

A Diversified Agriculture.

DOES SAP FLOW UP OR DOWN?

Maple sap is mostly water and sugar. The sugar is all manufactured in the green leaves and a part of it stored in twigs and trunk of trees to be used in early growth of the next season. The water is all absorbed from the soil. Experiments made in Jan show that the wood is then saturated with sap—about 40 per cent of its weight at that season being water. If the entire tree weighs 10,000 lbs, there is in it some 4000 lbs of sap, and if this contains 3 per cent of sugar there would be in the tree some 120 lbs of sugar in solution in the sap.

During the sugaring season there is probably little movement of this sap within the untapped tree, but this sap may be under great pressure. The pressure, on a good sap day, may rise in such a tree to the startling amount of over 20 lbs to the square inch, as registered by steam pressure gauges used in our investigations. When this pressure is relieved by tapping at any point there is a tendency to drive the sap from all directions out through the tap-hole.

Careful experiments indicate that the sap moves very easily and rapidly with the grain of the wood, but very slowly if at all across the grain, and that, as a result, the sap flows into the tap-hole from above and below, but not to any appreciable amounts from the sides. Two or more tap-holes on different sides of the tree will therefore drain more sap from the tree than will one hole. These experiments indicate also that the upward and downward flow of the sap in the tap hole is about equally rapid. Sap, at sugaring time, flows both up and down, but not laterally around the tree trunk.—[Vt. Experiment Sta.]

A Beautiful Pheasant—The illustration shows a beautiful and exceedingly rare variety of pheasant found in the Himalayan mountains. The "Austra-



THE HIMALAYAN PHEASANT.

lion hardly does the bird justice, because of the wonderful brilliancy of its plumage. The Himalayan pheasant succeeds fairly well in aviculture. It deserves more attention than it has received as an ornamental bird.

To Make Charcoal, cut the wood 4 ft long and have it as near the same size as possible. Level the ground where the charcoal is to be made about 15 ft in diameter. On this set the wood upon end, three lengths high, until the entire space is filled, placing something dry in the center to start the fire. Outside wood should be packed very close together. Cover with leaves and then with sward and earth, leaving just space enough to start the fire, with a 3 or 4 in hole at the top. When the fire gets started good, shut off the draft with earth whenever necessary. It takes from 7 to 10 days to complete the burning, and it must be watched continually. Have a supply of water by to quench the fire with, then draw the charcoal.—[W. A. Sharp, Greenbrier Co., W. Va.]

For General Purposes on a farm or orchard where two or more mules are used, the farmers' handy wagon is the greatest labor saving and most useful wagon that we have ever used. It has broad tired wheels which turn completely under the low wagon bed and the wagon can be turned in its own length. The platform or bed is 6 by 12 ft and without sides. For hauling anything, from wood to burn in the

grove to oranges grown in the grove, it is simply great, just what everyone who has much hauling needs. We use ours part of the time with two mules and part of the time with four, and for every purpose that can be imagined, and would not know how to get along without it.—[G. L. Tabor, Baker Co., Fla.]

Roup manifests itself by an appearance of chilliness, feathers "on end" and seeking a warm, "sunny side" to roost. An occasional sneeze escapes, followed by a watering at the eyes and nose. Appetite at this stage falling. This continues for a day or two, then the discharge increases to a viscous, malignant catarrh, the eyes swell, comb and wattles turn purplish and the mouth discharges a slimy mucus. No food is wanted, but there is considerable thirst, though not so extensive as during the first stage. Vitality is lowering, and if the bird moves at all it staggers, with drooping tail and wings. Death usually ensues from the third to the sixth day in malignant roup. Sporadic roup is not so rapidly fatal nor so malignant, and is therefore more responsive to medicine. For treatment, see replies to chicken queries.

No Machine will hatch chicks so successfully as a well-managed hen; and I have never yet seen the person or thing that can raise a brood of chicks so well as a well-trained hen. By well-managed hen, I mean a hen that while sitting is given one-half the care and attention that an incubator must have. By well-trained hen, I mean a hen that is tame, quiet, not afraid of her owner and will come quickly at a call. Such a hen will raise 20 chicks if she is given half the care required by a brooder. She must have a dry, clean coop, plenty of food, water and grit, and she and her chicks must be dusted once a week with insect powder.—[Fred Grundy, Christian Co., Ill.]

The railroads of the country consume about 1,000,000 a of timber annually. They are now asking the co-operation of the federal government in the economical management of their unused timber lands. The Santa Fe road planted 1280 a in catalpas 15 yrs ago at a cost of \$125,000. It is estimated that in 10 yrs more the tract will have produced \$2,500,000 worth of poles, ties and posts.

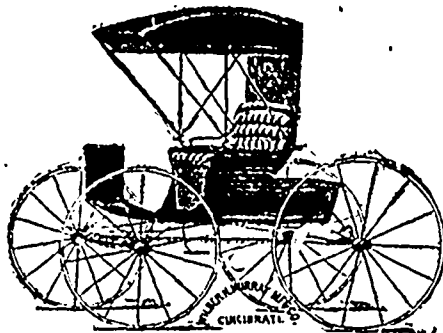
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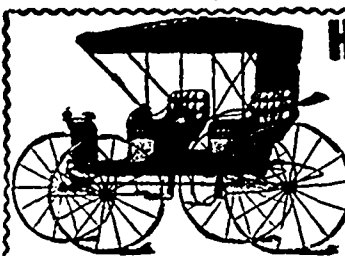
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