

SCIENCE AND INVENTION

Pinchot Tells How to Protect Forests.

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Four-fifths of the timber in the United States is in private hands. Its preservation depends absolutely upon what the owners choose to do with it. The owner



LOOKOUT STATION FOR FOREST FIRES IN A NATIONAL FOREST.

of any part of it may allow his trees to stand until he may cut them under the prevailing method of destructive lumbering, so that a new forest will not replace the old, or he may consider his timber land as a permanent factory of wood and apply the principles of forestry.

This last is what the public welfare requires that he should do, but less than 2 per cent of the privately held timber land of the United States are now being conservatively handled. With the



TRAILS AND TELEPHONE LINES AS AIDS TO FIRE PATROL.

timber of a lumberman so clearly belongs to him that he may deny the danger of fire, and the loss of his timber in the way best calculated to bring on that danger with the least

delay and in the most aggravated form. The great interstate concentration of timber land ownership has made clear

the duty of the nation to interfere for the protection of the legitimate interests of its own lumbermen included. Since the nation owns but a small fraction of the standing timber, and since the wise handling of all of that timber is essential for the future welfare of the country, there remains nothing for the people to do but to accept the situation and regulate the handling of private forest land.

There is nothing revolutionary in such a doctrine. The Swiss, a people far more democratic than ourselves, have long ago adopted it, and the Federal government protects and regulates the forests necessary for the general welfare. In the republic of France, this doctrine is one of the fundamental convictions of government. There is obviously no reason why an individual in the United States should be allowed to handle his own forests in a way to threaten the public welfare, and he should be allowed to use his own property in a city so as to endanger the public health.

I am far from having any quarrel with the fullest exercise of State sovereignty over the forests within the boundaries of each State. But the problem of the forests, like the problem of the streams, is by its very nature an interstate affair. It may take long to work it out, but before we are through with it the regulation of the lumber industry in the interest of the public welfare must be accomplished mainly by the nation itself.

There are then two principal things to be done. First, the States and the nation must improve the conditions which now surround and retard the practice of forestry by private owners. Second, the destruction of our forests by the private owners must be stopped. I anticipate with confidence that the lumbermen will give their powerful help in the task, but whether they do or not, the problem is far larger than anything each of the nation itself, and the general welfare must control.

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NEW PROCESS FOR PRESERVING EGGS PERFECTED IN FRANCE

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STACKING THE EGGS BEFORE TREATMENT IN THE GAS TANK.



CONVEYING THE METAL CANS TO THE GAS TANK IN WHICH THEY ARE STERILIZED.

A French engineer, M. Lescaze, has developed a new process for preserving eggs, which is said to be much superior to the common cold storage method. The process has reached the manufacturing stage, and plants are starting operations in France and one in Belgium.

In carrying out the Lescaze process, the eggs are first examined to see that they are perfectly fresh. The next stage consists in packing the eggs in special metal boxes, in which they are treated with carbonic acid gas and nitrogen. The room in which this step is carried out is kept cooled to a rather low temperature.

The eggs are fitted into perforated frames, which are placed in sheet iron boxes holding six frames of 50 eggs each, or 300 eggs in all. The sheet iron case is surrounded by a wood framing, so that it can be handled readily and the boxes

can be stacked up in the apparatus. When the box is filled with eggs, a small amount of chloride of calcium is put in to absorb the greater part of the moisture of the air, and then the cover is soldered on, leaving a small hole in the top for the circulation of air or gas.

The boxes are then ready to be taken to the sterilizer, which consists of a large cylindrical tank, seen in the rear of one of the illustrations.

The boxes are stacked upon roller trucks, which are then run upon rails to a tank, a considerable number being treated at a time. The cylinder has a tight-fitting door, and resembles an incinerating cylinder for treating railroad ties. The tank is first of all exhausted to extract the air from the space around the boxes, and also the gases dissolved in the albumen. After this has been done, carbonic acid gas is sent into

the apparatus from steel bottles containing compressed or liquefied gas. When the proper point in this operation is reached the carbonic acid gas is shut off, and a portion of it is then again extracted by pumping, to be replaced by a certain amount of nitrogen fed from compressed gas cylinders. The eggs are then ready to be removed from the tank, and the trucks are rolled out, after which the workmen solder up the small inlet opening. As the pressure in the box is above atmospheric, there is no danger of air leaking in.

The eggs are now ready to be taken to the cold storage quarters, where they can be kept for a long period of time.

There is not a village in India that has not its clump of banana trees and not a village in which the fruit is not gathered and the fiber in the stalk wasted.

It has been left to the Chinese to teach us how the tone of banana fiber thrown on the rubbish heap every year can be converted into banana cloth and sold at a most remunerative price.

The process of manufacture is very simple and quite within the reach of the natives of India, particularly those—and there are thousands of them—who have had some little textile training in cotton or jute mills. One-year-old plants are selected and the stalk is unrolled and steamed over cauldrons of boiling water till soft. It is a simple matter then to remove the green outer skin by passing strips of the stalk through an instrument provided with a couple of blunt blades, which act as scrapers.

The fiber thus obtained is placed in cloth and pounded, in order to drive out excess moisture and is next cleaned and twisted into yarn for weaving. Banana cloth is said to be eminently suitable for tropical wear and is very durable. At present the price would seem to be almost prohibitive, as a roll of banana cloth, five yards long and one yard wide, sells for about \$2.75. As this enterprise is a brand new one, prices are to be expected; but they are sure to right themselves as the demand for this kind of cloth grows and the supply endeavors to keep pace with it.

MAKING CLOTH FROM THE BANANA FIBER

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New Device Enables One to Sign Ten Papers at Same Time

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THIS MACHINE DUPLICATES A SIGNATURE MANY TIMES BY MEANS OF A "MASTER PEN."

A wonderful duplicating device is the signature machine, which enables the user to sign his name ten or twenty times in one operation.

Through the use of a master pen all pens attached to the device are controlled, and bonds, checks and certificates are signed with great rapidity.

The Talking Machine as an Aid to Science

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Before the Incorporated Society of Musicians at London, Prof. Sylvanus Thompson recently discussed on the merits of the talking machine.

He said that young people could hear any new method or device which the animals at the zoo, particularly cats, heard all sorts of sounds that we could not hear. He represented the effect of the difference of the pitch of notes by displaying on the screen wavy lines which

light efficiency considerably. The consumption was 10 to 12 watts per candle-power. Six 40-watt frosted tip tungsten lamps were used in a tin box 14 by 12 by 20 inches.

The bottom of the box consisted of two glasses, one coated with the gelatin film, and the other being rough-surfaced, so as to act as a diffuser. This gave an illumination of about 30 candles, and the approximation of daylight was exceptionally good. By its use colors could be matched as well as in daylight.

Artificial Daylight by Manipulating Rays

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At various points outside the trainshed of the Chicago and Northwestern new passenger station at Chicago, snow melters have been provided, which are doing good work. They consist of steel pans with semi-circular bottoms, and contain-

ing perforated steam coils. They are set in the track floor flush with the tops of the ties, and the melted snow is carried off to the sewers by drain pipes leading from the pans. Snow is shoveled to the pans and then melted.

Railway Terminal Snow Melters

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As is usually the case, E. Phillips Oppenheim gave the critics keen enjoyment in his last novel, "The Tempting of Tavernier." Little, Brown & Co.

"The Son of Columbus," by Molly Elliot Seawell, has received the commendation of the Navy Department. Two copies of that book have been sent to the library of every ship in the service—Harp-

er, "The Day Break," by W. L. George, like one or two of Joseph Conrad's, deals with an anarchist. His development from boyhood until he throws a bomb is traced with remarkable fidelity and force. It is an unusually well-written novel.—Dodd, Mead & Co.

Robert Hugh Benson, or Father Benson, as he is better known, is the author of "Lord of the World" and a number of other novels. "Come Back! Come Back!" narrates the thrilling story of a young man and a girl who were Catholics and lived during the persecutions of the time of Queen Elizabeth.—Dodd, Mead & Co.

Hamlin Garland, the novelist, whose house in Wisconsin was recently destroyed by fire, will spend this month and next in the East. He is planning a lecture tour for the coming year.

Many readers of "The Girl With the Rosewood Cribbage" have tried to identify its author