

Alternative Alternative Fuel Cars

by

David Szondy

A man drives his brand new car back home from the dealer. It's shiny and packed with the latest in high-tech design and gadgetry that the finest automotive minds in the world could come up with. He pulls into a service station for a fill up, but to our surprise he passes up the petrol pump in favour of ethanol. A scene involving a 21st century ecocar built to combat global warming? No, the year is 1908 and the car is a standard-issue Ford Model T built just as Henry Ford intended. The Model T, the car that sold 15 million between 1908 and 1927 and became an emblem of assembly line manufacturing, was an "alternative" fuel car.

Alternative fuels are the big thing these days and that isn't surprising. With oil price shooting up and down like a roller coaster from insane highs to absurd lows, fears about climate change, and a global economy that looks about as stable as a snow cone in a sauna, new ways of powering tomorrow's cars is a top priority for industry and governments. Even the Middle East, which is renowned for its huge oil reserves, is taking a keen interest. As the region develops, demand for oil and gas has rocketed in the past few years and analysts at Morgan Stanley predict that the Middle East will soon overtake China in demand—which is something of a problem for a region rich in oil, but lacking in refining capacity. Small wonder that the Middle East is as keen on alternatives as China or Japan.

Not that there's a lack of alternatives to choose from. Ethanol is well known with raw materials ranging from maize to sugar cane to saw grass to fungus. It wouldn't be surprising if they were making it from nose hairs soon. Then there's biodiesel from chip pan oil, rapeseed, and yeast; electric power; hydrogen power; all manner of hybrids; as well as fuels made out of tar sand, meat by-products (causing a great deal of angst among the more vegetarian greens), algae, and chicken poo. There are even those who claim to have built engines that will run on water, though they tend to be up before the magistrate on fraud charges. There are so many competing alternative fuels that it seems like no one has ever looked into it before and it must clearly be a 21st century phenomenon.

Not quite. If you want to see the heyday of alternative fuels, you have to go back to the first half of the 20th century and the first decade in particular.

As strange as it may seem today, when the first practical motor cars began to roll out of the factories, petrol was nothing like the fuel of choice. In fact, it was pretty far back in the pack. Around 1900, the smart money was on electric cars, which were the top sellers and boasted the most advanced technology on the market. True, they didn't have much range, but in a world without many paved roads, this wasn't that much of a problem. If you wanted something a bit sportier, there were the steam cars, which were the supercars of their day; providing remarkable acceleration that set speed records that didn't hurt in making steamers best sellers.

Petrol, by comparison, didn't seem to have much to offer. Petrol engines were complicated, prone to breakdown, smelly, dangerous to start for fear of the crank breaking your wrist if the handle flew back, and had an unnerving habit of bursting into flames at inconvenient moments. Worse, it wasn't easy to get your hands on petrol, with many motorists having to buy it from the chemist's alongside the stomach powders and sticking plasters. Even as late as 1913 the International Association of

Recognised Automobile Clubs was offering \$100,000 to anyone who could come up with a substitute for the difficult to obtain petrol. That was the reason why Henry Ford made his Model T to run on Ethanol, which he reasoned any farmer could distil for himself. Not that Ford lacked an eye for the future. Seeing that the problems of petrol were fast being solved, he made the Model T so it could burn petrol as well with a slight adjustment of the carburettor. But every Model T from first to last was what we would now call a “flex fuel” car able to burn ethanol or petrol.

And petrol did win out as the engines became more sophisticated and safer to operate with the invention of the electric starter, systems of distribution and refining became more extensive, and it was realised just how much power petrol packed litre for litre in comparison with any other fuel of the day. By the 1920s, it looked as though petrol was king and that alternative meant diesel, though this was a bit like saying that the alternative to coffee is cocoa or something equally nasty. Yet alternatives there were—and it wasn't just boring manufacturers figuring that they could get rid of all that creosote lying around by burning it in the company lorries or chemists who claimed to change hemp into fuel. We're talking about the visionary, lateral-thinking, and out-right daft, who are always far more interesting.

Internal combustion engines don't just run on petrol or some other flammable liquid. Some early motor cars, such as those built by the Santler brothers of Great Britain, ran on town gas. These were not very successful, however; partly because of the difficulty of handling the compressed gas and mainly because when people saw that you could fuel your car by stealing gas from any street lamp, they realised that the entire principle behind the thing was immoral.

Then along came that unpleasant matter known as the Second World War when, among other annoyances, petrol was severely rationed for military purposes and civilians had to make do as best they could.

This may sound as if people had to get about on oversized versions of a kid's pedal car. Okay, some people did do that, though why is a mystery, but the more practically minded went back to the idea of gas-powered cars. Of course, these weren't the sleek propane types that are used by some public transport lines and company fleets. The gas cars of the war years and just after were ordinary petrol cars modified to burn gas and were a bit more on the basic side, with “basic” often involving having a huge bag full of gas strapped to the top of the vehicle or towed behind in a trailer. Either way, driving around with a balloon attached it did tend to cut down on performance—assuming that you could get your hands on a supply of gas in the first place, which many people couldn't now that electric street lamps had removed a ready source. That meant that some cars were equipped with what were called “gas generators”. That's a fancy name for a big iron tank where coal or wood was heated to smouldering but without enough oxygen to burn so that it gave off gas for the car engine to run on. It looked as awkward as it sounds and performed about as well.

Still, if it hadn't been for gas-powered cars, Jacques Cousteau would have been without a job, because it was a regulator invented by Frenchman Émile Gagnan to allow petrol engines to use gas that was the inspiration for Cousteau's SCUBA device that permitted people to visit the wonders of the sea and made possible one of the sillier climactic battles in the James Bond film *Thunderball*.

Other “alternatives “ were more early technologies that didn't have the good grace to die. Electric cars, for example kept popping up every ten years with yet another attempt to break back into the mainstream, which isn't surprising when you consider that an electric car's motor has only one moving part, is incredibly reliable, and has so much torque that it accelerates like it's trying to knock your teeth out. It's only real drawback is the massive batteries needed to power the thing and provide it with the range of an arthritic tortoise wading through cement. Small wonder that people kept trying to get around the battery problem, such as an idea from the *Electrical Experimenter* magazine in 1916 that advocated building electric cars that ran on overhead power lines like tram cars. Since this involved

covering the entire road network in live wires at time when cars were still something of a luxury item, this idea was regarded as a bit limiting. A more advanced version came along in 1936 when the editors of *Modern Mechanix* magazine but forward the idea of eliminating the middle man and broadcasting electricity to cars using giant radio transmitters. It was a scheme that was breathtaking in its daring, stunning in its simplicity, and aggravating in its being a practical impossibility for any area larger than a table top.

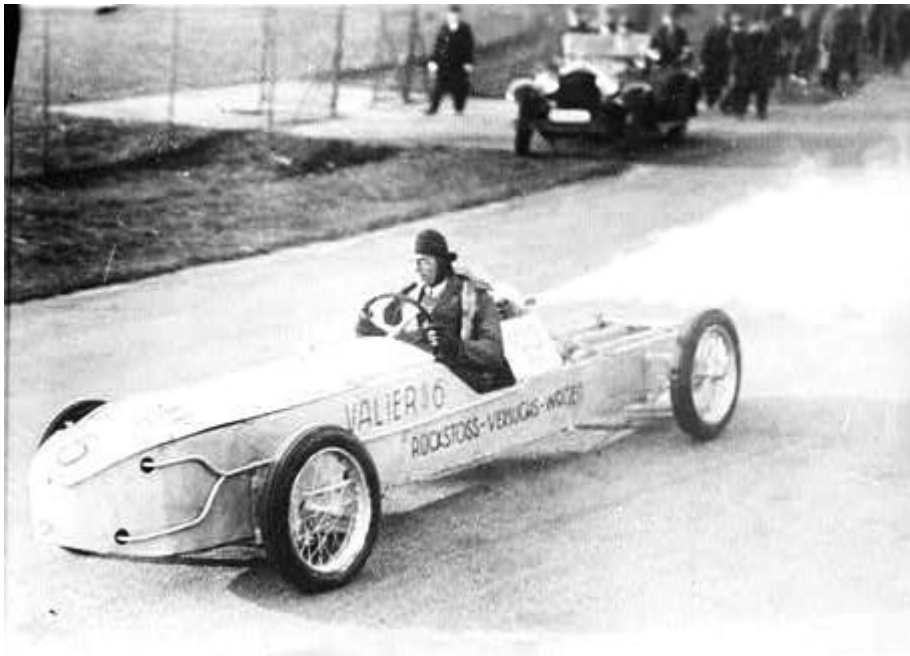
About now, 21st century motorists are asking the obvious: “What about hybrids?” The answer is, they were also around and quite early with the example of the Woods Dual Powered petrol/electric hybrid of 1917. That, however, is a bit boring because it involved sensible problems revolving around engineering and economics, so let's look at a more interesting hybrid; the Sinclair C5 of 1985. This plastic-bodied three-wheeler was intended to revolutionise urban travel with its bold new design as well as spiking accident statistics with its being so low to the ground that drivers couldn't see it until they heard a loud “thud” and wondered who'd put a sleeping policeman there. Technically, the C5 was an electric car or tricycle or whatever. Unfortunately, the minuscule battery had just enough power to run an undemanding hearing aid and the motor was built by a vacuum cleaner manufacturer and it showed. The hybrid part was the pedals tucked into the foot well; and with the state of the electrics, the driver got a lot of use out of them. No wonder only 12,000 were ever sold.

At the other end of the spectrum, we have alternative cars that were a bit more ambitious. That's “ambitious” in the sense of borderline crazy. Petrol? Steam? Gas? Electric? Hybrids? That's nothing. For a real alternative, you can't do better than the Ford Nucleon of 1958. This sleek little concept car with its streamlined cab and sweeping fins looked a bit like a futuristic pick-up truck, but if you look closely, you'll notice that instead of the cargo bed there's a “something” that would have allowed the Nucleon to travel 8000 kilometres between refuellings. That's because the Nucelon's engine was intended to be nuclear powered. The idea was that the back of the Nucleon would hold a self-contained nuclear reactor complete with steam generators, turbines; the lot. This nuclear power pack would run the car for as long as its uranium fuel held out, then you'd just pay visit to your local reactor dealer, swap out your old reactor, pop in a new one, and off you go. Granted, you did have to deal with the problems of radiation leaks, nuclear proliferation, and catastrophic meltdowns, but on the plus side, tailgating would become a thing of the past.

With that sort of insanity to live up to, alternative fuel car designers have some high standards to match. Not that some aren't trying. At the University of Nevada, Reno, scientists have concluded that the fuel of the future isn't ethanol or hydrogen, but coffee. They've calculated that the world uses more than 7.3 billion kilos of coffee a year and that the used grounds could be used to produce as much as 128 million gallons of biodiesel. With cream, that comes out to an even 130 million. That's a drop in the bucket to the 700 billion litres of diesel that the world uses each year, but at least the lucky few cars that ran on coffee diesel would be easier to start in the morning.

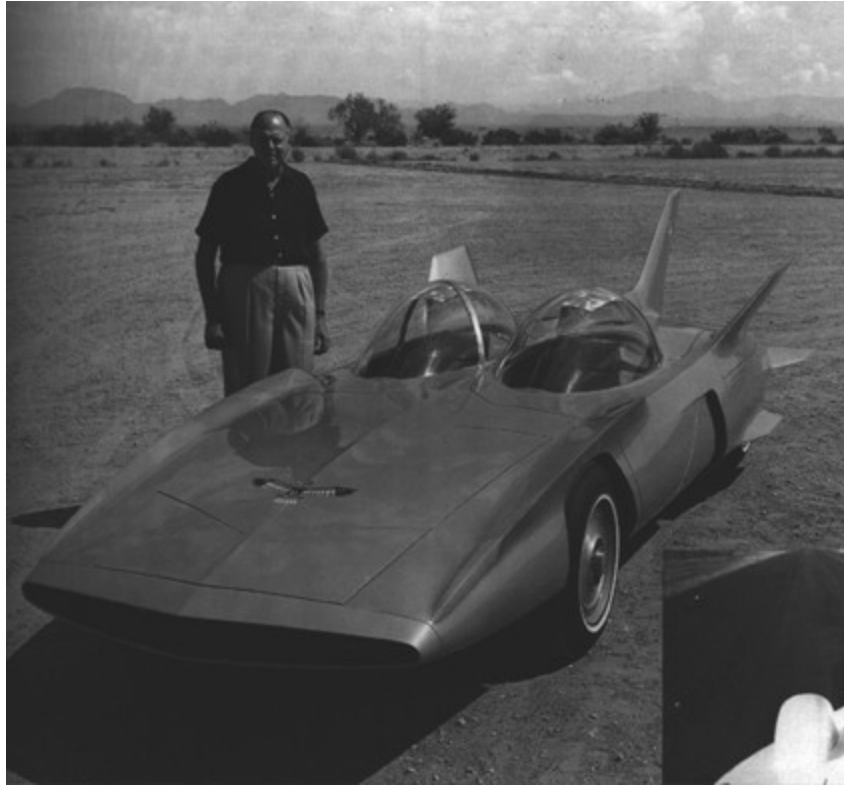
Top Five Odd Alternatives

- **Rocket Car**



One argument against alternative fuel cars is that they don't perform well. That certainly wasn't said about German rocket pioneer Max Valier, who in the 1920s and '30s who built a series of cars that ran on rockets using liquid oxygen. The handling was said to be good, but they only had two speeds: Stopped and really, really fast.

- **Firebird Jet car**



Earlier versions of the rocket car were the experimental jet turbine cars that the British and Americans experimented with in the 1950s. The most famous of these was the General Motors Firebird series of experimental cars, where the design philosophy was if it runs on a jet, then it should look like a fighter plane and be made out of titanium to boot. The only drawback was that the law required the driver to wear a Batman costume.

- **Poochmobile**



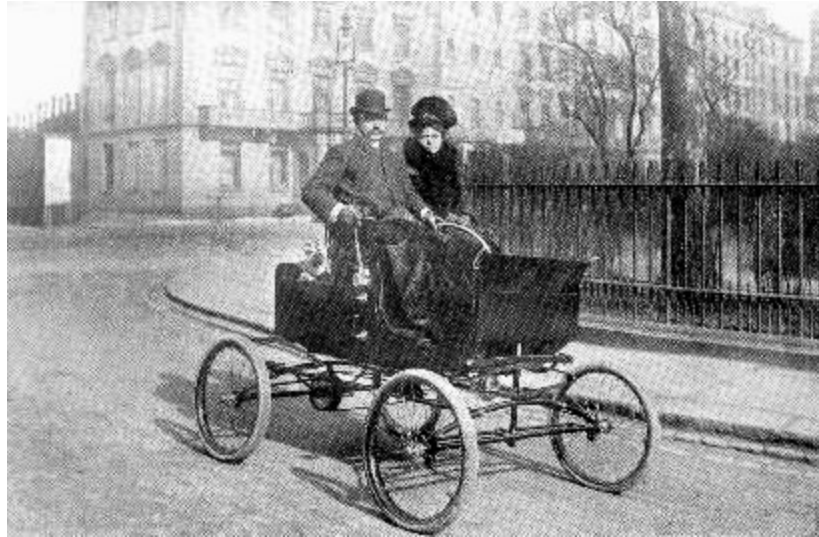
It's a car, see? And it's powered by a dog running around in a big wheel like a hamster and... Yes, I know it sounds similar, but a Morris Marina only performed *like* it had a dog on a wheel.

- **Charcoal Scooter**



From Sweden comes this motorcycle that runs off charcoal-generated gas. On the downside, you do have to put up with scorched trousers, but on the upside, you're always ready for an impromptu barbecue.

- **Liquid Air Car**



It's 1903 and the next big thing is cars powered by compressed air. Just remember not to bump the massive air tanks into any lamp poles when parking or you'll be doing a Max Valier impression before you know it.