

Aereon Corporation - *Aereon III*

Peter Lobner, Updated 24 August 2021

1. Introduction

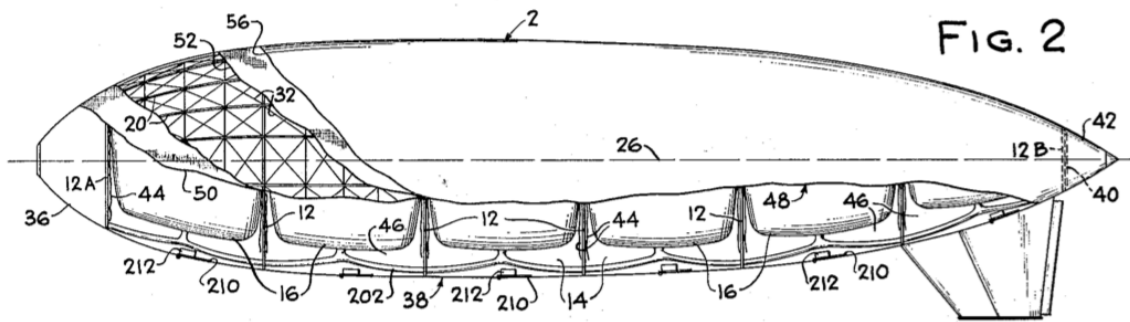
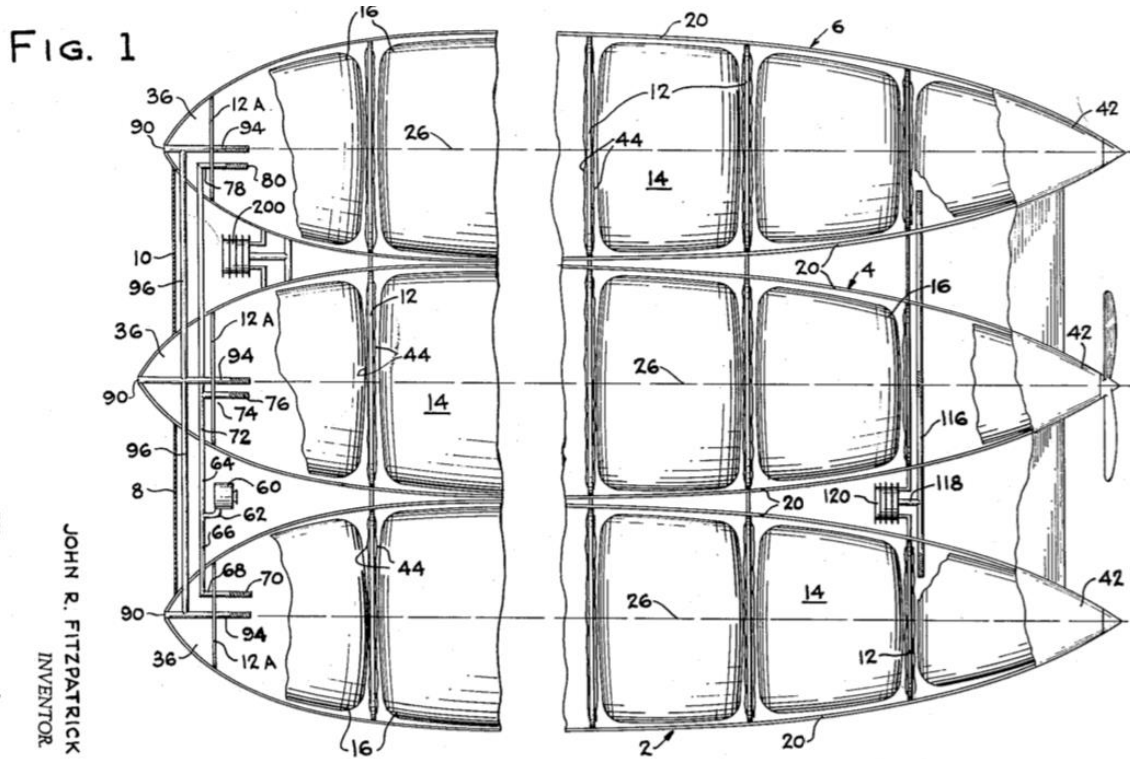
Aereon Corporation was founded in 1959 by Monroe Drew and John Fitzpatrick in Princeton, New Jersey. The firm was named in honor of Solomon Andrews' 1863 airship *Aereon*, which was a three-hulled craft, also built in New Jersey, that propelled itself without an engine by alternately becoming positively or negatively buoyant to generate forward thrust while porpoising through the air. Andrews' second variable buoyancy propulsion airship was the single-hull *Aereon II*.

Aereon Corporation designed and built the *Aereon III* hybrid airship. They also developed and patented designs for a family of semi-buoyant and heavier-than-air lifting body aircraft collectively known as Dynairships. The small Aereon 7 and Aereon 26 heavier-than-air aircraft were sub-scale aerodynamic demonstrators for the lifting body design planned for much larger Dynairships. In this article, we'll take a look at *Aereon III*. The Dynairships are addressed in a separate article.

The official Aereon Corporation website went offline in 2016, but has been archived at the following link: <http://aereoncorp.com>

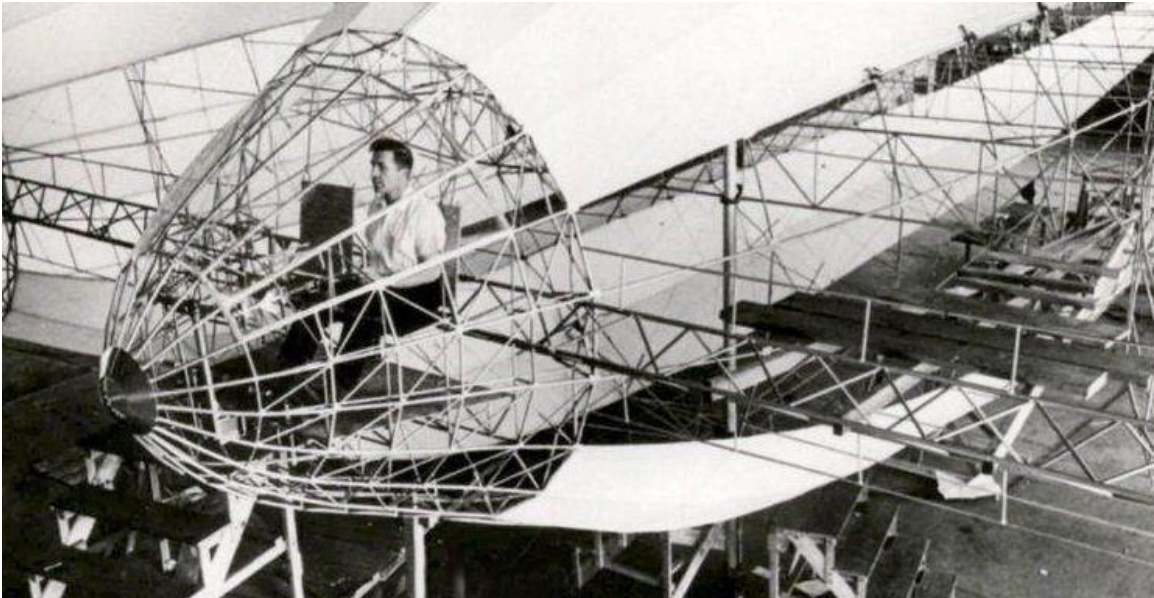
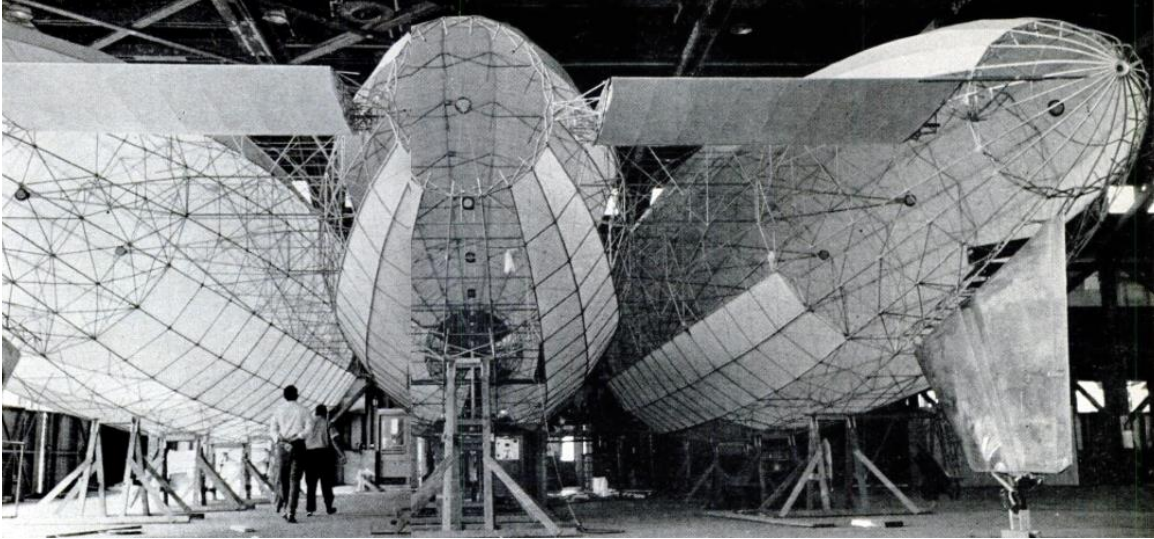
2. *Aereon III* (early 1960s to 1967)

Aereon III was an experimental, rigid, hybrid airship comprised of three side-by-side, streamlined hulls connected by airfoil-shaped truss structures that generated aerodynamic lift during forward flight. Each of the three rigid hulls was 83 ft (25 m) long and 17.5 ft (5.3 m) in maximum diameter. The complete vehicle had a maximum width of 55 ft (16.7m). Each hull contained six helium gas cells. The helium gas cells and the outer skin of the airship were made of DuPont Tedlar. Details on the airship design are presented in patent US3180590A, "Pressurized Airship," which was filed in January 1963 and granted on 27 April 1965. It is available at this link: <https://patents.google.com/patent/US3180590>



Aereon III plan & elevation views.
 Source, both diagrams: Patent US3180590A

To manage buoyancy without releasing helium gas or ballast, the helium temperature was controlled by a propane-fueled heating system and a series of cool-air blowers. On the ground, with the helium cooled, the *Aereon III* airship was designed to be about 400 lb (181 kg) heavy when filled at 85% helium capacity.



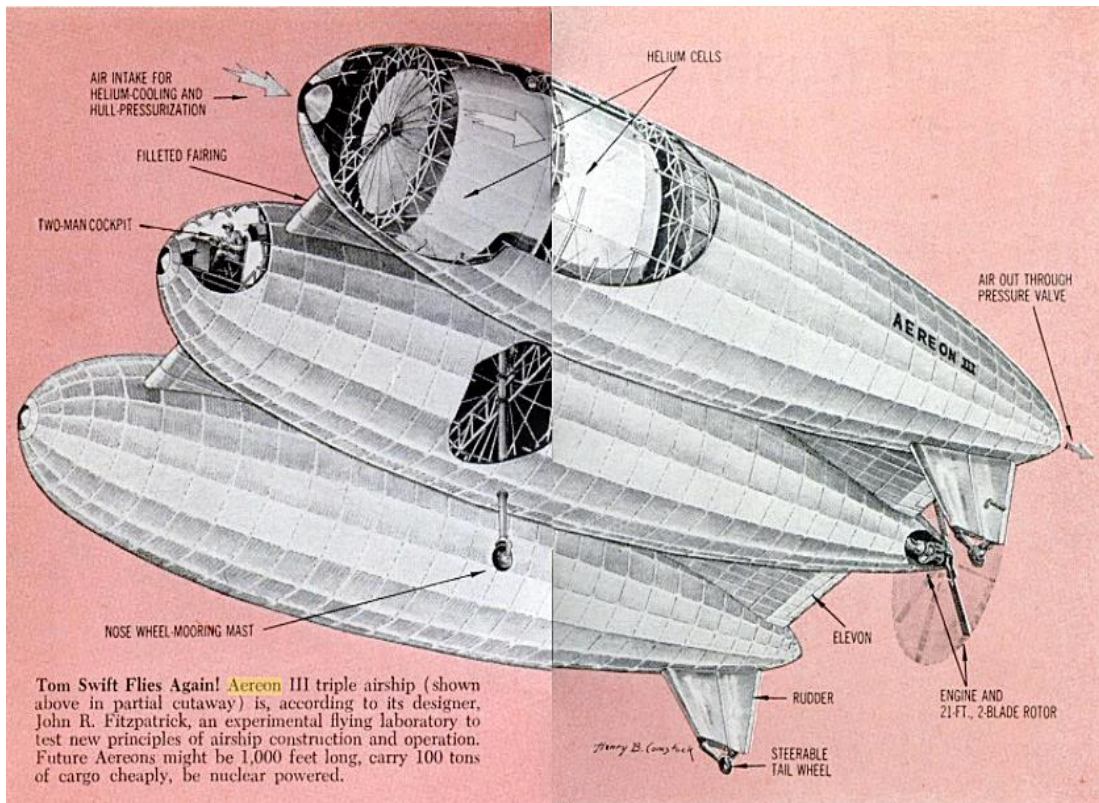
*Aereon III under construction showing its geodesic rigid frame. John R. Fitzpatrick, the project's Chief Engineer is shown in the two-person cockpit in the central fuselage.
Source, both photos: Popular Science, November 1962*

Primary propulsion was provided by an 80 horsepower (60 kW) Solar gas turbine driving a rear-facing, 21-foot (6.4-meter) diameter, two-bladed helicopter rotor used as a propeller. Maximum speed was expected to be 60 – 70 mph (97 – 113 kph).

Popular Science (Nov. 1962) reported that, like Solomon Andrews' triple-hull *Aereon I*, *Aereon III* was designed for variable buoyancy

propulsion without using its propulsion engine. It was expected to be capable of generating forward speed and porpoising through the air by alternately adjusting buoyancy and pitch between positive buoyancy / positive pitch and negative buoyancy / negative pitch.

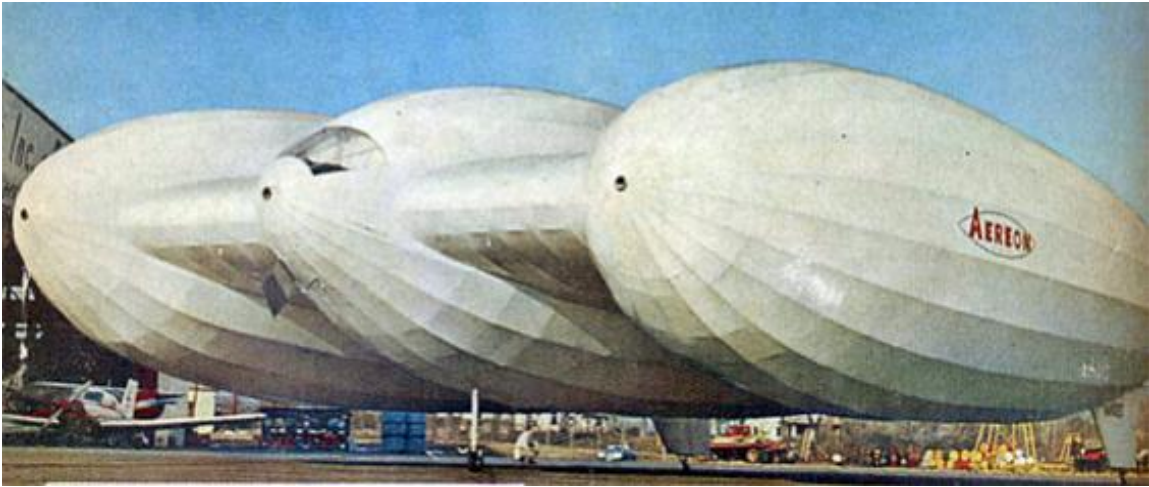
The *Aereon III*'s mooring mast was the telescoping front landing gear, which can be seen in the following figures. The long strut extends into the center hull, where loads are distributed to airship structures.



Aereon III cutaway drawing. Source: *Popular Science*, Nov. 1962

Aereon III was constructed between 1959 and 1965 at the Mercer County Airport near Trenton, NJ. While preparing for its first flight, *Aereon III* was badly damaged during taxi tests in 1966 when it was caught by a sudden gust of wind during a sharp turn. The fragile, lightweight *Aereon III* was flipped over onto its back and then flipped again onto its undercarriage. The damaged airship never flew. Initial repair efforts were redirected toward reconstruction into a new, larger, metal-clad, partially delta-shaped configuration known as the *Aereon IIIB*, which measured 100 ft (30.4 m) in length with a span of 75 ft (22.8 m). This work was discontinued as *Aereon* focused on its

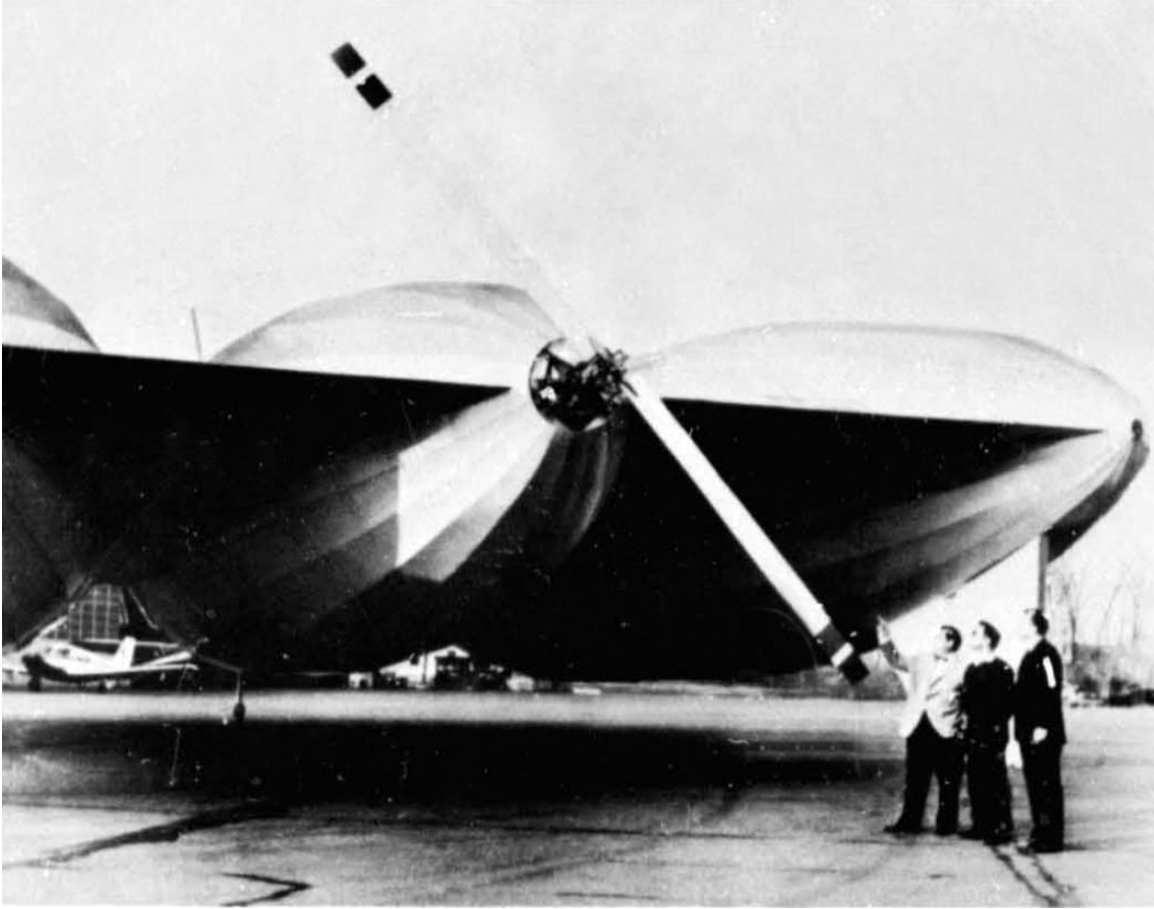
more advanced and more capable Dynairship designs. *Aereon III* finally was dismantled sometime in 1967.



*Aereon III at Mercer County Airport, NJ in 1966.
Cockpit glazing is visible at the front of the central hull.
The nose wheel / mooring mast is visible under the center fuselage.
Tail wheels are at the bottom of vertical fins on the outer fuselages.*



*Aereon III showing crew access into the central hull.
Source, both photos: Nigel Kaley, 2003*



Above: Aereon III at Mercer County Airport, Trenton, NJ, 1964. Note the 21-foot (6.4-meter) diameter, two-bladed helicopter rotor used as a propeller. Persons in the photo are C.A. Beck, J.R. Fitzpatrick, and M. Drew, Jr. (L to R). Source: "The Dynairship," by William McElwee Miller, Jr.



Left: Rendering of the Aereon III in flight. Source: Aereon Corp

3. For more information

- Nigel Kaley, “Modern Airship: A review of 40 years of airship development,” 1962: <https://docplayer.net/79584867-Mr-nigel-kaley-united-kingdom-the-modern-airship-a-review-of-40-years-of-airship-development.html>
- Herbert O. Johansen, “Behold the Trigible,” Popular Science, November 1962: https://books.google.com/books?id=VCEDAAAAMBAJ&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false