THE OSAGE ORANGE AS A TIMBER TREE.

L. J. Templain, in the *Practical Farmer*, says: "This tree is a native of Texas, Arkansas and the Indian Territory, where it grows 60 or more feet high, and 16 to 20 inches in diameter. The timber is very strong, elastic and durable. It has long been very popular as a material for bows among the Indians of the South, hence called by the French bois d'arc or bow wood. From this it is shortened in Texas to bodock. This tree, though often injured by severe freezing when used as a hedge plant, will probably be found quite hardy in most parts of this country when grown in a tree form; the continual pruning to which it is necessarily subjected to keep it within proper limits as a hedge plant tends to weaken its vitality, and renders it more liable to injury from frost. As a shade tree it has decided merits. When grown alone it becomes quite bushy, its branches somewhat drooping; its leaves are quite glossy and shining and it has the good quality of not being much subject to the attacks of insects. For many purposes in the arts the timber of this tree is well adapted, having the qualities of toughness, hardness, durability, and of scarcely being affected at all by the hygrometric condition of the atmosphere. It has been employed largely in shipbuilding, being, on account of the above qualities, well adapted to many purposes in that art. As a material for making wagons the Osage orange is said to have no equal. Its solidity, elasticity and durability are equal to the best of oak, while its ability to resist the effects of the changes of the weather without shrinking or swelling, makes it superior to all other kinds, especially for wheels. It is found that while wheels made of oak or hickory require the tires to be shrunken once a year, those made of the *Maclura* will run on almost indefinitely without resetting or getting loose. Being a fine grained wood and capable of receiving a high polish, the timber of this tree is found well adapted to the manufacture of furniture and cabinet ware. The Osage orange is easily propagated from seed, and can be transplanted with almost invariable success. In making a plantation of it for timber it is best to raise the seedlings to one or two years in a nursery, as they can be cared for much more cheaply in that way than when planted where they are to remain. The nursery should be planted where a grove of the trees is wanted, as the mutilated roots that will be left in digging will send up a heavy growth of suckers. When set for a permanent grove they should be placed rather closely, say four or five feet apart each way, as they are inclined to grow spreading and drooping where they have plenty of room. The close planting will compel them to run up for light and air, and when they begin to become crowded every alternate one may be taken up and destroyed or transplanted to other ground. Should any of the plants fail to grow, their place should be supplied with good strong plants at the next setting season; and if they make a weak or straggling growth they may be cut back to the ground during the winter or early spring, when they will send up one or more vigorous shoots, only one of which should be allowed to grow and make good trees. A little care in pruning off side branches will aid in keeping the tree in a proper upright form and throw the vigor of the tree into upward growth. If a heavy mulch of straw, hay or similar material can be given, it is the best treatment they can have. In its absence they should have thorough culture, similar to corn, till they shade the ground quite well. Plants can be had of almost any tree dealer or nurseryman. Every farmer would do well to plant out a grove of this timber, as, even though he may be advanced in life, still it may prove to be a source of profit, even in his lifetime, in the way of stakes, posts, etc."

Mound Builders.—At the last meeting of the Philadelphia Academy of Sciences, Mr. John Ford described a group of eight burial mounds opened by him near Coup's creek, Macoupin county, Ill. Each of the graves was lined with stone slabs, and after the bodies were placed in position within, earth had been packed around them so as to fill the inclosure. All the skeletons found in these graves faced the east. In one of the graves four skeletons were found, seated in two pairs, the knees of one pair pressing against the backs of the other. The arms were crossed. In the right hand of each individual thus interred, a large marine shell (*Busconon perversum*, Linn.) had been so placed that the small end of the shell rested in the hand and the large end in the hollow above the left hip. Within each shell what appeared to be the bones of a child were found, whose skull had been crushed before burial, the skull protruding beyond the aperture of the shell. It is thought that these infants were sacrificed to the dead.

Firing with Petroleum.—Experiments have recently been successfully made in Italy on a method of burning petroleum under steam boilers, which consists simply in pouring the oil over a thin layer of asbestos. The petroleum burns with intense heat, while the asbestos, being incombustible, is not affected, but serves as a means of retaining the oil and acting as a wick. During the experiments sheets of paper placed beneath the furnace were not injured, although the heat from the oil above was most intense.

Marine Sounding Line.—Mr. Ch. Tardieu employs a spherical envelope of caoutchouc, communicating with an iron reservoir by means of a small tube which is provided with a valve. The envelope being filled with mercury, any increase of external pressure forces into the reservoir some of the mercury, which cannot return on account of the valve. The weight of the mercury determines the pressure, and consequently the depth of the water.

Spectrum of Electric Light.—M. P. Desains finds that the spectra of electric light are very similar to those of the solar rays. They are less extensive, particularly on the side of the violet; but the curves of intensity exhibit but slight differences in the region of greatest heat.

PLAIN PREPARATIONS OF FOOD.

A housewife writes to the *Farm Journal* some recipes for the preparation of plain, wholesome dishes for making up a variety in food from the common staple articles to be found on the farm. She says: Any housekeeper will find, by experimenting, that much can be done to make such a variety without adding much to the usual grocery bill. Let me suggest a few ideas:

First, a great variety of bread may be made. Everybody bakes white bread, but usually in each family it is all of one kind, and the task becomes tiresome. Good hop yeast bread is probably the most generally acceptable as a standby, but there are but few who occasionally would not relish a loaf of salt or milk rising bread, nicely made, or if in the habit of using the latter kinds, a loaf of hop yeast.

To make salt rising: At night stir in a quart bowl a thin batter of lukewarm water and corn meal to half fill the bowl; keep where it will retain warmth through the night. In the morning, early, make a sponge in the center of a pan of warm flour (made so by stirring it on the stove a few minutes), with warm sweet milk and water, half of each, or less milk if you have not so much to use, with salt to suit. Keep warm, and by the time you can attend to it after breakfast, it will be foamy light; mix, make into loaves, when light bake. The secret of success is in not allowing the bread in any stage to chill, and in good baking. The oven should not be hot enough to scorch, nor cool enough to allow the dough to run. A moderately quick heat at first is best, decreasing from the time the loaf is crusted over. It does not require as long baking as yeast bread.

Graham bread can be made the same way; is made better with a little sugar or molasses and shortening added.

Steamed brown bread is excellent. To make, 1 quart sour milk or butter-milk, 1 teacup molasses, tablespoonful shortening, 1 teaspoonful salt, 1 cup white flour, and corn meal to make a pretty stiff batter. Last, a teaspoonful of soda. Put in a basin, which set in your steamer, and steam one and one-half hours; then set in the stove oven for half an hour. If more convenient it may be put into a deeper vessel and set in a kettle of boiling water, instead of steaming.

The same process and proportions, except making thinner, makes a nice pudding, to be eaten with syrup or butter, or a boiled sauce, or cream and sugar, and this may be varied by the use of ginger in the pudding, by different fruits, soaked or chopped up or stewed. Suet added makes a suet pudding. Everybody makes Johnny cake. At the risk of telling what all know already, I give my rule: 1 pint sour milk; 3 eggs (less will do); one tablespoonful butter or other good shortening; teaspoonful salt; corn meal to make a thin batter; half a teaspoonful soda. Then comes the secret of its goodness—bake quick, and eat as soon as baked.

A FRUIT-RIPENING HOUSE.

The Baltimore *American* says: Just at this time the banana trade is the feature of the fruit business, and dealers are handling large quantities of the West India product, of which several cargoes have lately been received. The fruit is not always ripe when brought here, and, to hasten what would otherwise be left to time to accomplish, a firm on Pratt street have adopted the West India plan of using a ripening house, which they have just constructed and which is the only one in the city. It has been found that fruit ripened in this way is really superior to that which arrives at maturity in the usual manner, and that it retains a freshness and flavor not found in time-ripened bananas. The process used by the firm named is an interesting one and merits a description. Two large rooms were partitioned off in their warehouse, in the construction of which the main object was that they should be perfectly dark and as near air-tight as possible. Stringers, with hooks to hang the bunches on, were placed across the room, and gas attachments made to heating pipes which give out no light. Thermometers were then placed in different parts of the room, and, the green fruit having been hung inside and the proper temperature obtained, the rooms are closed tightly, only to be opened to inspect the condition of the fruit. In a short time the green banana begins to turn white at the stem, and in a few days the entire bunch assumes the same color, retaining its firmness, and is then ripe and ready for market. The operation is a very neat one, and requires care to prevent the fruit being subjected to too much or too little heat. The firm have about two thousand bunches of fruit undergoing the process now, one bunch of which is over five feet long and holds about two hundred and thirty bananas, the shortest of which is five and a half and the longest eleven and a quarter inches in length.

Sun Spot Cycles.—In attempting to establish connection between sun spots, cyclones and rain-fall in India, Mr. Henry Jeula, a resident of that country, says that it is pretty well known that the maximum and minimum of sun spots alternate in cycles of about eleven years; and the figures given establish that about the minimum periods there have been drouths in India, followed by famine. Although the losses of ships do not exhibit the same regularity, there are indications that the periods of minimum disturbance on the sun's atmosphere are reflected in that portion of the world in destructive cyclones.

Cutting Cast Iron Tubes of Large Calibre.—An apparatus for this purpose, invented by Reishauer and Bluntschli, of Zurich, is described in the *Schweizerisches Gewerbeblatt* for 1876, p. 130. It is constructed of three cutting wheels, resting in stirrups which are pressed upon the tube by a connecting vice-screw. A cutting iron, between two of the cutting wheels, is pressed against the tube by a second screw, and the whole apparatus is turned around the tube by hand.

A NEW PROCESS IN SUGAR MAKING.

It is stated that a new process for clarifying cane juice without the use of lime has been successfully tried by Mr. Eastes, the inventor, at the mill of Mr. Dart, of Indooroopilly, in the mill of Mr. Dart, of Indooroopilly, in Queensland. The principles of the process have not yet been divulged. The canes are, however, ground in the usual manner, and the juice allowed to run in the clarifiers; here Mr. Eastes' operations commence, the invention consisting in the treatment of the cane juice with certain chemicals which materially alter the color and viscosity of the liquor, the increase in the quantity of molasses attendant upon the use of lime being avoided. At the trials the freedom of the liquor from glutinous matter was particularly noticed, the liquor feeling quite warm to the hand. When the liquor ran from the clarifying box to the cleaning battery, it boiled with a clear white foam upon it, and scarcely any skimming took place. Less steam was needed for boiling in the vacuum pan. In was needed for boiling in the vacuum pan. In a report given by the *Queenslander* it is stated that a perfect crystal of large size was formed, and that had there been sufficient liquor to fill toe pan the crystals would have been of an unusually large size. The curing was soon disposed of, the liquor—not molasses—running away to the tank after leaving a basket of 1,788 pounds of beautiful clear white sugar perfectly dry in three minutes. It is also stated that the green tinge of the sugar as ordinarily made from the same cane is entirely removed. The density of the liquor was 10° Beaume. It has been suggested that the clarifying agent is hypochlorite of sulphur, but Mr. Eastes asserts it to be perfectly innocuous, and that it might be partaken of in the form in which it is employed; it is also stated that there is no probability of the sugar deliquescing. One of the most important points is that the liquor running from the vacuum pans as a vehicle for the sugar is not molasses, but purely crystallizable liquor, which requires no further clarification, and can be returned, after heating, to the pan, where it is entirely converted into sugar equal to the first, and not, according to the *Queenslander*, a particle of molasses made. If the reports upon this process are true—and at present we have no reason to doubt them—Mr. Eastes' invention is one which will largely revolutionize the manufacture of sugar.

Sleeping Rooms.—The air which passes out of the lungs is wholly innutritious. If rebreathed without any admixture of other air, it would induce instant suffocation. It contains a large amount of carbonic acid gas. This gas is condensed by cold, and falls to the floor; heat carries it to the ceiling; hence the practical fact, that in warm weather those who sleep on the floor breathe the purest air; while in very cold weather the higher one sleeps above the floor, the better is the atmosphere. Hence, in a warm room, sleep as near the floor as possible; in a cold room, the higher the bed is, the better. A striking illustration of one branch of the statement is found in Dr. Hall's new book on "Sleep." When the jail-fever was raging in England, it was the custom to hand the food and water to the prisoners through a hole in the floor above them. A case is mentioned where the jailer and his wife died in one night in consequence of the effluvia of the prisoners' cell below; while the prisoners themselves continued to live, showing conclusively the concentrated malignity of the air at the ceiling, as compared with that on the floor. The same principle has an illustration in the narration in the same pages, of the terrible incidents in connection with the "Black Hole of Calcutta," where it was speedily noticed that relief was given by sitting down on the floor. From these statements, it is clear that it is better to have a fire in the fireplace in a close room in winter than to have no fire; and for two philosophical reasons—the fire rarefies the carbonic acid gas, and compels it to seek the ceiling; besides, it creates a draft up the chimney, thus causing cold air to come in more copiously.

Stopping Advertisements.—We have frequently received letters from readers asking whether such and such a "firm, which recently advertised in this paper has suspended," and we know that advertisers do not always consult their best interests by removing their names from before the people. We believe that the following from the *Engineer* is very true; "Certain firms try to economize by taking out their advertisements occasionally; they might as well take down the sign over their doors. Advertisements should be continuous. Any idea of discontinuing them for a period, however brief, with a view of saving, is a mistake which leads only to disappointment and loss. It involves not only the loss of time during which the advertisement ceases to appear, but the additional loss of time required to bring the public interest up to the point at which it left off. The proverb 'out of sight out of mind' is nowhere more applicable than in the case of an advertisement."

A Novelty in Railway Construction.—It was until recently the intention of the Boston, Winthrop and Point Shirley Railroad Company, to use 40 pound T rails, but the *Iron Age* says that after investigation and by indorsement and advice of several of the best railroad engineers it was decided to use 20 pound Angle rails, bolted to substantial wooden stringers, which are placed upon ordinary ties, and by which dangers proceeding from broken rails are avoided, and a large saving made in cost of construction. We believe the "Angle" rail is named after its inventor, Mr. Angle, of Chicago. The employment of the stringer or sleeper is a novelty in modern railway practice, we think. Formerly sleepers as well as ties were used, and some marked advantages were claimed for them over the plan of using cross ties alone. A new form of rail may develop the advantages of sleepers over ties, and give us a new method of construction which shall have the good points of each.

The aggregate Internal Revenue receipts for the fiscal year to date have exceeded the total receipts for the same period during last year. The returns already foot up an excess of $111,000,000, and the impression at the Department is that full receipts for the year will fall little, if any, below the estimate of $120,000,000.

HINTS TO FLOUR MILLERS.

Our milling readers will be interested in what John M. Truax, a prominent and practical New England miller, in a recent communication to the *Millstone* has to say upon the subject of fast and slow grinding:

To my mind, the reasons given for fast or slow grinding have not been shown. The quantity to be ground must depend upon the texture or density of the stone, the draft, the number and depth of furrows, and the grinding without heating. No more grinding should be done than can be done without heating. The heating is the stopping spot. The quantity that every mill ought to grind is that quantity that can be ground and not heat, whether it is five, 10, or 20 bushels per hour. If every miller will observe this as his guide, he will do the best work that he is able to do.

In speaking of heating, I mean to say that the grain should not be so heated by pressure or rubbing, as will start the juice or essential oils of the grain. If the grain oil is started by friction, that friction produces heat, and that heat dries and evaporates the grain juice, and the virtue of the flour is impaired. Any amount of cooling will not repair the damage done by heating. The steam that rises from the hot running mill is the vapor from out of the essential oils of the grain, and is lost in the bread. To recommend the grinding of 10, 15, or 25 bushels of wheat per hour is bad advice, imprudent. Millers differ in the selection of stones, and differ about their dress, and the motion of their mill. One will have one kind and way, and another another kind and way; but whatever way they select, when they go to grinding, their quantity per hour should be that which they can grind and not heat, whether it is three, five, 10, or 20 bushels per hour. Do not impair the substance for the bulk per hour. Blood heat is as high as can be warranted without impairing the product. It may be an ambition to grind fast, but an old adage is "haste makes waste." If millers are ambitious, let that ambition be applied to the making of a perfect running mill. Select the very best buhrs, and put in a thoroughly common sense dress; a dress that will granulate the whole kernel as nearly as possible. Keep the stones as far apart as possible, and keep the texture or grain of the stones clean. Let this be the miller's ambition. But stop adding to quantity when the mill is at blood heat, and as much less heat as they are able to, and let the bread makers and eaters have in the flour all the virtue that Mother Earth has produced.

THE EFFECT OF TOBACCO ON THE HUMAN SYSTEM.

In the fourth annual report of the Michigan State Board of Health, Dr. Scott relates something new in the influence of tobacco on the human system, as follows: "There has come under my notice for several years, but more particularly during the last two years, a kind of rheumatic condition of the walls of the chest. The patient complains of a dull, heavy pain in the chest walls. The disease in a large majority of cases is confined to the left side. The pain is circumscribed and limited to a space of not more than two inches in diameter, just below and a little to the left of the left nipple. At times the pain is very severe and always constant day and night, when the patient is awake. I have investigated the disease to some extent, and find it to be more common among tobacco users, especially those who use the weed to excess. Patients suffering from this complaint invariably come to their physician with the belief that they have heart trouble. I have not found signs of organic lesion in any of the cases that I have examined, but there does exist in some of them what might be called 'irritable heart.' I am convinced that the greater number of the cases are the result of intemperance, either in the use of tobacco or other stimulants, for the reason that when the patient abstains from the use of them for a short time, his pain ceases and his condition improves. In one case, where the patient abstained from the use of tobacco for 13 months, the pain entirely ceased; but at the end of this period the gentleman recommenced the use of tobacco, and after three weeks' use the old pain returned with all its severity. I am certain that quite a number in this vicinity are receiving treatment for heart disease, when if they would reform in tobacco using they would speedily recover."

Webster and the Stage Driver.—On one occasion Webster was on his way to his duties at Washington. He was compelled to proceed at night by stage from Baltimore. He had no traveling companion, and the driver had a sort of felon look which produced no inconsiderable alarm in the Senator. "I endeavored to tranquilize myself," said Webster, "and had partly succeeded, when we reached the dark woods between Bladensburg and Washington—a proper scene for murder or outrage—and here, I confess, my courage again deserted me. Just then the driver turned to me, and, with a gruff voice, inquired my name. I gave it to him. 'Where are you going?' said he. The reply was, 'To Washington. I am a Senator.' Upon this the driver seized me fervently by the hand, and exclaimed, 'How glad I am! I have been trembling in my seat for the last hour; for when I looked at you, I took you to be a highwayman.'"—*Boston Evening Transcript.*

Source of Electricity in Living Bodies.—It is requisite that a few words should be said relative to the source from whence the electricity in the system is derived. With every breath of air which our lungs inhale, the venous blood is not only oxidized and transformed into arterial blood, but it is also charged with electricity, produced by the condensation of the air, which takes place by the pressure through the bronchial tubes of the lungs, during the act of exhalation. That this is actually the case is proved by the experiment of Dr. Kincke, of Berlin, showing that currents of electricity are engendered by pressing an aqueous liquid or damp air through a membrane of bladder, or silk, or even through a diaphragm of sulphur in a powdered state; the greatest quantity of electricity, equal to that generated by a Daniell element, being yielded by the latter.