

# CALENDAR

1909	1909
JAN. 1	JULY 1
JAN. 2	JULY 2
JAN. 3	JULY 3
JAN. 4	JULY 4
JAN. 5	JULY 5
JAN. 6	JULY 6
JAN. 7	JULY 7
JAN. 8	JULY 8
JAN. 9	JULY 9
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JAN. 26	JULY 26
JAN. 27	JULY 27
JAN. 28	JULY 28
JAN. 29	JULY 29
JAN. 30	JULY 30
JAN. 31	JULY 31

## GOOD ROADS SUGGESTIONS.

Good, well-drained roads are of vast importance to the farmer. It is said that each year an average of 27,000 tons of water falls in the form of rain on every mile of public road in the United States. This certainly would show the importance of drainage.

Both the surface water and the underground water must be taken into consideration in order to secure good drainage. The former must be quickly removed, and completely, without subjecting the road to excessive wear or erosion.

Therefore the centre of the road should be raised and the slope toward the side ditches be made one-half to one inch to each foot distance, or so that the water will run freely to the side ditches and not flow down the road or remain in puddles on the roadway.

The side ditches should be big enough to care for the hardest storms, with a fall of not less than six inches to each 100 feet. Frequent and ample cross drains should be constructed and every opportunity taken to get the water away from the road as soon as possible.

In many places the underground water is too near the surface and must be removed before a good road will be possible. In such cases some form of subdrainage must be resorted to, usually tile drains of clay or concrete.

As water in freezing expands one-eighth of its volume, the road leaves out of shape, and when the ice melts the road disappears beneath the rising tide or mud constantly fed by rains, melting snows and underground springs.

In seepy and boggy places the subdrainage, in order to be fully effective, should lower the water level to not less than 3 feet below the road surface. If tiles are used they should be carefully laid, true to grade. Most failures in the drainage can be attributed to carelessness in laying, or too flat grade. The less than 4 inches in diameter should rarely be used, nor should a grade of less than 6 inches to the 100 feet be used unless absolutely necessary. In a very dense soil it is always advisable to cover the tile to at least a depth of 6 to 12 inches with coarse sand or fine gravel.

## PHILADELPHIA RECORD.

Commercial Value of Cornstalks.

After numerous experiments the chemists of the Bureau of Forestry and Plant Industry assert that paper can be made from cornstalks by very nearly the same process employed in making it from wood pulp. Moreover, they are confident that when machinery has been perfected the cost of making paper from cornstalks (at present such paper costs about a dollar a ton more to make than wood pulp paper) will be a little over half what it is now.

Two grades of cornstalk paper have been made, a white paper made from the outside shell of the cornstalk and a yellow from the pith. It has taken fifty years to develop the present methods of making paper from wood pulp. Dr. H. S. Bristol, the head of the bureau, believes that when proper machinery is built and the farmers realize that a good revenue may be derived from the sale of cornstalks, paper will be manufactured from the new material at half the present wood pulp price.

With wood at \$8 a cord, paper is made from wood pulp at a cost of \$13 a ton. Cornstalks can be bought for \$5 a ton and the paper made with the present primitive machinery for \$14 a ton.

## FARMERS WHO CARRY OFF THEIR FARMS.

The modern farmer was applying electrical message to a cart horse's strained neck. During the intervals of rest he talked farm talk.

"There are tenants," he said, "who when they move, carry their farms with them as the tortoise does his house. These people are the Norman French, the world's best farmers."

"Where you or I would require 20 or thirty acres of land to keep our family, the French farmer will keep a family on a quarter of an acre. If he chose to cultivate 20 or 30 acres, he would become a millionaire."

"His secret lies in the perfection to which he brings his top soil. What with fertilizing and watering and clearing, his top soil is the blackest, finest, richest soil on earth. His top soil is to the French farmer what his voice is to the prima donna."

"And when he rents he contracts that on the termination of his lease he may carry off eighteen inches of the top soil with him."

"When you see a French farmer moving, one small cart carries his household goods and in seven or eight enormous drays his top soil lurches on behind."

"I like to see a man tend to his own business," said Uncle Eben, "but some of these monopolistic people have dea idea dat nobody but dem 'in got no business to have any business."

A little boy said the other day to his mother, who scolded him for speaking crossly, "Mother, when it's you, you say it's nerves; when it's me, you say I'm cross."

"You are a pretty sharp boy, Tommy," "Well ought to be. Pa takes me out in the woodshed and straps me three or four times a week."

This need of the world is light—more light and yet more light—not knowledge alone, but wisdom; not reason alone, but inspiration.

## Correspondence Baltimore County Union.

### SCIENTIFIC MISCELLANY.

Electric Hot Bath—The Regions of Next Consequence—Smoke Injury to Vegetation—The Electric Safety Valve—Earthquake Forecasting—A Breakwater of Concrete Blocks—Disease of Fish—Europe's Water-power—The Shortening Year.

The first effective electric water-heater for the bath-room is claimed to be a new German device. This is about six inches in diameter and two feet high, and is attractive in appearance when fastened to the wall of bath-room or bedroom. Water is admitted at the bottom. Turning the electric switch permits enough water to enter to fill the system of pipes, thus ensuring them against burning out, and this is heated to 140° F. in about 10 seconds. The stopcock below the switch is then opened, when a steady stream rises over a series of water-tight surfaces enclosing the heating coils and emerges at the top. Water is admitted at the bottom. Turning the electric switch permits enough water to enter to fill the system of pipes, thus ensuring them against burning out, and this is heated to 140° F. in about 10 seconds. The stopcock below the switch is then opened, when a steady stream rises over a series of water-tight surfaces enclosing the heating coils and emerges at the top. Water is admitted at the bottom. Turning the electric switch permits enough water to enter to fill the system of pipes, thus ensuring them against burning out, and this is heated to 140° F. in about 10 seconds. The stopcock below the switch is then opened, when a steady stream rises over a series of water-tight surfaces enclosing the heating coils and emerges at the top.

Our deserts are to give us some of the supplies of the future, as Dr. E. L. Ingersoll points out. The arid regions, with an inch to a foot of rain a year, are by no means repulsive, but even scientific men are only just becoming acquainted with their beautiful possibilities. The landscape is striking. The deserts are mountainous, and the broad plains are the dominant feature, and the mountains—though covered with low-lying shrubs and cacti—have a ruggedness that is almost startling. The earth as we see it has been carved by water. The deserts, as has been lately discovered, have been sculptured and leveled by the wind; and the rocks, free from chemical action, are unweathered, bright and fresh.

Factory smoke—chiefly from bituminous coal—is becoming so harmful to vegetation in Germany that the Saxony Ministry of Finance has ordered a price of \$5.00 for the best preventive of the harm by sulphuric acid and other vapors, also \$500 for a compendium of the literature of the subject.

Electric transmission lines of high voltage are liable to serious accidents from sudden increase of pressure through unskillful manipulation of apparatus on the line or from lightning. The curious property of some metals of becoming coated with a film of non-conducting oxide that is broken down by high-tension currents gives a means of providing an automatic overload, analogous to the safety-valve of the steam-engine, and electrolytic valves seem to be serving successfully in the United States and France.

On the 1st of January, 1909, the first of the new French railway line, consisting of two aluminum-plate electrodes dipping into a suitable electrolytic liquid, and connected by a low-tension current, oxide forms on the plates, almost instantly stopping the electric flow, but when the tension rises above 400 volts, the insulating layer disappears and the current passes freely. Most electric systems allow an higher voltage than this. A sufficient number of aluminum electrodes arranged in series, however, will give any desired resistance, and a value of eleven elements will not open until the tension exceeds 4,000 volts.

Considering earthquake forecasts, Dr. G. K. Gilbert says that the places liable to be shaken can be pretty well determined by geological evidence as well as on experience, but that there is little reason to expect satisfactory prediction of the time of earthquakes. The one well-known earthquake district of the United States includes the central and southern California, with areas in Mexico and the Pacific Ocean. Alaska also has a district, and there may be a third in Utah. Since the beginning of last century, Alaska has had at least 10 destructive shocks, and 11 are listed for the California district, or 13 if the Oregon earthquake of 1871 and the Sonora and Arizona of 1887 are included. Other United States earthquakes have been the New Madrid of 1811, the Charleston of 1886, and the New Madrid of 1885.

The novel breakwater at Algona, Wis., is being built of huge hollow blocks of reinforced concrete 34 feet long, 15 wide and 12½ high, each weighing 130 tons. These are launched like a vessel, towed 12 miles, and sunk in place. The bottom of the surface, filled with stone, and given a 4-foot cap of solid concrete.

A curious infection in tin plate, resembling the infection of organic matter with bacteria, has been reported by Dr. von Hasslinger. The tin has been kept about two years at a temperature ranging between 50° and 115° F., and the surface had completely changed, having become granular and dull. When particles of this granular tin were brought into contact with bright tin, the latter quickly became covered with dull patches, which grew an eighth of an inch or more a day. This so-called "tin pest" was not affected by a rise in temperature, at 100° F. after melting, the granular tin resumed its original character, and became solid if not heated to the original melting point. The tin substance seems to be an allotropic form of tin.

Guesses at the water-power of different countries very generally, and all may be wide of the mark. These are recent estimates of Otto Mayr, a German engineer: Norway, 7,500,000 available, of which only 30,000 horse-power is utilized; Sweden, 4,500,000 available, 80,000 used; Italy, 5,500,000 available, 400,000 used; France, 5,500,000 available, 1,000,000 used; Austria, 6,125,000 available, 400,000 used; Germany, 1,077,000 available, 1,000,000 used; Belgium, 1,000,000 available, 500,000 used; and Hungary, 500,000 available, 65,000 used. This is a total of 34,151,000 horse-power for the Continent of Europe, of which only 10,500,000, or less than 30 per cent, is utilized. The figures seem not wholly up to date, as Italy has been reported to have used 800,000 horse-power, or 15.3 per cent—about 10,000,000 horse-power.

Many eclipses are noticed in the records of all ages. Astronomers can determine accurately when eclipses must have occurred, and the eclipse records are proving valuable to historians as a means of determining the date of important events. From these studies P. H. Cowell has even shown that our year has decreased within historical times.

## CASTORIA

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Miscellaneous.

MARYLAND & PENNSYLVANIA R. R.

On and after Sunday, Oct. 11, 1908, trains on the Maryland & Pennsylvania R. R. will leave Baltimore and arrive at North Ave. Station, Baltimore, as follows:

DAILY (EXCEPT SUNDAY).

LEAVE BALTIMORE.

7:30 A.M. for Del. 8:55 A.M. from Bal. 9:30 A.M. for Del. 9:30 A.M. from Bal. 11:00 P.M. for Del. 11:00 P.M. from Bal.

ARRIVE BALTIMORE.

8:55 A.M. from Del. 9:30 A.M. from Del. 11:00 P.M. from Del. 11:00 P.M. from Del.

SATURDAY ONLY.

Leave at 10 A.M. for Del. Arrive at 4:30 P.M. from Bal.

SUNDAY ONLY.

Leave at 10 A.M. for Del. Arrive at 4:30 P.M. from Bal.

LEAVE TOWSON FOR BALTIMORE.

7:30 A.M. for Bal. 8:55 A.M. from Bal. 9:30 A.M. for Bal. 9:30 A.M. from Bal.

ARRIVE TOWSON.

8:55 A.M. from Bal. 9:30 A.M. from Bal. 11:00 P.M. from Bal. 11:00 P.M. from Bal.

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# CASTORIA

The Kind You Have Always Bought, and which has been in use for over 30 years, has borne the signature of J. C. F. Fitcher and has been made under his personal supervision since its infancy. Allow no one to deceive you in this. All Counterfeits, Imitations and "Just-as-good" are but experiments that trifle with and endanger the health of Infants and Children—Experience against Experiment.

## What is CASTORIA

Castoria is a harmless substitute for Castor Oil, Paregoric, Drops and Soothing Syrups. It is Pleasant. It contains neither Opium, Morphine nor other Narcotic substance. Its age is its guarantee. It destroys Worms and allays Feverishness. It cures Diarrhoea and Wind Colic. It relieves Teething Troubles, cures Constipation and Flatulency. It assimilates the Food, regulates the Stomach and Bowels, giving healthy and natural sleep. The Children's Panacea—The Mother's Friend.

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