

Carolina Conductor



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Monthly Newsletter of the Carolina Railroad Heritage Association, Inc.

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Preserving the Past Active in the Present Planning for the Future

Web Site: hubcityrrmuseum.org

Facebook: Carolina Railroad Heritage Association & Hub City RR Museum

Meeting Site:

Woodmen of the World Bldg.

721 East Poinsett Street

Greer, SC 29651-6404

Third Friday of the Month at 7:00 pm

Hub City Railroad Museum and SOU Rwy Caboose #X3115:

Spartanburg Amtrak Station

298 Magnolia Street

Spartanburg, SC 29301-2330

Wednesday 10-2 and Saturday 10-2

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Articles can be submitted anytime.

Railplanes

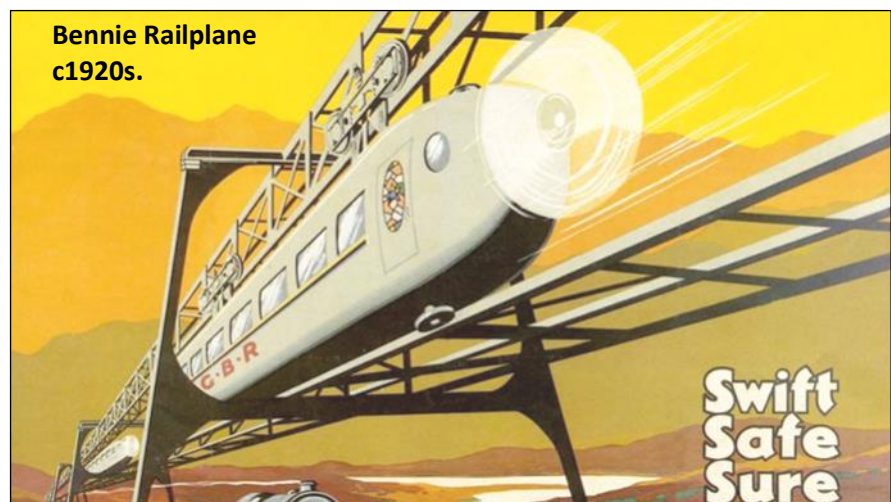
But without a doubt and arguably the 1920s the most exciting and futuristic proposal was the one patented and built by George Bennie. The beautifully streamlined monorail coach was powered by two electric motors drawing power from the local tram grid to produce a continuous 60 brake horse power, with 30 second bursts of up to 240 b.h.p. Each motor drove a separate four-bladed airscrew/propeller positioned at either end of the fuselage to give a projected cruising speed of up to 120 miles per hour.

Mounted on a rigid overhead structure, the system neatly combined the safety of rail travel - it was dubbed 'Railplane' from the very beginning - with something like the speed of an air travel, but with none of the problems later associated with the latter. Furthermore, by constructing the monorail over existing railway tracks, costs and some other environmental considerations would have been kept to a minimum to produce an effective and highly efficient transporta-

tion system with the secondary benefit of separating fast passenger traffic from slow moving freight trains.

The capsule was suspended from the steel trestles on two bogies mounted on laminated springs with a 'sway frame' structure beneath to act as a guide, but bearing no actual weight. A set of locating wheels were employed underneath to take up undue swaying on curves due to centrifugal forces. With the railcar being propelled by airscrews, its tare weight, or total weight before passengers, goods, etc., was low and adhesion did not enter into the tractive-effort calculations.

But the real genius in the design was the 'lifting-plane' (or wing airfoils) at either end to give lift. To quote Bennie's patent application dated September 1921: 'As the speed of the craft increases, the weight of the same is gradually transferred from the rail to the planes so that any tendency of the craft to rise can be overcome by adjustment of the lifting planes'. Heady stuff for the



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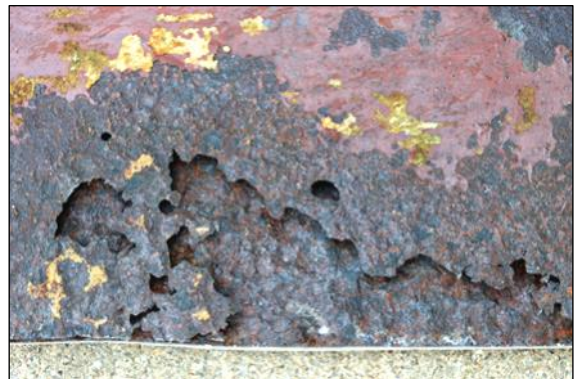
Wanted—Articles for the Carolina Conductor

Submit an article of 200 words or more with some photos and captions and see them in print. Every one of us has some unique railroad experience that would make interesting reading for our membership. Your editor always needs more contributions of local railway history and news.

President's Message

Once again there will be no regular monthly meeting at the Woodman of the World this month. The plans are to have an outdoor meeting in Spartanburg at the depot in September similar to previous Night at the Museum meetings minus the food.. The program will be announced in the next newsletter.

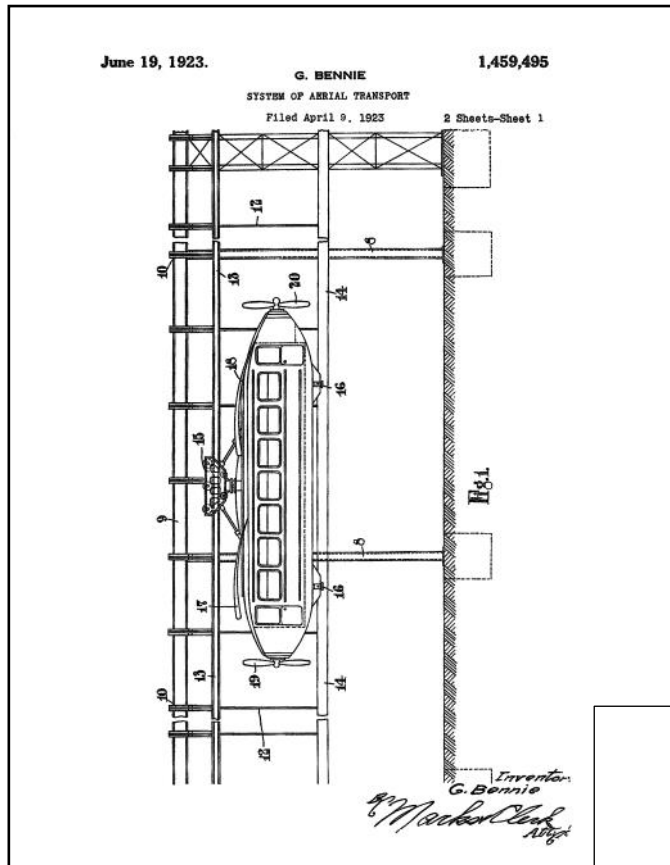
Work continues on the caboose. Several patches are being welded into spots, by Jim Hopkins, where there was rust thru areas.



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early Twenties, but the basic principle that keeps aeroplanes aloft and the adverse to that used to keep modern Formula 1 cars in contact with the ground. Gradients as steep as 1 in 25 would be negotiated with ease due to no wheel adhesion being necessary - leaves on the 'line' would never be a problem!

In 1929/30 a short experimental track of approximately a quarter of a mile in length was built by The Teeside Bridge & Engineering Works at Milngavie on the outskirts of Glasgow. George Bennie gave many demonstrations with interest running high at the



"The capsule was approached" he said, "By a flight of wooden stairs leading to a platform about 40 feet above the ground and the vehicle resembled a cross between an aeroplane fuselage with propellers at either end and a tram with controls at both ends". "It was clothed in aluminum with large windows on either side and a long sloping windscreen front and rear; the interior by that time had been almost gutted, but had obviously been very luxuriously appointed". He went on to say, "Our guide, who was the garage proprietor, had with him an enormous ceramic fuse holder which he proceeded to plug into a switchboard at platform level. "We entered the cabin, walked up to the driver's cab at the front and he then operated the controls which were similar to those of an old-fashioned tram. "The propeller stopped turning idly in the wind and began to pick up revs in front of us. "The light entering the cabin, I remember, had a flickering quality as the blades spun faster and faster. "To my amazement the mechanical brakes which held the car stationary were released, and the machine moved slowly off down the track. "As we approached the end, travelling quite slowly, the motor was slowed and then put into reverse so that the air-screw brought the machine to a halt. "The propeller was then reversed pushing the Railplane back to the platform, moving at little more than 5 mph".

Sadly, nothing ever came of this venture, although the creator tried to revive it after the Second World War but to no avail. Always a favorite model with Meccano model-building addicts, the monorail structure was nevertheless kept in the limelight by authors such as Ernest Carter in Model Engineer magazine and the like. The only remaining artifact of the venture known to be on display today is a model in Glasgow Museum of Transport.

After hanging forlorn and derelict for many years, the system (which undoubtedly would have done much to relieve traffic congestion had it been widely accepted) was broken up for scrap in the mid-Fifties.

time and proposals were put forward to link the aforementioned city with Edinburgh, a journey which could have been completed in less than half an hour. Southern Railways also expressed interest in a London to Croydon Aerodrome link.

But the Thirties were the wrong time for such advanced ideas. Finance was extremely difficult in those post-depression days and a catastrophe in the shape of the Second World War was looming. The project was eventually abandoned.

Just after the war, about a decade before my visit to Milngavie, another 14 year old schoolboy of the time, Christopher Wood, can recall visiting the site with his father. They were on a business trip to a local garage which backed onto the structure and he can, to this day, vividly recall seeing what was now a rather sorry looking, but still almost complete, monoplane.



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Railplanes in the US?

Not many of you will have heard of this gentleman who had an influence in the early diesel era in the US. His designs were right up there with Lowey and Kuhler! Ed.

William Bushnell Stout

He was a pioneering American inventor, engineer, developer, and designer whose works in the automotive and aviation fields were ground breaking. Stout designed an aircraft that eventually became the Ford Trimotor and was an executive at the Ford Motor Company.

Early Years

William Bushnell Stout was born March 16, 1880 in Quincy, Illinois. He graduated from the Mechanic Arts High School, in St. Paul, Minnesota in 1898. He then attended Hamline University, and transferred in his second year to the University of Minnesota, being forced to quit due to extreme eye problems. He married Alma Raymond in 1906. Stout was interested in mechanics, especially aeronautics, founding the Model Aero Club of Illinois. In 1907 he became Chief Engineer for



Typical Schurmeier truck design.

the Schurmeier Motor Truck Company and in 1912, he became automobile and aviation editor for the *Chicago Tribune*. In the same year he founded *Aerial Age*, the first aviation magazine ever published in the United States. He was also a contributor to the *Minneapolis Times* under the pen name, "Jack Knieff."

Automotive Career



A Cyclecar is a small, lightweight, inexpensive means of transportation., between a motorcycle and full size automobile.

In 1914, Stout became Chief Engineer of the Scripps-Booth Automobile Company. His "Cyclecar" had caught the attention of Alvan MacCauley who subsequently brought Stout to Packard Motors in Detroit. He had become General Sales Manager of the Packard Motor Car Company and in 1916, when they started an aviation division, they asked Stout to become its first Chief Engineer. In 1919 he started the Stout Engineering Company in Dearborn, Michigan, complete with a research section and later built the prototype Stout Scarab car in 1932. In 1934 he founded the Stout Motor Car Company. The "beetle-like" Scarab featured an all-aluminum

tubular airframe covered with aluminum skin, with the engine compartment at the rear, a sealed storage compartment in front of a passenger compartment with reclining aircraft-type seats. The front or nose of the vehicle contained the spare tire. Only nine Scarabs were ever built and although advanced, the public never appreciated the innovative features of the vehicles.

In the mid-1930s, Stout in co-



The Stout Scarab automobile.

operation with L.B. Kalb of Continental Motors, a major manufacturer of lightweight air-cooled aircraft engines, and did some extensive research and pre-production development into rear engine drive automobiles which were powered by aircraft engines. Stout even commissioned the well-known Dutch auto designer John Tjaarda to design some streamlined car bodies, although none of the car designs ever reached production.

In the last years of World War II, Stout, in co-operation with Owen Corning, began what was called *Project Y* to build a one-off car for evaluation of ideas like a frame-less fiberglass body, belt drive rear wheel drive, a suspension which kept the

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The Project Y model Forty-Six car.

vehicle from leaning into turns by adjusting the suspension using compressed air, and push button electric doors. When the vehicle was made public in 1946, Stout picked the name *Forty-Six* for that year. Some firms considered producing the Forty-Six, but as Stout stated he doubted there would be much of a market for a \$10,000 dollar car, the estimated price if it had been mass-produced.

Aviation Career

Stout's aviation career began because of his success in his automotive efforts. He began to build several all-metal aircraft designs, which, like the earliest aircraft designs of Andrei Tupolev in the Soviet Union, was based on the pioneering work of Hugo Junkers. In February 1923, newspapers carried stories of the test flights of the *Stout Air Sedan* with Walter Lees as the pilot. In 1924 his company, the Stout Metal Airplane Company, was bought by the Ford Motor Company.

Stout developed a thick-wing monoplane, and his design of an internally braced cantilevered wing improved the efficiency of aircraft. This led to the development of the famous "Batwing Plane" and the all-metal "Torpedo Plane". After his



The Stout "Batwing" aircraft.

career at Packard Motors, he left for Washington to serve as the advisor to the United States Aircraft Board.

Stout developed an all-metal transport aircraft for mail use, the Stout 2-AT. His three-engine follow-on, the Stout 3-AT, was underpowered, and did not perform as well, leaving Stout out of the engineering role in his company newly acquired by Ford. The redesigned 3-AT did form the basis for the popular Ford Trimotor aircraft.



Early Stout Trimotor aircraft.

In August 1925, Stout inaugurated Stout Air Services, which operated the first regularly scheduled airline in the United States. Stout also built the Liberty-powered all-metal monoplanes to initiate this service. Later, between 1928 and 1932, the airline flew passengers and Ford cargo between Dearborn, Chicago, and Cleveland. In 1929, Stout sold Stout Air Services to United Airlines.

After the Great Depression in

1929 reduced sales of the Trimotor aircraft, Stout left Ford in 1930. Although no longer with Ford, he continued to operate his Stout Engineering Laboratory. Stout also invested in the short-lived Wichita, Kansas based Buckley Aircraft Company, developing the all-aluminum Buckley LC-4.

In 1930 Stout said: "Aviation in the U.S. has been stagnating for two years. We are all copying. Aviation has shown no progress ... comparable to that made in radio and talking pictures. Think how many copies have been made of the plane Colonel Lindbergh used on his flight across the Atlantic ... of other famous planes. None of us are building the plane that the public wants to buy, and that proves we are standing still."

In 1943 Stout sold the Stout engineering laboratory to Consolidated Vultee Aircraft Corporation becoming the Stout Research Division of Consolidated. He was named the director of Convair's research division through World War

II. While at Consolidated, Stout promoted three designs for postwar production, including a flying car using a Spratt wing.

Stout's other innovations included the *Skycar*, an automobile/airplane hybrid and a Pullman Railplane and Club Car. He is also known as the originator of prefab housing and the sliding car seat. All these innovations were modern in design, incorporating many features new in both appearance and func-

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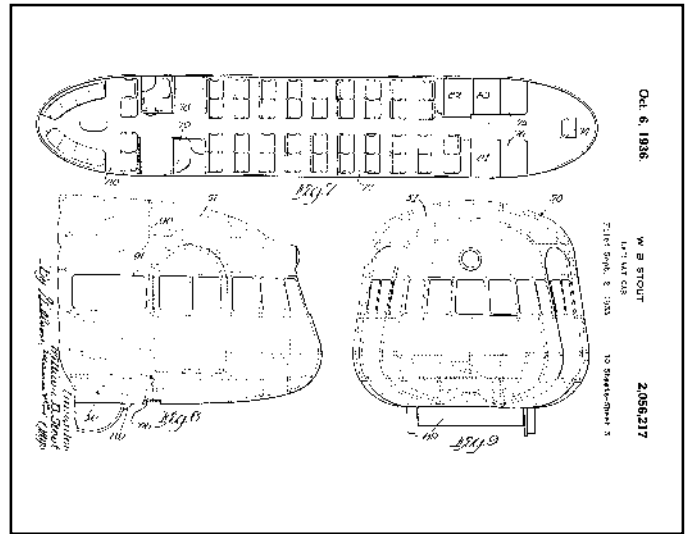
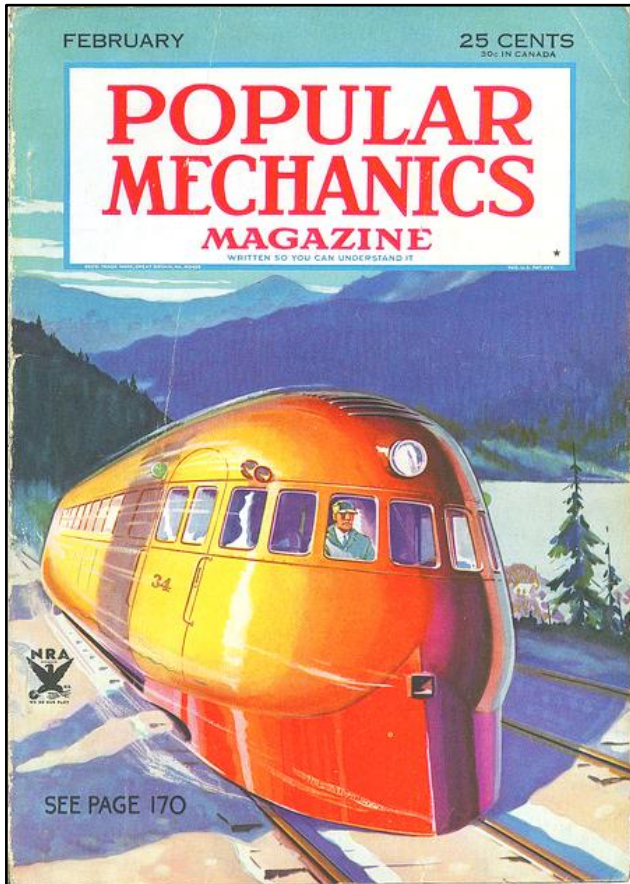


The Stout "Skycar".

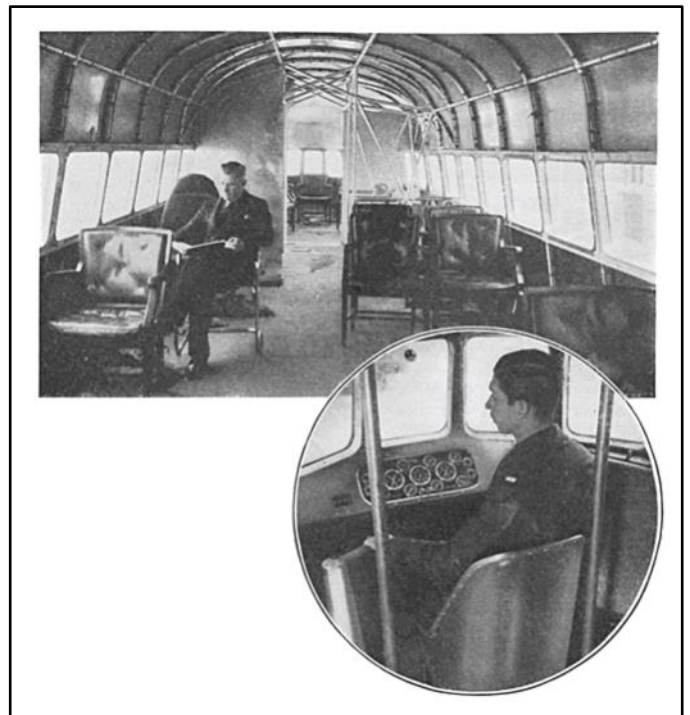
tion, features not yet available in vehicle design.

Railroad Career

Pullman-Standard Railplane, designed by William Stout and manufactured by Pullman Car & Manufacturing Company in 1933. The self-propelled car had an aluminum body, 60' in length. It was exhibited at the Chicago World's fair 1934 and then leased to the Gulf, Mobile & Northern in 1935 for service between Tylertown and Jackson, Mississippi. The Railplane is prin-



Patent drawing for the Pullman Railplane.



Interior views of the Pullman Railplane from the Popular mechanics magazine of the era.

cipally known as a test vehicle although it saw some small commercial service. It weighed 20 percent as much as a conventional railroad car, but using only two minuscule (by railroad standards) 320-hp six-cylinder truck engines, was able to hit 100 miles per hour, while delivering 5 miles

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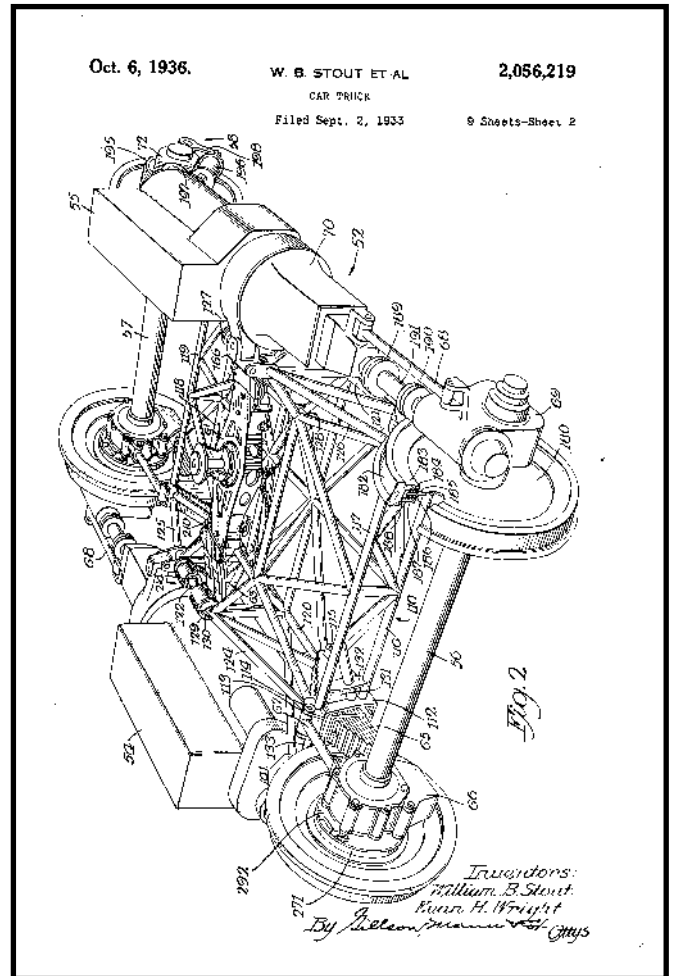
per gallon. By comparison to conventional railcars, the ride was superb, engine noise and fumes were all but eliminated and the seating arrangement - using aircraft-type seats as fitted to the Scarab automobile - made the Railplane quite luxurious.



Children's metal toys of the Railplane.



Artist rendition of the Pullman Railplane.



The Railplane power truck.

Other Stout Designs



The UP M-10000 car design built upon the efforts of William B. Stout, an early designer of all-metal airplanes, who adapted fuselage design ideas to the *Railplane*, a lightweight self-propelled railcar built by Pullman-Standard in 1932. The tapered car cross-section, lightweight tubular aluminum space frame construction, and Duralumin skin of the *Railplane* were carried over into the M-10000 design. Pullman-Standard also constructed the *Green Diamond's* original fixed consist, which included a power car, baggage/mail car, coach, coach-dinette, and kitchen-dinette-parlor-observation car using the Stout method of construction.



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