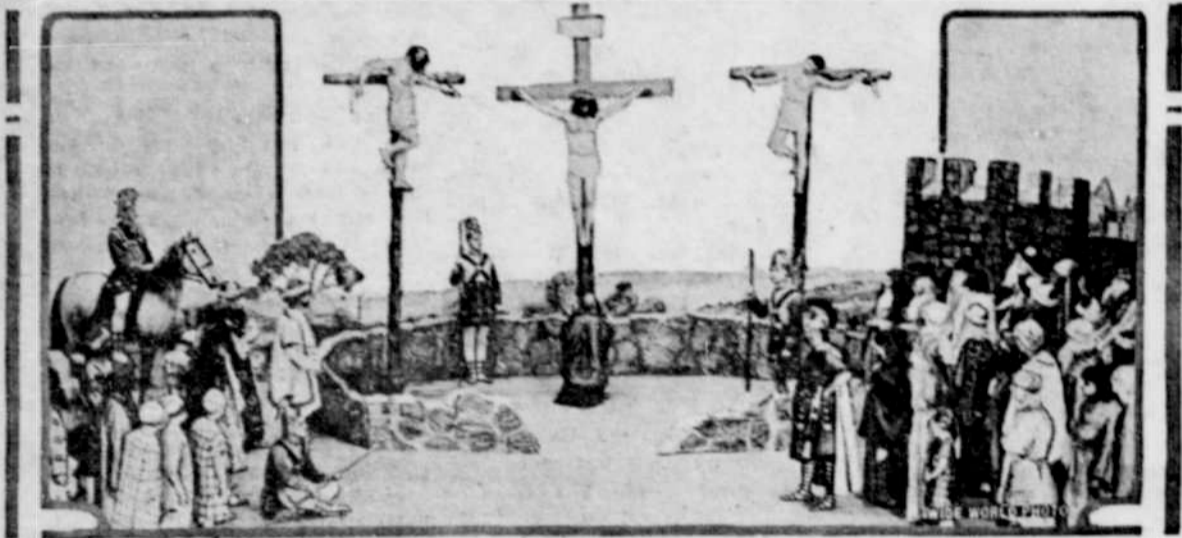


Cologne Girls Greeting President Von Hindenburg



German girls cheering the arrival of President Von Hindenburg at Cologne for the festivities marking the deliverance of the Rhineland from allied military control. The flapper type and the bobbed hair fashion have not yet invaded the ranks of Germany's girls.

Passion Play Acted by Illinois Masons



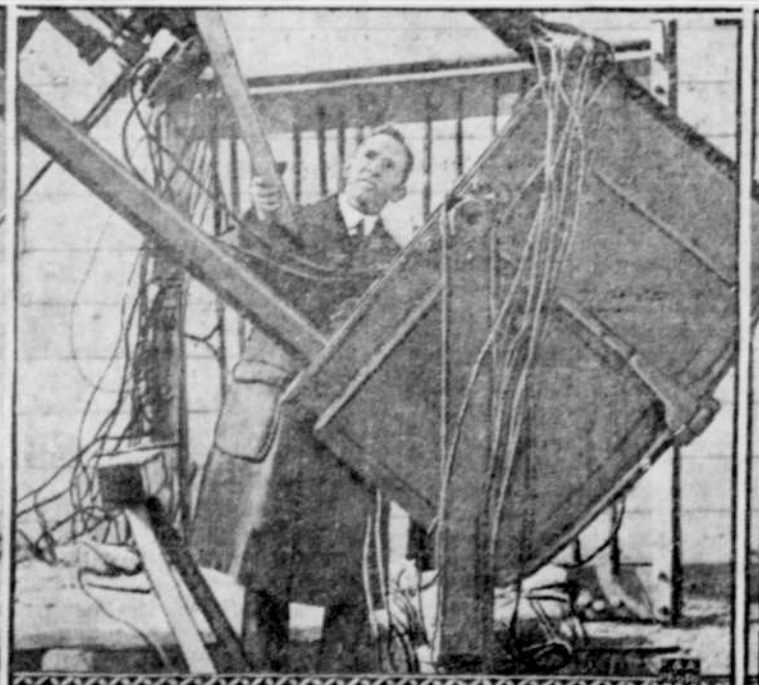
Scottish Rite Masons of Bloomington, Ill., have followed the lead of the people of Oberammergau and produced the Passion Play in a way that has elicited warm praise. The photograph shows the crucifixion scene.

Ericsson Statue Dedicated Soon



James E. Fraser of New York, sculptor of the memorial to John Ericsson, Swedish inventor of the Civil War ironclad Monitor, is in Washington to complete the monument which is being erected near the Lincoln memorial. President Coolidge and the crown prince of Sweden, Gustaf Adolph, and his wife are expected to attend the dedication which is set for May 23. Mr. Fraser is seen above at the monument.

Invention Safeguards Navigation



Samuel E. W. Haines of Oakland, Cal., has just completed a projectograph by which he hopes to make safer the navigation of sea and air at night during fogs. The machine is said to combine the most powerful light known to science and the most efficient projector of its kind made. The new device projects powerful rays which penetrate the fog like gigantic needles.

THINGS YOU MAY NOT KNOW

The ocean's deepest pit is 22,988 feet in depth. Its inventors have patented an umbrella with an electric flashlight in the handle. The first gold nugget found in California, in 1848, will be returned as a historical relic to that state. When empty a new baggage rack for the rear of automobiles can be folded over a spare tire to serve as a bumper. A cheap fuel is manufactured in Japan made from charcoal dust, chaff and chopped straw. It is rolled out, cut, then formed into blocks or balls of various sizes. Ernest Dole, a mail carrier in France, is the inventor of a motorized airplane, which, by means of a system of turbines, he claims can fly anywhere. He contends he uses the resistance of the air as motive power.

FARM POULTRY

ARTIFICIAL CHICK MUST BE CODDLED

Overcoming lack of vitality in the artificially reared chicken is one of the chief problems of the modern poultry producer in the opinion of Prof. L. F. Payne, head of the department of poultry husbandry at the Kansas State Agricultural college.

"The artificial chicken," said Professor Payne, "is hatched artificially, brooded artificially, supplied an artificial ration, and latest scientific developments have made it profitable to supply this type of chicken with artificial sunlight—light from quartz mercury vapor lamps.

"The artificial chicken has little in common with its ancestors who were hatched in small numbers under hens. They feed on grain around the stack, grasshoppers from field, and minerals from the soil. They grow to be strong, robust chickens, able to roost in the top of a tree or in the wagon shed all winter and be none the worse for exposure in the spring. They produced a meager surplus for the market basket and the dinner table, but they did survive. Health and vigor were their chief assets.

"The important thing in managing this new chicken is to make its artificial life as natural as possible, recognize its shortcomings, and keep the poultry house free from drafts and dry."

The advantages of the artificial chicken are that it has a more rapid rate of growth, loses the maternal instinct, and is a heavier producer of eggs, Professor Payne stated.

Natural Incubation Is Most Satisfactory Plan

Natural incubation has proved to be the most satisfactory method of hatching goose eggs. The first eggs that are laid should be placed under domestic hens for incubation. Large Brahms and Cochins hens can incubate seven goose eggs at a time.

The ideal outdoor aerial for receiving is a single wire from 50 to 150 feet long, including lead-in, installed 10 to 20 feet higher than surrounding buildings. The aerial should be erected so that one end comes near a window, to provide a short, direct lead-in. The aerial should not be near trees, telephone wires or high-tension wires. When necessary to pass a telephone wire the aerial wire should cross over near at right angles as possible. The aerial wire should never cross either above or beneath a power line. When near a power line erect the aerial at right angles to avoid inductance noises. Supporting wires for the aerial should extend several feet from the supports. Large porcelain insulators, preferably of the corrugated type, should be used. The lead-in should be as direct as possible, but should be kept from the building a distance of several inches up to the point where it enters the window. The important features of the outdoor aerial as shown in the diagram are:

- A—Aerial wire. B—Tension insulator. C—Tension insulator. D—Supporting wire. E—Supporting wire. F—Screw eye. G—Screw eye. H—Continuation of A. I—Lead-in bushing. J—Lightning arrester. K—Ground wire. L—Ground clamp.

At a distance greater than 50 miles from the nearest powerful broadcasting station an aerial of 150 feet, including lead-in, will be found to give

Hens are often given four to six goose eggs to incubate, but as the eggs are large, the hen may not give them enough turning. Turning them by hand once or twice a day helps to insure the proper development of the goslings. If the goose has her nest on the damp ground, it is not necessary to add moisture to the eggs. When goose eggs are hatched in an incubator, or in a nest that is dry, moisture should be added. On the seventh day sprinkle the eggs with water at about 100 degrees. During the second week sprinkle the eggs twice. At the start of the third week they can be soaked in warm water for a minute about every three days. During the last three days, soak the eggs for a half-minute to a minute every day. Goose eggs usually take about thirty days to hatch, but the time may vary from twenty-eight to thirty-three days.

White Diarrhea Cause

White diarrhea is transmitted from the hen, which is a carrier of the disease, through the egg to the chick. Scientific investigators tell us that three testings of the flock may be necessary to eliminate, or nearly eliminate, the trouble. The fact that the disease may have seemed to lie dormant one year and then appear again may be due to two causes. New birds may have become carriers. All of the carriers may not have been eliminated by the test.

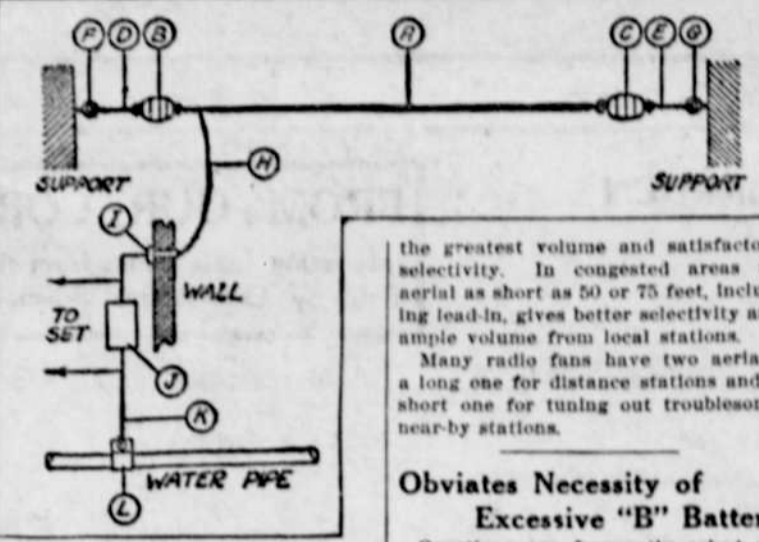
Hens for Breeding

Hens that have gone through their second laying season are usually used for breeding purposes, and they are considered the best. The reasons that pullets are not used is that the percentage of eggs that hatch is small and that the chicks are small and sometimes lack vitality. The size of the chicks is largely determined by the size of the egg. The chances are that you would not be satisfied with the results if you use the pullets for breeders.

Ounce of Prevention

Ordinary colds in poultry will often develop into contagious rous unless immediate precautions are taken. Symptoms of cold involve excretions from nostrils and eyes and some wheezing. Cold may be controlled by removing drafts or damp conditions in the poultry house or by securing better physical conditions through proper feeding and giving of tonic. A good tonic consists of one part of epsom salts and one part of sulphur with twelve parts of dry mash.

RADIO



How to Erect an Outdoor Aerial.

The outdoor aerial is conceded to be the most efficient in that it transmits to the set a stronger signal than either an indoor aerial or a loop under equal conditions.

The ideal outdoor aerial for receiving is a single wire from 50 to 150 feet long, including lead-in, installed 10 to 20 feet higher than surrounding buildings.

The aerial should be erected so that one end comes near a window, to provide a short, direct lead-in. The aerial should not be near trees, telephone wires or high-tension wires.

When necessary to pass a telephone wire the aerial wire should cross over near at right angles as possible. The aerial wire should never cross either above or beneath a power line. When near a power line erect the aerial at right angles to avoid inductance noises.

Supporting wires for the aerial should extend several feet from the supports.

Large porcelain insulators, preferably of the corrugated type, should be used. The lead-in should be as direct as possible, but should be kept from the building a distance of several inches up to the point where it enters the window.

The important features of the outdoor aerial as shown in the diagram are:

- A—Aerial wire. B—Tension insulator. C—Tension insulator. D—Supporting wire. E—Supporting wire. F—Screw eye. G—Screw eye. H—Continuation of A. I—Lead-in bushing. J—Lightning arrester. K—Ground wire. L—Ground clamp.

At a distance greater than 50 miles from the nearest powerful broadcasting station an aerial of 150 feet, including lead-in, will be found to give

While wireless telegraphy soon became quite well established, communication across the Atlantic ocean being proved practical as early as 1901, it remained for an American to make the developments which made radio telephony possible. Lee DeForest was that American. He developed the "audion" radio tube, now in almost universal use as a detector and amplifier of radio signals, and as a generator of oscillations at the transmitting station.

Due to certain technical difficulties, it was impossible to send voice by radio from transmitting stations using



Lee DeForest.

the old Marconi equipment. The radio tube as developed for power purposes, supplied a current, however, which could be used as a carrier for voice and music.

What Causes Frying Noises in Your Set

Two years ago there were few receivers in use using more than five tubes. Today, however, the six or nine tube sets are in very general use and naturally use up considerable battery current. Take a regular six to nine tube receiver using storage battery tubes and you have a drain of from 15 to 40 milliamperes of "B" battery current and from 1 1/2 to 2 amperes on your "A" battery. The natural result is that batteries do not have a very long life and if they are allowed to get very low will cause all kinds of noises and very poor reception.

On all receivers of five tubes or more a voltmeter that will give a reading of both "A" and "B" batteries is valuable. This enables you to check up the condition of the batteries in a few seconds, giving you positive information of their condition. If you use dry cells for both "A" and "B" batteries, a voltmeter is needed more than ever.

Sometimes one or two of the cells

the greatest volume and satisfactory selectivity. In congested areas an aerial as short as 50 or 75 feet, including lead-in, gives better selectivity and ample volume from local stations. Many radio fans have two aerials, a long one for distance stations and a short one for tuning out troublesome near-by stations.

Obviates Necessity of Excessive "B" Battery

Questions are frequently asked regarding the use of tubes with a high amplification constant. These tubes are primarily designed for use in resistance and impedance amplifiers. We quote a few lines from one of Keith Henney's tube articles in the Radio Broadcast magazine. He writes as follows: "A low-mu tube will not 'load up' a power amplifier unless coupled to it by means of a transformer. For example, the average amplifier to deliver 50 watts power requires at least 9 volts variation on its grid. A tube with a mu of 8 coupled by means of resistance impedance to the amplifier cannot produce a variation of voltage greater than 8 volts and probably not over 6, so that the amplifier will not deliver its rated quota of power. On the other hand, a tube with a mu of 20, or a tube with a mu of 5 coupled by means of a 2:1 transformer, can easily produce the desired change in input voltage. High-mu tubes can be used as detectors and hence are useful in vacuum tube voltmeters. Their use in resistance and impedance amplifiers makes the latter practical without increasing the "B" battery voltage beyond reason. It must be said here that the mu of such tubes is not the only important constant. The plate impedance must be considered and, like all other tubes, the usefulness of high-mu tubes increases as their impedance decreases.

"In this question it must be remarked that tubes of 1926 differ from those of 1925 in the fact that their plate impedance is less. This is due to the use of better filament wire which has a higher electron efficiency. This low impedance, while it makes good amplifiers, causes trouble when the tubes are used in sets that have been neutralized for high impedance tubes. It is well known that less inductance is required in the plate circuit of low impedance tubes to make them oscillate than is the case with high impedance tubes. On the other hand, once these newer tubes are neutralized, the voltage amplification and power output are increased."

FOREFATHERS OF RADIO

By GEORGE LEWIS of The Crosley Radio Corporation.

As developed for receiving purposes, the radio tube may be used as a detector, replacing the crystal of Pictard and the coherer of Marconi's apparatus as a means of making the received current capable of operating headphones. Additional tubes may be used as amplifiers, their action being that of relays, releasing current from local batteries when acted upon by the

Radio Tubes That Are Used in the Modern Set

signal. Thus the typical radio set of today employs a detector tube, together with one or more additional tubes as amplifiers.

It is customary to distinguish between tubes used to amplify the current before it passes through the detector and those used to amplify it after it passes through the detector by calling the former "radio-frequency amplifiers" and the latter "audio-frequency amplifiers."

How to Tell Whether Receiver Is at Fault

Noise and distortion are inexcusable faults, but it is well to remember it isn't always the fault of the receiving set. Background noise which can be heard under the voice, as well as certain classes of distortion, are sometimes actually transmitted and there is little you can do to get away from it. This can be checked up by listening in to one or two other stations. If the signals come through clean-cut and free from noise, rest assured your set is O. K. and the broadcasting station at fault.

In a "B" Battery Will Go Dead, Causing Your Receiver to Develop Drying, Hissing and Cracking Sounds. If Your Set Has Been Working All Right, Then Gradually Begins to Lose Volume and Get Noisy, Test Your Batteries Before You Do Anything Else. If a 45-volt "B" Battery Shows Less than 37 Volts, Throw It Away and Use a New One.

Keep the terminals of the "A" battery free from corrosion. Sometimes the "A" battery is put away in a place where it is rarely seen, and in course of time the terminals will corrode. Keep them clean and tight and your receiver will give you better service.

An Invisible Search

The ship, the Silver Wave, long overdue, and thought to be lost in the North Pacific, was recently located by a radio search and found to be safe and sound in an Alaskan port.

A Suggestion

To prevent a wire bulge, or backlash, when unwinding a spool of wire, slip a small ratchet screwdriver in the spool and it can turn only in one direction.

ROAD BUILDING

IMPROVED ROADS HELP MOTORISTS

"Motorists of the United States save annually \$1,630,000,000 in operating costs due to the construction of 230,000 miles of gravel and hard-surfaced roads," declares William H. Connell, president of the American Road Builders' association. Mr. Connell points out that the saving in motor vehicle operating costs exceeds the annual cost of improving the highways every year. In his own state of Pennsylvania, he reports that the owners of motor vehicles saved \$51,750,000 by operating over 4,500 miles of hard surface in 1925 and only paid the state \$20,500,000 in registration fees and gasoline taxes to support the construction and maintenance of the highway system, leaving them a net saving of \$22,250,000.

"Pennsylvania today is operating on a basis that the user pays all costs for constructing and maintaining the state highway system. Motor license receipts and the proceeds from the gasoline tax are used exclusively for highway purposes and these funds pay the entire cost of all construction and maintenance, as well as all department salaries and wages; in fact, all highway expenses. New construction is financed principally by bond issues, but the interest and sinking fund charges are paid from the motor receipts.

"The figures which have been stated as to the saving to the owners of motor vehicles by the construction of improved roads have definitely justified the adoption of the principle in Pennsylvania that the user should pay for the road and when this idea has been universally adopted the entire highway business will be on a sounder financial basis."

Mr. Connell voiced his opinion that the increasing mileage of paved highways would not seriously affect the steam railroads but will ultimately act as a benefit, as a supplement or feeder to them. He predicted the early abandonment of short-haul rail lines which in many cases have operated at a loss, in favor of motor vehicle transportation.

To Carry Passengers on Lincoln Highway in East

A development in transportation between Philadelphia and New York which has been long anticipated is at last a fact. The People's Rapid Transit company, a subsidiary of the Philadelphia Rapid Transit company, is now operating regular bus service between the Bellevue Stratford Hotel, Philadelphia, and the Waldorf-Astoria in New York over the Lincoln highway.

The distance is slightly over 90 miles, and fares are considerably below those charged by the railroads.

Those who have made the run in the new busses say the trip is an enjoyable one over a perfectly paved road and through beautiful and historic country. Stops are made at Trenton, Princeton, New Brunswick, Elizabeth and Newark, all important Lincoln highway communities.

Nearly 1,450 Miles of State Highway in Ohio

Nearly 1,450 miles of Ohio state highway will be constructed by the state highway department in 1926, G. F. Schlesinger, director of highways announced. Of this, 450 miles will be paved, and the rest will be of gravel and other construction.

The maintenance program will extend over 7,850 miles of paved and traffic-bound roads.

During 1925, 450 miles of paved roads in Ohio were completed, and 700 miles of other roads were finished. Maintenance was provided for 6,700 miles of highway.

Twelve million dollars was expended for paved roads, \$2,000,000 for traffic-bound roads, and \$9,000,000 was spent for maintenance, repair and reconstruction, for a total expenditure of state highway funds amounting to \$23,000,000.

Minnesota Good Roads

Minnesota will maintain nearly 7,000 miles of main or trunk highways this year, against less than 4,900 miles in the average state as reported by the government. It plans to expend a large total of 170 miles of new paving, about twice as much as last year; also 250 miles of other surfacing and 242 miles of grading, compared with average state projects for 141 miles of paving, 800 of other surfacing and 180 miles of grading this year. Minnesota will have a little less than 82,000 a mile of funds for trunk routes, compared with \$3,420 in the average state.

Eliminate Grade Crossings

The increasing number of accidents at highway grade crossings has led to the adoption of a policy looking to the elimination of such dangerous crossings wherever practicable on federal aid roads. The policy, which has met with the generous support of extra states, is that all existing grade crossings on the federal aid highway system shall be classified for priority of elimination by agreement between the bureau of public roads and the state highway departments.

Study Road Systems

During the past few years the development of road building in America has been so rapid and extensive that European highway engineers are now visiting this country for the purpose of studying materials, methods and machinery employed in building our roads. This is quite the reverse of the condition formerly existing, when European roads were considered far superior to those of the United States.