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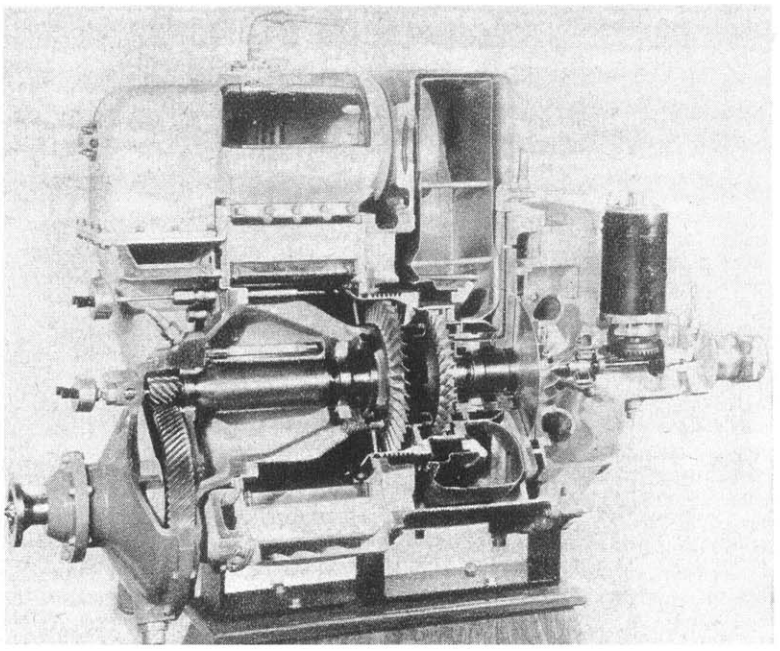
"I Drove Rover's Gas Turbine Car"

This could be the 'car of the future'. The author is one of the privileged few to ever have been at its controls

Austen D. Channing is the first average' motorist to drive the world's first gas turbine car, the revolutionary JET-1 produced as an experiment by the Rover Motor Company of Britain.

He discovered that, given an iron-nerved driver and the proper road, the gas turbine car can travel 12 miles in four minutes using only three gallons of ordinary lamp oil and seven cwts of honest-to-goodness air!



Cutaway of the Rover gas turbine.

IT was the contention of a fellow enthusiast that put me on the road to Coventry and the Rover works, there to see, drive and examine the first land-vehicle of what must . . . inevitably . . . become known as the Jet Era.

My friend had remarked that the average up and down speed of one of the four pistons in an average motor car travelling at 40 MPH was in the timid region of 35 MPH.

He was quite right of course, for the piston does continue its monotonous little journey at a comparatively low average speed because it stops and starts at the top and bottom of every stroke, an operation that may repeat itself 4,000 times a minute in a hard-worked family saloon power unit.

It struck me that such a scandalous waste of effort is without a future. This business of starting and stopping (it's called reciprocating motion in my physics book) squanders energy. Power literally is thrown away when the crankshaft takes over the job of converting this devil's dance into the required rotary action for clutch and gearbox.

Small wonder then that the internal combustion engine of the car of today is only 15% efficient. The majority of the lost 85% goes out of the exhaust and into the cooling system as dissipated heat while frictional losses and transmission roundabouts account for the remainder.

So, off I went to the Rover Company near Birmingham to catch up on a design many contend to be the forerunner of the future in motoring but is styled by the Company officials themselves as a mere experimental project.

The men who designed and work around the new car live in a lonely world peopled only by those fellow researchers who are known as nuclear scientists. Both bodies proceed along unexplored lines which have no foreseeable limit.

For all this, the Rover team is composed of the most hospitable, obliging scientists one could meet. They discussed their pet in everyday words and flung no formulae about.

None of them displayed the usual absent-minded habits of such groups and I found their modesty and unassuming manner completely out of keeping with the immense potentials of the task in hand.

One learns to refrain from calling the unhappily named JET-1 a jet car in front of its creators, a gaff which is only equalled by the young lady who called a battlewagon "a steamer" when the Admiral was at her side. JET-1 is *not* a pure jet although it operates on a principle that applies to the jet engine; it is more accurately described as a gas turbine car.

If the Rover resembled a pure jet it would trail a tar-melting blast that would shrivel up all the nylons on Fifth Avenue in less than a second.

In the case of the gas turbine unit the snout gases are tamed and fed past a series of turbine motors connected to the drive shaft of the car. As the velocity of the gases is increased by compression and heat, tremendous forces are let loose against the rotor blades of the main turbine. Hold your brake on and the turbine doesn't move but release the brake, feed in the fuel with the accelerator, and you get an uncanny push in the back.

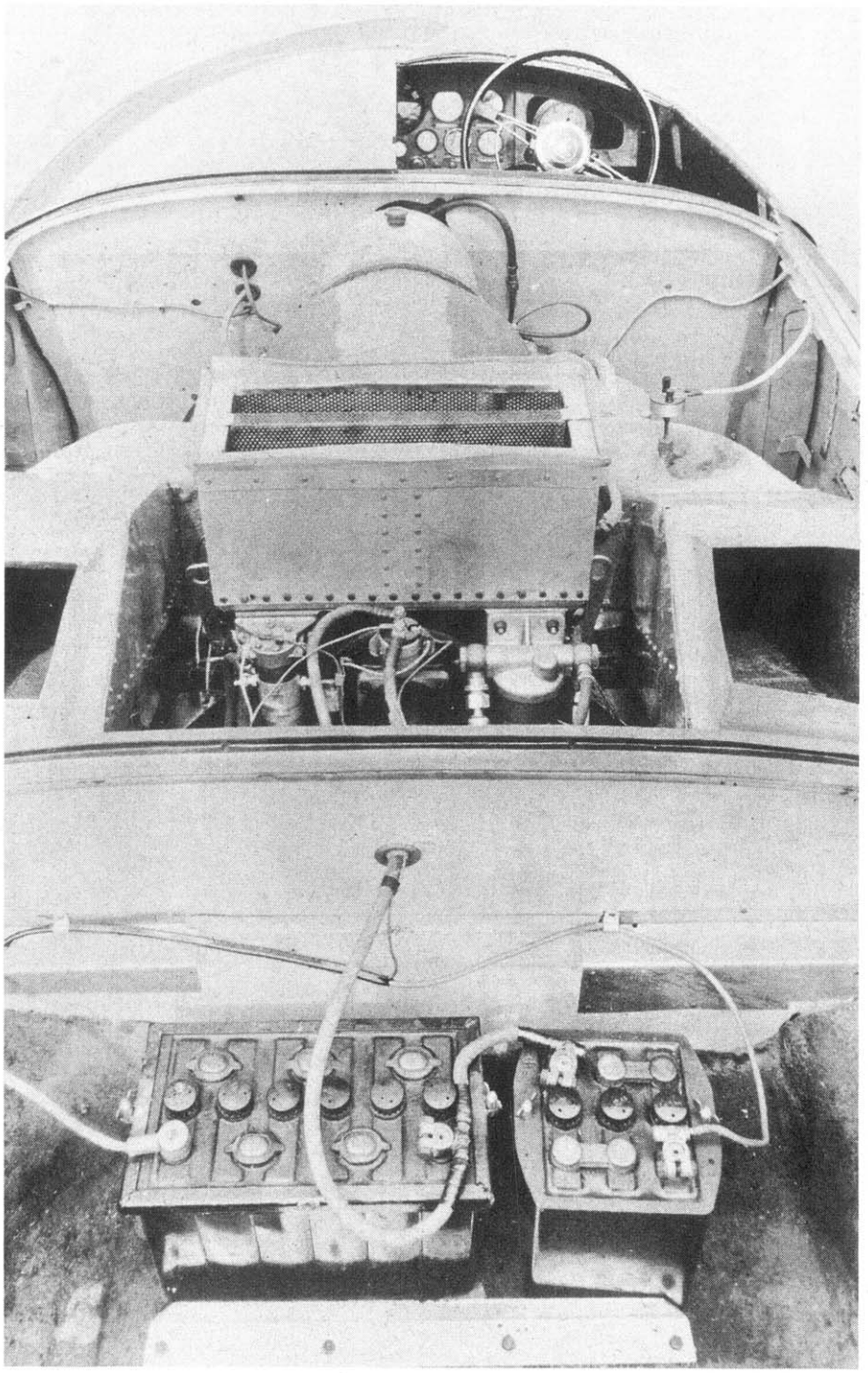
Thus the gas turbine abolishes, in one fell stroke, all the reciprocating tangles of the internal combustion engine. It replaces the gearbox, clutch and flywheel in a single step that must be recognized as the greatest advance in automotive engineering since the dawn of the century.

It was Mr. Hambling, chief project engineer of the Rover Company, who packed my wife and self into the famous 3-abreast JET-1. I noticed, with a growing feeling of alarm, that he snapped safety locks on the doors to make sure we wouldn't escape like little boys from a dentist's hall-door; then he slid behind the wheel, lit a cigarette, and switched on the engine.

The solid brick wall in front of us seemed like a dancing piece of Victorian solidity as a horde of shrieking devils went to work on their banshees.

Mr. Hambling pulled on the reverse lever, nudged me and said: "Two pedal control." He demonstrated by releasing the brake, whereupon this banshee-ridden prototype began to ease out of the garage. A toe on the brake pedal and JET-1 stopped at once. No clutch, no gearbox, simply incredible.

Due to the unorthodox characteristics of the gas turbine layout, the 240 HP unit merely drifts the car along at slow speeds but, as speed increases, so does the acceleration. One feature of the engine which will produce a lovely excuse for the speed-mad husbands whose driving comes under wifely fire, is that it is most economical at its highest operating speed . . . the 150 MPH region.



Engine is behind the driver.

Mr. Hambling was only building us up, however, for the main course. As soon as the works' gates were safely around the bend he stepped on the accelerator and did something which I know will never happen to me again. In less than 500 yards we swooped up to 100 MPH, stayed there for a fraction of a second and then screeched to a mere 40 as the disc brakes bit and held.

JET-1 is the fastest piece of road machinery in the world today. It has more than 3,000 miles on its dead-accurate speedometer and the strangest thing about the banshee noise is that from that 45 MPH upwards it becomes almost unnoticeable as wind roar and wheel hum take over.

I got some rough, unofficial timings during the demonstration runs and they did not take grades or weather conditions into consideration.

0— 30 MPH	5 seconds
0— 50 MPH	7 seconds
0— 60 MPH	9 seconds
0— 80 MPH	12 seconds
0—100 MPH	15 seconds

These figures are so fast as to be almost uncomprehensible to the man who owns what he considers a fast family sedan but which needs twice as long to reach the half century mark. They reflect the characteristics of the turbine car which grows more efficient as the speed increases.

Spurts of such a nature are not wise practice on busy roads, even in the hands of a competent driver, but the luck of the Irish was playing for us all the time. It happened in the second 100 MPH touch. We were ascending a rise when a lorry at the top decided to cut in front of us. On went the disc brakes, out went a smoke cloud from the agonized tires and "careful" went something in the lorry-driver's mind for he held back long enough for JET-1 to whistle by in a burning-rubber vacuum. It was nearly the first gas turbine car accident in history.

Even toe pedal driving where you keep your foot permanently on the pedal 'just in case,' leaves no room for chances at such speeds and, with a half-dozen rotors turning at something like 40,000 RPM behind you, an accident might make recognition a matter for one's dentist.

Kindly (and very bravely, I thought) our host handed the car over to me on the return journey and I had the pleasure of piloting the Rover experiment along the lanes and by-ways of rural England.

As a consequence I can say that, in my opinion, this air-devouring car contains all the ingredients for future motoring. The uncanny simplicity of it left me fully sold on the G.T. principle.

Ladies need not worry about the possibility of motoring returning to exclusively male hands when JET-1 driving reaches the world. My wife scared us all by accepting the invitation to drive the world's priceless and only gas turbine motor and announced that it was much easier to drive than an orthodox model.

So much for the lyrics. Now for the bread and butter questions and answers. The G.T. is unique, exciting and looks simple, but will it be a commercial proposition?

The answer, very definitely, is yes. The G.T. Rover is still an experiment and the various models now made are only mobile test-beds. However, the company is working on a gas-turbined sport car (the U.S. market had better look out) within the next five years. Thereafter, application of the design for general commercial use will be a formality.

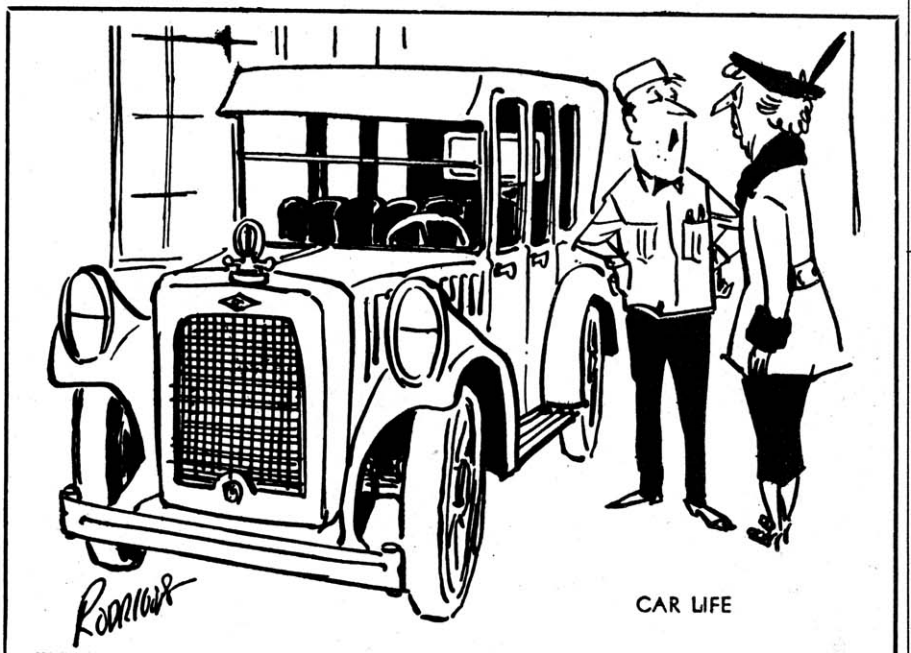
But—and this is a big but—the Rover Company is confident their current '75' gas-engined car will hold its own for many, many years. The gas turbine effort still must win its spurs. The company is rather pleased (and with reason) that JET-1 is happy and safe at its experimental 150 MPH while depending throughout on a perfectly standard Rover 75 chassis and suspension with the addition of disc brakes.

Already the gas turbine is more than 10% efficient and is further ahead than the gas engine was at the same stage of development. But it must be made considerably more economical (present MPG is around six before it can compete in the saloon car class.

The dispersion of the exhaust gases poses a problem and the gas turbine motorist will have to become accustomed to the idea of miniature smoke stacks behind him. The Rover men are confident that the screeching and other weird noises which accompany the revving of the turbines will put JET-1 to shame on this score.

Lastly, servicing and maintenance. Frankly the simple working of the new project appeared to me to be much less likely to go wrong than the clankety collection of cogs and con-rods that make up a gas engine. Anyway, the Rover bigwigs say that they will develop a replacement service to cover every eventuality when the time comes. This idea is essential because the average garage man outside the Rover factory would be most unlikely to have the equipment to dynamically balance a turbine shaft designed to run freely at 40,000 RPM! At the moment it is worth noting that a large aircraft engine of the piston design requires far more maintenance than an aircraft engine of jet operation.

That's the score. These are the facts about the new age for motoring. Who said the British were unimaginative? ☆☆



"Madam will appreciate that you can't rejuvenate an old chassis for nothing."