if no companion is at hand to give him a lift, his death is but a question of a few minutes.

In view of the fact that fatalities attend the drive from the time it is set afloat far up river, in May, until it reaches Pea cove boom, 200 miles away, in August or September, the woodmen have devised a novel piece of mechanism for finding bodies that lie below the water.

The invention consists of a molasses hogshead with one head removed and a pane of window glass cemented above a hole cut in the remaining head. The hogshead is set on end, with the end containing the glass in the water.

Two green and heavy logs are then lashed to the sides of the hogshead, causing it to float as deeply as possible in the water. The logs are held together by spiked cleats fore and aft, so a man can stand on the improvised raft and scull it back and forth. As soon as the mechanism is completed a small man gets into the hogshead, which is closely covered at the top, to exclude the light.

When the man has been inside a few minutes his eyes become accustomed to the darkness, so that by looking through the pane in the bottom, the only point where light is admitted, he is enabled to see to a depth of 20 and 30 feet and distinguish objects lying upon the bottom of the waterway.

As the hogshead is capable of holding but little air, the man cannot remain inside for long. As soon as he comes out he takes the scull oar while his companion goes inside to scan the depths. In this manner many bodies have been recovered and watches lost overboard and cant dogs, which have slipped from the hands of careless drivers, have been restored to the light of day.

The instrument which the lumbermen use has been called a water-scope, a term which is neither English or Greek, though compounded from both languages.

The name of its inventor is unknown, and there is no patent to protect the idea. Woodmen say it came into use about 25 years ago. Previous to that time the man who wished to spy upon the floor of lakes and streams used a wooden tube made of four narrow boards, the lower end being provided with a light of glass.

As boards are hard to find in the wilds of Maine, while empty molasses hogsheads are to be had at every lumber camp, the hogshead water-scope was no doubt adopted because it was the only thing available. Since the first one was so constructed no other kind will be used.

Quarrying Stone with Water.

A remarkable quarrying feat was recently accomplished at Rubislaw quarries, Aberdeen, Scotland. A large stone had been drilled, ready for splitting, when the thought struck the foreman that the severe frost which prevailed might be utilized. Water was poured into each of the drill holes, and it was found after a couple of days that the block of granite had completely burst open. An idea of the immense power of the frost will be gathered when it is stated that the stone thus detached measures 12 feet by five feet, and has a weight of about six tons.

A Valuable Dust Storm.

The great storm of red dust that swept up from Africa over Europe last year performed a service for which men of science should be grateful, by coloring the glaciers of the Alps on a grand scale, and thus producing a stratum in the vast ice streams the red hue of which will render it recognizable for many years. The importance of this consists in the fact that by noting the position of the dust-stained layer the movements of the glaciers can be studied more accurately than would be possible without the aid of so extensive and distinct a marking.

MEDICAL EXAMINER

Of the United States Treasury Recommends Pe-ru-na.

The Women Also Recommend Pe-ru-na.

Miss Blanch Grey, 174 Alabama street, Memphis, Tenn., a society woman of Memphis, writes:

"To a society woman whose nervous force is often taxed to the utmost from lack of rest, and irregular meals I know of nothing which is of so much benefit as Peruna. I took it a few months ago when I felt my strength giving away, and it soon made itself manifest in giving me new strength and health."—Miss Blanch Grey.

Mrs. X. Schneider, 2409 Thirty-seventh Place, Chicago, Ill., writes:

"After taking several remedies without result, I began last year to take your valuable remedy, Peruna. I was a complete wreck. Had palpitation of the heart, cold hands and feet, female weakness, no appetite, trembling, sinking feeling nearly all the time. You said I was suffering with systemic catarrh, and I believe that I received your help in the nick of time. I followed your directions carefully and can say to-day that I am well again. I cannot thank you enough for my cure."

Peruna cures catarrh wherever located. Peruna is not a guess nor an experiment—it is an absolute scientific certainty. Peruna has no substitutes—no rivals. Insist upon having Peruna.

A free book written by Dr. Hartman, on the subject of catarrh in its different phases and stages, will be sent free to any address by The Peruna Medicine Co., Columbus, Ohio.

Catarrh is a systemic disease curable only by systemic treatment. A remedy that cures catarrh must aim directly at the depressed nerve centers. This is what Peruna does.

If you do not derive prompt and satisfactory results from the use of Peruna write at once to Dr. Hartman, giving a full statement of your case and he will be pleased to give you his valuable advice gratis.

Address Dr. Hartman, President of The Hartman Sanitarium, Columbus, O.

Senator Proctor's Finest Speech.

Senator Proctor, of Vermont, says the finest speech he ever made consisted of only four words. It was in regard to Senator Hoar's sarcastic little thrust in a speech directed at the Green mountain senator. He said: "No man in Vermont is allowed to vote, unless he has made \$5,000 trading with Massachusetts people." Wherein Proctor said: "And we all vote."—Chicago Inter Ocean.

Don't Get Footsore! Get Foot-Ease. A wonderful powder that cures tired, hot, aching feet and makes new or tight shoes easy. Ask to-day for Allen's Foot-Ease. Accept no substitute. Trial package FREE. Address A. S. Olmsted, Le Roy, N. Y.

The Way of It.

A man had to go away from home to have L.L.D. or Ph.D. conferred upon him, but the COD is brought right to his door.—Baltimore American.

Piso's Cure is the best medicine we ever used for all affections of the throat and lungs.—Wm. O. Endsley, Vanburen, Ind., Feb. 10, 1900.

The trouble with experience is, nearly every man thinks he is so smart that he can win where others have failed.—Atchison Globe.

To Cure a Cold in One Day Take Laxative Bromo Quinine Tablets. All druggists refund money if it fails to cure. 25c.

"Why didn't you tell Toughboy that he lied?" "My telephone is out of order."—Norristown Herald.

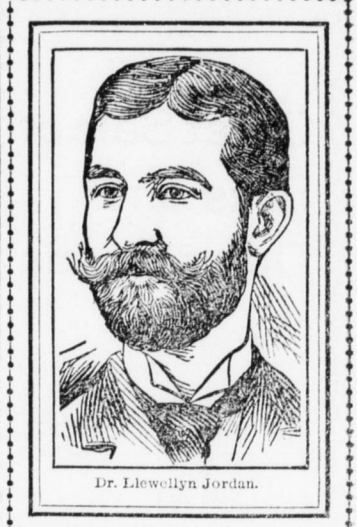
Daylight and truth meet us with clear dawn.—Milton.

THE MARKETS.

New York, July 19, 1902. Flour—Fairly active. Wheat—No. 2 red 79c. Corn—No. 2 at 71c. Oats—No. 2 white 60 1/2c. Hay—Steady. Beaves—Steers \$5.65@8.00. Veals \$4.50@7.25. Sheep—Firm at \$2.00@4.50, lambs \$4.75@6.75. Hogs—State hogs \$8.00.

Cleveland, July 19.—Flour—Winter wheat patents \$4.00@4.20. Wheat—No. 2 red 74 1/2c. Corn—No. 2 yellow 70c. Oats—No. 2 white 58 1/2c. Hay—No. 1 timothy \$12.50. Eggs—Strictly fresh 19c. Cheese—York state 11 1/2@12c. Butter—Best creamery 22 1/2c. Potatoes—New 65@70c. Cattle—Choice steers \$6.40@6.50, best calves \$7.00@7.25. Sheep—Best \$4.00@4.25, lambs \$4.50@6.25. Hogs—Yorkers \$7.80.

Toledo, July 19.—Wheat—Cash 77c. Corn—Cash 65c. Oats—Cash 49c. Cloverseed—Cash \$5.07 1/2. East Liberty, July 19.—Cattle—Choice \$7.15@7.50, good \$6.00@6.30. Hogs—Mediums \$8.10, heavy Yorkers \$7.90. Sheep—Best wethers \$4.15@4.30, choice lambs \$5.75@6.50. East Buffalo, July 19.—Cattle—Strong. Veals \$6.75@6.90. Hogs—Heavy \$8.00@8.15, pigs \$7.80@7.90. Sheep—Lambs \$6.25@6.50, best mixed sheep \$4.00@4.25.



DR. LLEWELLYN JORDAN, Medical Examiner of the U. S. Treasury department, graduate of Columbia College, and who served three years at West Point, has the following to say of Peruna:

"Allow me to express my gratitude to you for the benefit derived from your wonderful remedy. One short month has brought forth a vast change and I now consider myself a well man after months of suffering. Fellow sufferers, Peruna will cure you."

Peruna immediately invigorates the nerve-centers which give vitality to the mucous membranes. Then catarrh disappears. Then catarrh is permanently cured.

A New Train to St. Louis.

"Big Four"

"Exposition Flyer."

Table with train routes and schedules: Lv. Cleveland 5:00 P. M., Lv. Shelby 6:35, Lv. Crestline 6:50, Lv. Gallon 7:00, Lv. Marion 7:27, Lv. Bellefontaine 8:25, Lv. Sidney 8:54, Lv. Union City 9:42, Lv. Muncie 10:28, Lv. Anderson 10:55, Ar. Indianapolis 11:45, Ar. St. Louis 7:30 A. M.

West and Southwest

For further information and particulars call on Agents "Big Four Route," or address the undersigned.

Advertisement for Montgomery Ward & Co. "WE WANT YOUR TRADE" with details about catalogues and prices.

Advertisement for HAZARD GUN POWDER with a graphic of a gun.

Advertisement for OLD SORES CURED and HAMLINS WIZARD OIL SORE FEET.

FREE to MOTHERS of suffering babies. Send to Henry C. Blair, Walnut & 8th St., Philadelphia, for a Testimonial Necklace. Money refunded if not satisfactory. Fifty cents, mail, prepaid.

Large advertisement for CASTORIA For Infants and Children, featuring the signature of J. C. Fletcher and the text "The Kind You Have Always Bought".