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# STEAM STILL RULES THE RAILS

By RAYMOND G. SCHMITT

**S**HAPED like a giant projectile and packing the punch of 5,000 horsepower beneath its streamline shell, a modernized iron horse driven by four four-cylinder steam engines, will whisk a train of fourteen standard pullman cars over the rails at speeds up to 100 miles per hour.

The 5,000 horsepower streamliner under construction for the Baltimore & Ohio Railroad boasts machinery more suggestive of a modern automobile than of a locomotive.

Passengers will miss the familiar jerking as the train pulls out of a station. In its place will be the same smooth vibrationless power and get-away experienced by a motorist as he steps on the gas. And the reason is much the same. Each pair of drive wheels on the new speedster will be powered by a separate



*A dangerous rival for the modern steam locomotive.*

four-cylinder engine resembling a "V"-type automobile motor. Instead of the single pair of cylinders and heavy connecting rods used on the conventional locomotive, four independent steam motors operating through oil-bathed gears will drive the giant's eight traction wheels. The result will be a virtually unbroken stream of power like that of a modern automobile of many cylinders.

By eliminating the massive pistons and connecting rods, it also does away with the heavy counterbalancing weights on the rims of the wheels required to equalize the thrust of the driving rods and the weight of the heavy crank pins. Gone with them are the extreme cases where rails suffered intense punishment when locomotives were sent out without proper counterbalancing.

The streamline shell covers a boiler generating steam at 350 pounds pressure. Springs and journal boxes are mounted outside the wheels. Enclosed in the bullet shaped nose is a powerful headlight, and below, by the pilot, is a housing for a retractable coupler operated from the cab. The streamline tender is capable of holding 23 tons of coal in its bunker as well as 22,000 gallons of water in the tank.

To meet the challenge of the sleek, smooth starting Diesel powered engines that have captured popular fancy with their colorful modernistic design and runs of unprecedented speed, designers of steam locomotives, today, are pulling new tricks out of their hats and producing some of the most powerful, fastest, and queerest locomotives ever seen on rails. Their sombre black dress discarded, they have blossomed forth in rainbow tints; like the crimson, black and orange monsters of the Southern Pacific's "dawn to dusk flyers." The New York Central's gray and silver "Mercury" roars through the night with its seventy-nine inch drivers outlined by floodlights, giving it the appearance of a meteor on rails. Smokestacks have disappeared and fins like airplane wings divert the smoke from the engineer's field of view.

The B. and O.'s recently completed "George H. Emerson" has cylinders both at front and rear, each set turning four of the eight drivers that propel the engine at 90 miles an hour. While this scheme does not eliminate the driving rods joining pistons and wheels it does materially lighten them, since each set bears only half of the usual strain.

Locomotives with 16 cylinders, locomotives with 4 cylinders, and now American designers propose locomotives with no cylinders at all. Before long the Association of American Railroads will begin construction of a 120 mile-an-hour steam turbine locomotive. According to L. P. Michael, chief engineer of the Chicago and Northwestern Railway, turbine locomotives will prove more economical to build and maintain than cylinder and piston types. The whirling rotary blades of

the 4,000 horsepower turbine will be geared directly to the wheels instead of to connecting rods, as in experimental European types, and will operate on less than 9 pounds of steam an hour for each horsepower. Meanwhile, the Union Pacific R. R. has been experimenting with a still more remarkable steam turbine scheme. In this plan, an oil burning boiler supplies steam to the turbine, the turbine runs an electric generator, and the current from the generator operates electric driving motors on the wheels. This method of generating power is said to show amazingly high efficiency, and steam generating units developed for the purpose are declared to be marvels of compactness and engineering ingenuity. First embodied in a pair of 2,500 horsepower steam electric locomotives, the design is believed to be adaptable for engines up to 10,000 horsepower.

If anyone imagines that the iron horse is going to be outmoded by the Aluminum Horse, his opinion differs from that of many forward looking railroad executives who are betting their blue chips on steam. Diesel powered flyers may have stolen a march in setting the pace for high-speed schedules, but there are limits to what a Diesel motor can pull on rails. You can build one powerful enough to drive a ship, but fitting it into a locomotive, where track and tunnel clearances have to be considered, is another matter. Even though Diesel men have tackled the problem and lessened it to some extent, modern improvements tend nevertheless to make trains heavier so that railroad men are looking more and more towards the brute strength of the steam locomotive, which can haul freight train tonnage at express train speed.

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"Halloo, Bridget. What time is it, and where's the apple pie?"

"It's eight, sir."

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"Do you know what good clean fun is?"

"No, what good is it?"

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Teacher: "Why is your examination paper covered with quotation marks?"

Honest Student: "Out of courtesy to the boy who sat in front of me."

Teacher: "And why all the question marks?"

Student: "Out of courtesy to the boy who sat behind me."

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"What's your design for living?"

"A circle."

"What do you mean, a circle?"

"Oh, I get around."

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The savage tribes of Africa pay no taxes. It is a mystery therefore what makes them savage.