MEANS OF TRANSPORT THAT A[MOST CHANGED THE WORLD



Martin Sodomka 🔶 Štěpánka Sekaninová 🔶 Tom Velčovský

Albatros

Illustrated by Martin Sodomka





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INTRODUCTION

f a thing is known, it's usually because it's the largest, fastest, strongest, most expensive, or smallest around. It's easy to remember. People often talk about it or write books, shoot documentaries, or even award-winning movies about it. Everyone knows

Some means of transport, though, aren't the best at something or featured in a movie, but they do play a role in our lives without us even realizing it. Buses, trains, ships, planes, cars that aren't record-holders but can be relied on. Every day they push our world forward, making sure it never stops moving.

of these things, many of which are means of transport.

And then there are the means of transport that people talk about once in a while and that sometimes appear in movies, documentaries, or books. But you never actually see them on the road, because either they never existed or they didn't prove their worth.

Take the remote-controlled car, for example. Perhaps you have a toy version at home you play with. But imagine what it would be like if your parents had a life-sized version. You'd sit in it and they'd use the remote control to drive you to school and back home again. If you think about it, there are many holes in this idea. In fact, it may be complete nonsense, but we definitely aren't the first to invent it. It has popped into many smart heads and been built by many skilled hands, though it has never been driven by everyday people.

In 1925, for example, one such car was presented to the public. Francis Houdina wanted to show off his invention, so the remote-controlled car set out into the streets. It looked to be driven by a ghost and scared the onlookers. And unfortunately, they remained scared because the car headed straight for them, causing quite a stir in the streets of New York City. Francis Houdina was advised to never try anything like this ever again. Also, the famous escape artist Harry Houdini, having caught wind of the accident, got angry because the company's name resembled his and smashed up the inventor's office. Which is strange, considering the illusionist himself borrowed the name from the magician Jean Eugène Robert-Houdin. Some claim that none of it mattered, though, and that the argument was staged as a marketing gimmick to draw attention away from the panic the cars had caused.



Surely this is the first time you've heard this story. Some things and people are unfortunately described as average, forgotten, useless, expensive, or insignificant. And it's precisely these means of transport we're excited to tell you about.



MOVING WALKWAY

tand still and let yourself be moved around by C • the pavement to the other side of the city-and then back again. Your feet don't hurt. You're nice and comfortable. Free to admire the city around you. It's quite common today and you can stumble upon moving walkways at just about any airport, but imagine it's way back in the year 1900! Both personal and public transport are metaphorically-thankfully-still in their diapers, and all of a sudden you're confronted with a moving walkway. Where? In Paris, of course! This grand convenience was installed there as part of a world's fair known as the Paris Exposition. Some relished in riding the pavement, seen by the era's engineers as the future of mass transport, while others were too afraid. Just imagine stepping off a platform and onto a moving belt, with no stops, and having to jump off again. And what if you wore a long skirt or elegant suit? At first you'd need to jump onto a slower walkway that moved at 2.5 miles per hour, and after that onto the faster one, which raced along at an astonishing 5 miles per hour. Those who, trembling with fear, clung to posts, while the braver ones further increased their speed by walking forward. Groundbreaking and entertaining as it was, though, the joy of riding through Paris on a moving walkway could be enjoyed only in the first year of the 20th century.

> Moving walkways were put to use much later, for example in department stores and at airports.





BRENNAN'S MONORAIL

G et ready for something that will blow your mind. It's entirely common—and by now not exactly noteworthy—that trains use two rails, but have you ever heard of a single-rail train?

Once upon a time it seemed like the greatest idea in the world. Engineers began thinking about developing a fast one-wheel train that could quickly negotiate turns, and they even set about actually making it. If you dislike two-wheel designs—say, if you took a bad fall from your bicycle—well then, rest assured that the gyro monorail, as such trains are known, could straighten up after tilting. And it could remain straight and safe even with a single wheel, thanks to something called the gyroscope—an invention designed to keep the train upright.

In fact, the design was being independently perfected by two engineers whose creations went on to delight the hearts of those lucky few who rode them. One of the best-known prototypes—Brennan's Monorail—inspired much more modern projects, also based on the idea of a single-rail train.

As you may have noticed, despite their obvious advantages, gyro monorails—unlike the typical doublerail train—aren't exactly common. Why? Money. Gyroscopes were just too expensive to be put into regular use. Moreover, many tracks would have needed to undergo costly, complex reconstruction. After all, they were originally built to serve traditional trains. But don't throw in the towel just yet! The gyro monorail's time might still come—perhaps in the far future . . . For now, the whole idea seems too crazy.



What is a gyroscope? The gyro monorail's mysterious energy came from it being balanced by two spinning wheels-called gyroscopes-mounted side by side, spinning in opposite directions. This was how it overcame the instability of balancing on top of a single rail.





RMS OLYMPIC

F or many European families a century ago, transoceanic voyages were an opportunity for a better future, a way to leave behind their crisis-ridden countries for the land of opportunity—the United States. The three ships of the shipping company White Star Line could also be seen as a family.

The most famous one was the *Titanic*, whose end was historically tragic. Even the *Titanic*'s younger sister, the *Brittanic*, ended tragically. It was originally named the *Gigantic*, after the race from Greek mythology, but its new name didn't bring it much luck. The *Brittanic* wasn't a luxury transoceanic ship but a floating military hospital. World War I changed many plans and lives, and the ship met her match in the form of a naval mine.

But the oldest and least-known member was the steamship *Olympic*, which was ever-so-slightly smaller than the *Titanic*, although it also didn't escape the family curse. During its fifth voyage, it crashed into the cruiser HMS *Hawk*. Since the crash was the *Olympic*'s fault, this had a negative effect on the White Star Line's finances. Just like her younger sister, the *Olympic* had to join the war. She survived and even managed to sink a German submarine, saving the lives of 9,000 U.S. soldiers. Unfortunately, the postwar era brought the ship no glory, and in 1935 she was sold for part. You can encounter fragments of her interior displayed in British restaurants and hotels. And so ends the story of these three nautical sisters.





During the war, the ship's design was adjusted so that it would be difficult to tell how far away it was and at what speed it was moving, thereby making it harder to hit.



1924

ugo Junkers (1859–1935), a famous German engineer, aircraft designer, and entrepreneur, wanted to develop a special transatlantic airplane for flights to the United States. He'd already designed the world's first all-metal plane—the Junkers F13—so why shouldn't he succeed in making a huge transatlantic plane? He sat down at his desk to draw, calculate, and design, and with the help of his head engineer, Otto Mader, invented a truly futuristic machine—one with a double fuselage connected by a pair of robust wings.

The main wing was huge enough to fit cabins and even bedrooms for 80 to 100 passengers and 10 crewmembers—12 cabins for six people and 14 cabins for two people. The seats were designed to make them easy to turn into beds. Hugo Junkers expected the incredible aircraft to spend up to ten straight hours in the air without landing, which made comfort very important. The main wing also contained a generously spaced hold. The fuselages functioned as a dining room and a lookout area. This plane of the future had four engines and retractable landing gear.

Hugo Junkers's design was ahead of its time by several decades. As tends to be the case with groundbreaking inventions, however, it was not fully appreciated at the time. American investors weren't interested in the Junkers J1000, and so the transatlantic project was never implemented, though some of its design features were later incorporated into other planes. The plane was huge even by today's standards. By comparison, the wingspan of the famous Boeing 747 is actually 8 inches shorter.

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- 1. Front view of the plane
- 2. Cross section of the cockpit
- 3. Cross section of a passenger cabin
- Cross section of an airplane wing showing seats for passengers in the wing (view from above)
- 5. (ross section of an airplane wing showing seats for passengers in the wing (side view)
- 6. Side view of the aircraft



DORNIER DO X

"W hat is that monstrosity floating up there in the air?"

"An aircraft. I've never seen anything like it." "No, it's not a plane, I don't think. It's a huge boat with wings."

These may have been the excited whispers exchanged in the early 20th century by those who watched the test flights of the Dornier Do X, a German flying boat. At the time, it was the world's largest and heaviest vessel, and its gigantic deck could accommodate nearly 100 passengers and 14 crewmembers. To make sure no one would get bored during the long journeys, the engineers gave their gigantic hydroplane some truly astonishing furnishings three decks, bars, restaurants, and areas for gentlemen to enjoy an afternoon cigar. If you got too tired, you could simply tilt your seat back and turn it into a comfortable bed.

This heavenly giant was constructed in 1929 and soared up in the sky exactly 103 times. Eventually, it came to light that its engines were too weak to carry the boat's exceptional weight—over 30 tons with no passengers plus they regularly overheated and could only lift the machine 1,400 feet above the surface. So the designers added more powerful motors, allowing the Dornier Do X to rise much higher and cross the Atlantic Ocean.

"Wonderful! Awesome! Amazing!"

Calm down, my friends. During a test flight over German cities, or rather while landing by a lake in the city of Passau, the gigantic boat suddenly lost its equally gigantic tail. And so ended the famous career of a luxury sky vessel that never really got off the ground.

The Dornier Do X arriving in New York (ity

Wingspan: 158 feet Length: 130 feet Height: 34 feet Top speed: 130 mph

DORNIER

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DYNASPHERE

"Help, there's a huge tire speeding down the road! Get out of the way or it will run us all over!" Don't worry, though. This 10-foot, 1,000-pound wheel didn't break loose. Take a closer look and you'll see a driver sitting inside, in full control of everything. It was the 1930s and the budding car industry was on the cusp of booming. Truly, it was the best time to give many different ideas a try, including a prototype by the British electrical engineer John Archibald Purves, who, inspired by the drawings of the genius Renaissance

inventor Leonardo da Vinci, created a bizarre so-called Dynasphere, nicknamed Jumbo. This unusual tireshaped vehicle with 10 metal rings arranged next to one another was believed to have a bright future ahead, in part because the moving metal structure could maintain a significant amount of power with limited engine use. But the Jumbo had one jumbo-sized disadvantage: its low speed. You couldn't get very far at 30 miles per hour. The complicated controls didn't make the monowheel popular either. The driver sat on a small seat inside the wheel, pressing on pedals with their feet to change gears and go into reverse. The only way to negotiate a turn, though, was to lean in the direction you wanted to go. Not exactly comfortable, right? And so, although Archibald Purves made two types of the Jumbo-one running on petrol and the other on diesel-and although he did all he could to fine-tune these unique vehicles, the Dynasphere never made it in the car industry and is viewed today as a peculiar goof.



J. A. Purves's dynasphere, driven by Charles Eric Purves, the doctor's son.

> The press called the Dynasphere the car of the future.



SOCOVEL 1942 ELECTRIC **MOTORCYCLE**

1941

t's said that every cloud has a silver lining, and sometimes that's true. Like in the case of Maurice Limelette, who was lying in a hospital, recovering from a serious car crash. Bored as he was, he had founded the Brussels Society for Studying and Constructing Electric Vehicles (Socovel) with his brother, and because his fascination with motor vehicles never left him, even after his terrifying encounter, he came up with a prototype of the electric motorcycle.

Since the world was being ravaged by war at the time–World War II, in fact, which led to gas shortages and rationing-electric vehicles were a way out of the mess. The design of an electricity-powered motorcycle immediately captured the attention of the Germans, who allowed the brothers to make 500 such motorcycles. The electric motorcycle was met with enthusiastic support from the general public. Although it was prohibitively expensive-the brothers bought their parts from different companies-400 of the bikes were sold in 1942.

But then the German army set its sight on them. The light bikes—with a top speed of 15 mph, a range of 30 miles, and 10 hours of charging time-would have been useful at airports as transport vehicles. The brothers didn't feel like collaborating with the occupiers and enemies of their country, so they refused to comply. Finally, peace came and with it enough gas. The enthusiasm for expensive electric motorcycles began dropping steadily. In the early 1950s, the Socovel company still had 80 military motorcycles left in its warehouse. But with nobody interested anymore, what were they to do with them? Scrap them, thought the brothers. And that's just what they did.



HAFNER ROTABUGGY

1943

orld War II lit a fire under engineers, designers, and scientists, motivating them to discover something new to help people survive those crazy times. With limited funding, they came up with timeless prototypes, one of them being the Hafner Rotabuggy-a flying jeep. British army engineers wanted this vehicle to be able to fly-yes, you read that correctly-just about anywhere if necessary, quickly and without wasting time. Upon arrival, soldiers were to use it like they would any other off-road vehicle. Once required somewhere else it'd spin its propeller and wheel, be off, and fly to another unit before the company could say anything.

This practical army hybrid was authored by Raul Hafner, a technician working for Britain's Royal Air Force who had already made a proposal for a single-seat glider. The Hafner Rotabuggy was based on the concept of a glider. In order to take off, it needed to reach its top speed, but as revealed by the first test, conducted on December 16, 1943, the test freight vehicle couldn't do that. On December 27, 1943, though, the test succeeded and a 4.5-liter-engine Bentley rose to the sky. Hurray!

Easy there. Once the vehicle reached 44 mph, its robust body began shaking uncontrollably, forcing the driver-pilot to land. But Raul Hafner didn't give up. He kept working on the Rotabuggy, kept perfecting the design. The final test flight took place on February 1, 1944, and was very successful. But. . . it was too late. There wasn't any interest in the flying jeep anymore. In the meantime, other smart engineers had developed gliders that could easily transport military vehicles to wherever they needed to go . . .

Raoul Hafner also proposed a "rotachute"-named after the parachute-to help soldiers land at the exact spot of their choosing. But it was never widely used.



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Written by Štěpánka Sekaninová & Tom Velčovský



Illustrated by Martin Sodomka

We all travel sometimes—by car, bus, train, or plane. But there are some means of transport we completely ignore. Crack open this book, wonderfully illustrated by Martin Sodomka, and learn why we don't travel in flying cars, why trains don't ride on a single rail, or why there are no life-size remote-controlled cars! You're about to be flooded with fascinating ideas, prototypes, and attempts to invent something new over the course of the last century. The means of transport presented here might not have led to technological revolutions, but they did help us progress. After all, we do learn from our mistakes.







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