

CHEMICAL WONDERS BY LAMMOT DU PONT

POPULAR MECHANICS

MAGAZINE

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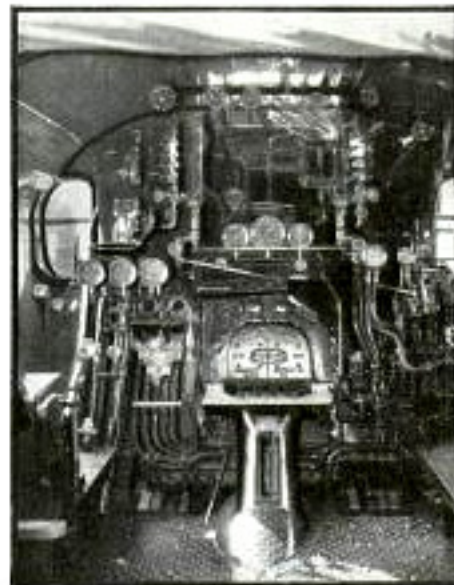


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How to Play WINNING TENNIS

Million-Pound Iron Horse Is 140 Feet Long



Wearing the name "American Railroads" because it is the pride of their New York World's Fair exhibit, this 140-foot steam locomotive is the largest ever built. Two of its four cylinders are visible at top. Left, the cab.

For a long time the Northern Pacific's "Yellowstone Mallet" locomotive was called the world's largest. Today there is a new champion, a million-pound goliath of the rails that measures 140 feet and one inch from its pilot to the coupler of its tender. It was designed by Raymond Loewy. Pride of the American railroads,

it is a focal part of their cooperative exhibit at the New York World's Fair, after which it will pull one of the crack passenger trains of the Pennsylvania, in whose shops it was built at Altoona. Developing 6,500 horsepower at 100 miles an hour, the locomotive is capable of hauling a fourteen-car passenger train at sustained

speeds of 100 miles or better. Top speed is unknown pending actual test runs after the fair, but it is believed it could pass with little effort the 127-mile record set by a Pennsylvania engine pulling the "Broadway Limited" in 1905. The "S 1," as the builders designate it, is a four-cylinder coal-burning locomotive of the 6-4-4-6 wheel type, each pair of cylinders providing power for two pairs of seven-foot drive wheels, with 300 pounds steam pressure. It delivers 26,400 pounds tractive effort. The engine alone weighs 600,000 pounds and its tender 452,200 more, loaded; the tender carries 50,000 pounds of coal and 24,500 gallons of water.

Fast Plane Smooth as Glass Has No Rivet "Buttons"

Airplane speed is given a boost by building wings and fuselages with flush rivets instead of the projecting "button" type. This kind of riveting has emerged recently from the laboratory and is going into the production lines. While it will add to the cost of construction, one engineer estimated that a 275-mile-an-hour airplane, held together with projecting rivets but otherwise "clean" aerodynamically, would be put in the 300-mile-an-hour class by this method. An average plane may contain 30,000 rivets.

Walls of Germ-Killing Light Protect Babies in Nursery



Walls were shielded into the picture represent the invisible screen of ultraviolet light that purifies air in nursery.

Invisible walls of light stand guard against germs at the entrance of each baby's room in a large nursery at Evanston, Ill. Fluorescent tube lamps along the ceiling project a screen of ultraviolet rays so powerful they would kill any germs drifting into the nursery cubicles.

Leather Boots for Hunting Dog Tailored to Fit the Feet



Picture made to measure boot on August 10, 1935, p. 204

Hunting dogs that run through thick brush and rough country often suffer from bruised and bleeding feet. So a Missouri harness maker fashions leather boots for dogs. They are tailored to measure, too. He first takes a cast of the dog's feet and from the casts shapes wooden models over which the leather boots are built.

⚡ A fifty-foot motor cruiser built for the Sheik of Bahrain, on the Persian gulf, has underwater searchlights for navigating among uncharted reefs and shoals.

British Streamliner 'Chums' with Americans

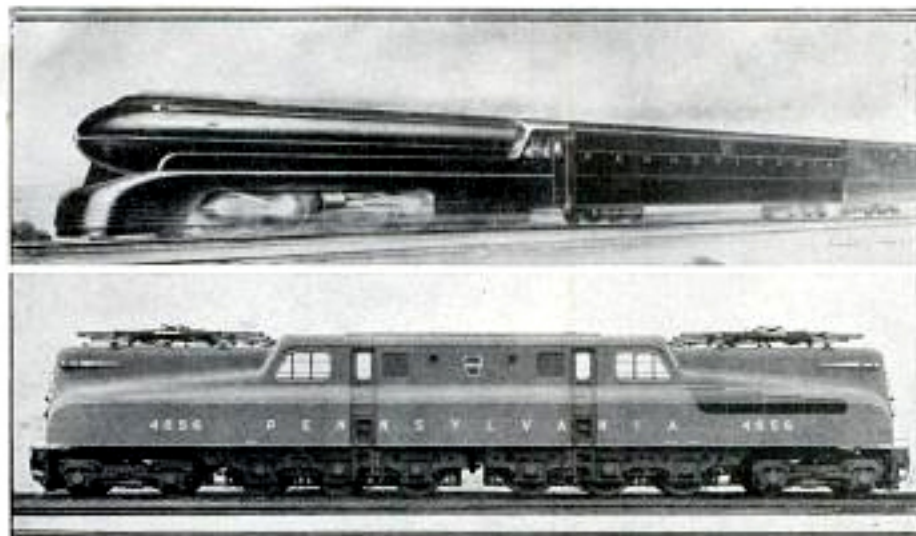


Here's a "Four-Horse" team representing the latest in steam, Diesel-electric and electric power. Left to right, British "Coronation Scot," two Baltimore and Ohio locomotives and a Pennsylvania electric engine

Paying an "ambassadorial" visit to Washington, D. C., recently, the "Coronation Scot" met three great American locomotives in the depot and they lined up on adjoining tracks to pose for a family portrait. The streamline steam speedster of the London, Midland and Scottish railway

was just beginning a tour of American cities. Its three streamline acquaintances in Washington were the steam-driven "iron horse" of the Baltimore and Ohio "Royal Blue," the Diesel-electric that hauls the "Capitol Limited" of that line and a Pennsylvania electric locomotive.

Giant Steam Locomotive Is Fast as Electrics



Top, the powerful steam locomotive capable of pulling a fourteen-car train weighing 1,200 tons at 100 miles per hour. Bottom, the electric locomotive which powers the steam engine just designed to equal

Designed to equal the performance of its powerful electric locomotives, a giant steam locomotive for use by the Pennsylvania railroad is capable of drawing a fourteen-car train weighing 1,200 tons at a speed of 100 miles per hour. The locomotive, which develops 6,000 horsepower, will be used on unelectrified parts of the railway. It has four rigid cylinders, instead of the usual two, with each pair of cylinders driving two pairs of drive wheels. Bituminous coal will be used in the mechanically fired engine. The tender will carry 25,000 gallons of water and twenty-six tons of coal, sufficient for a 100-mile run. A crew of two will operate the giant "iron horse." The designers worked under a handicap in producing the locomotive because its physical size was limited by railroad clearances such as tunnels, bridges and sharp curves. To equal the performance of the electric locomotive, the steam locomotive has to produce enough power to overcome the disadvantage of its own great weight and that of its loaded tender.