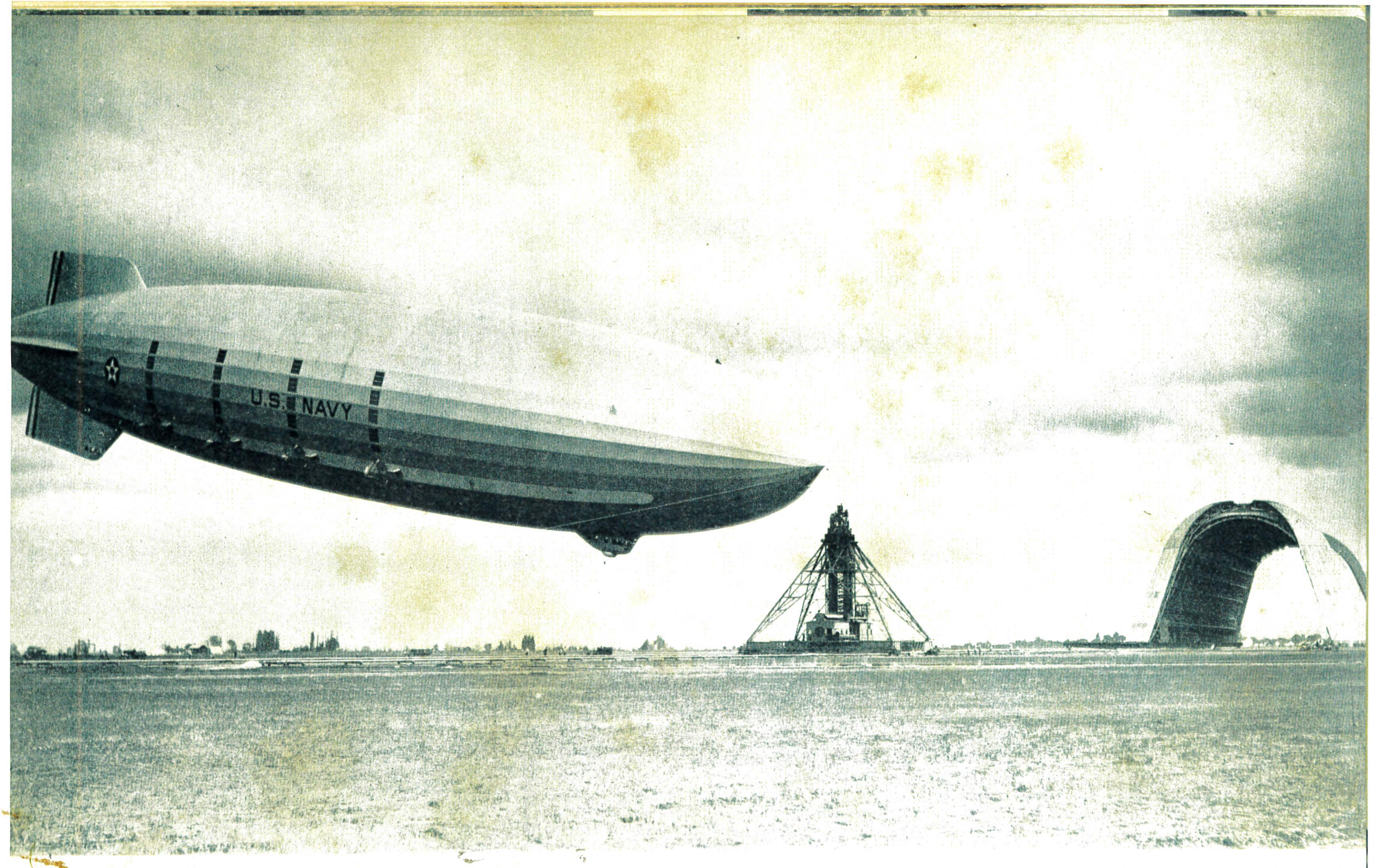
The Wind and Beyond

THEODORE VON KÁRMÁN



"In my mind the handsome gas-filled bags of the skies were one of the great products of early aeronautical engineering." USS *Macon* mooring at Sunnyvale, California, after flight from Lakehurst, N. J., 1933. A year and a half later she crashed. (Official Navy Photo.)

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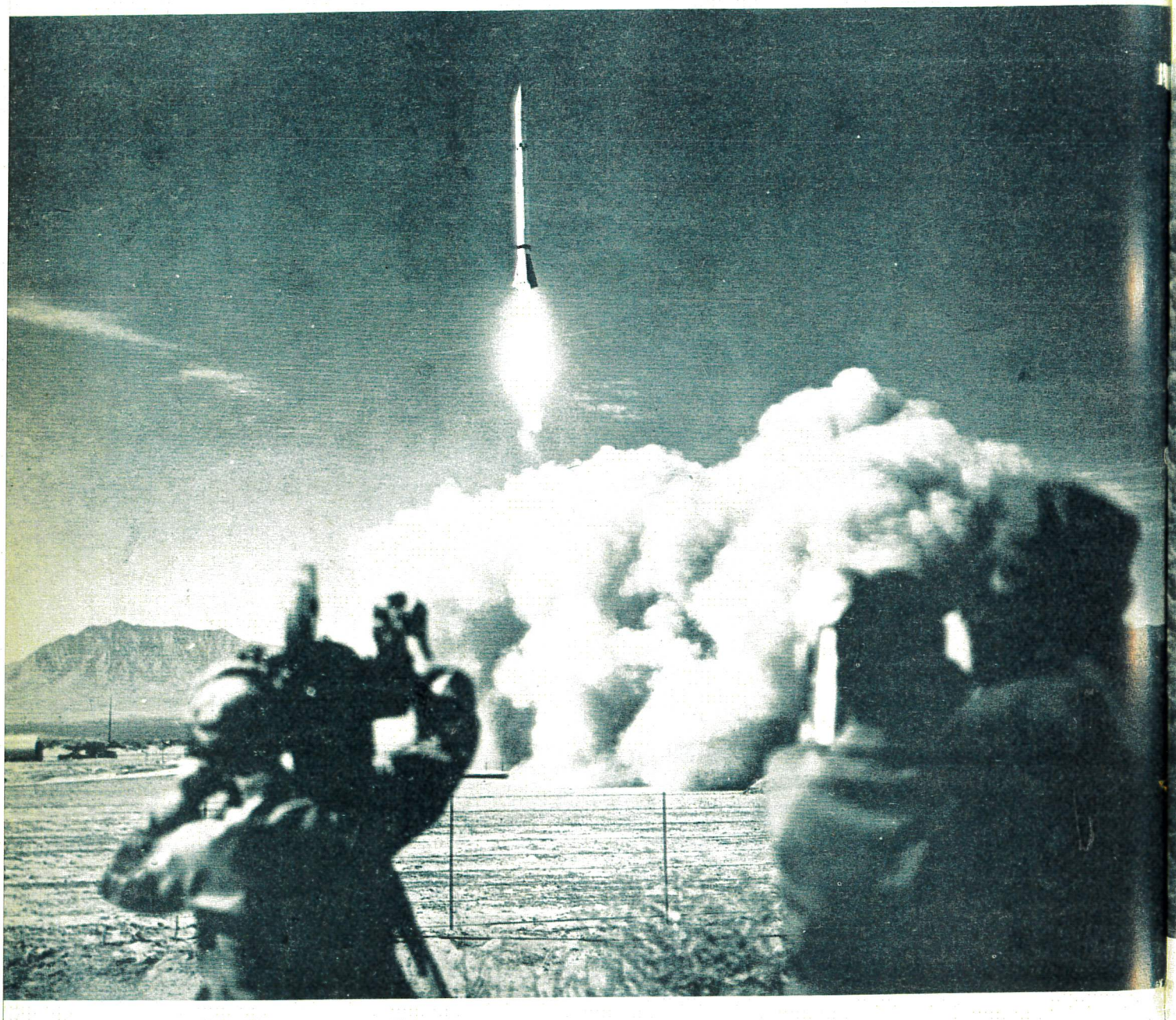
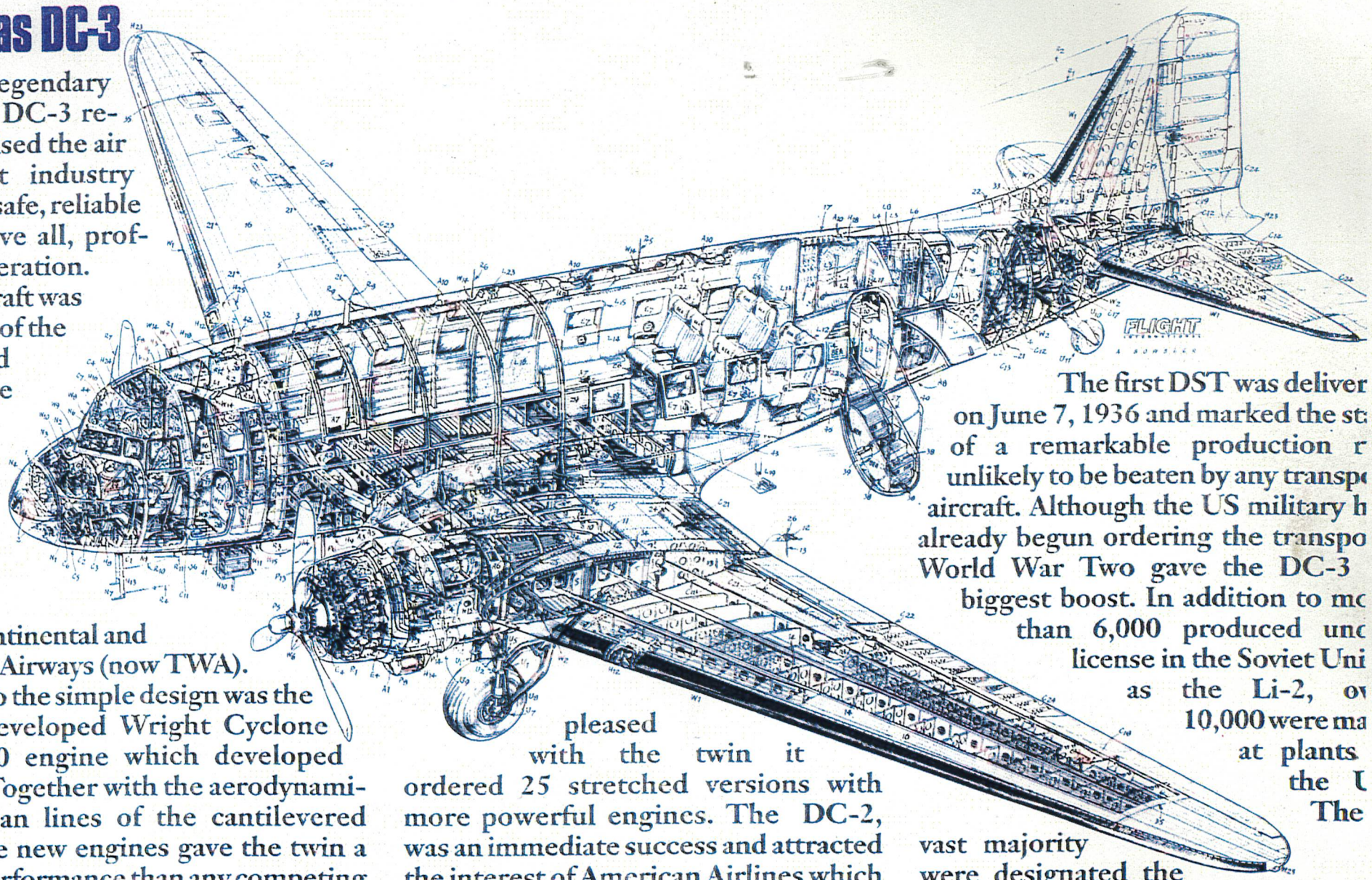


A Corporal, the first U.S. long-range guided missile, blasts off at White Sands, New Mexico.

Douglas DC-3

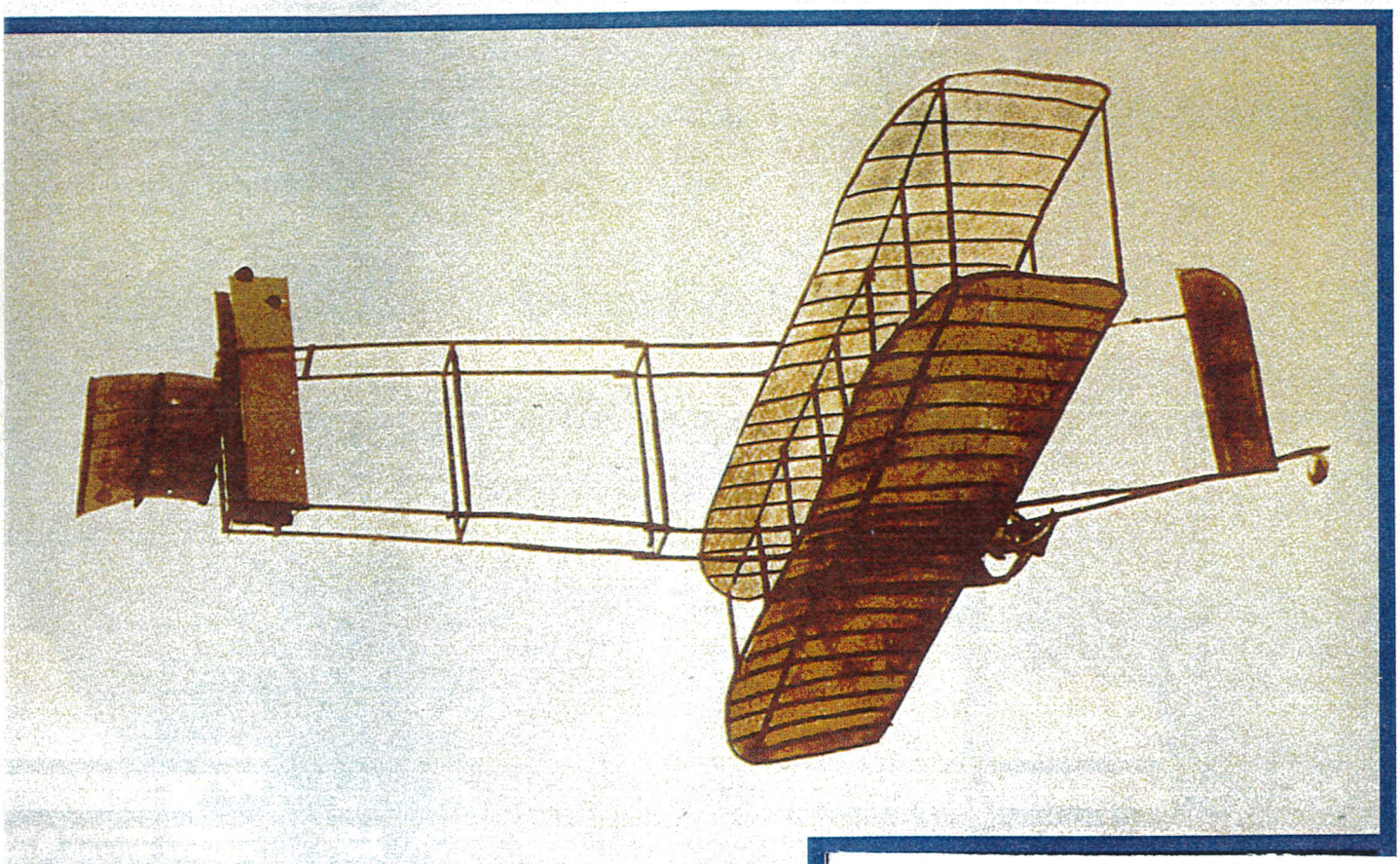
The legendary Douglas DC-3 revolutionised the air transport industry offering safe, reliable and, above all, profitable operation. The aircraft was born out of the DC-1 and DC-2, the former developed to meet a requirement from Transcontinental and Western Airways (now TWA).



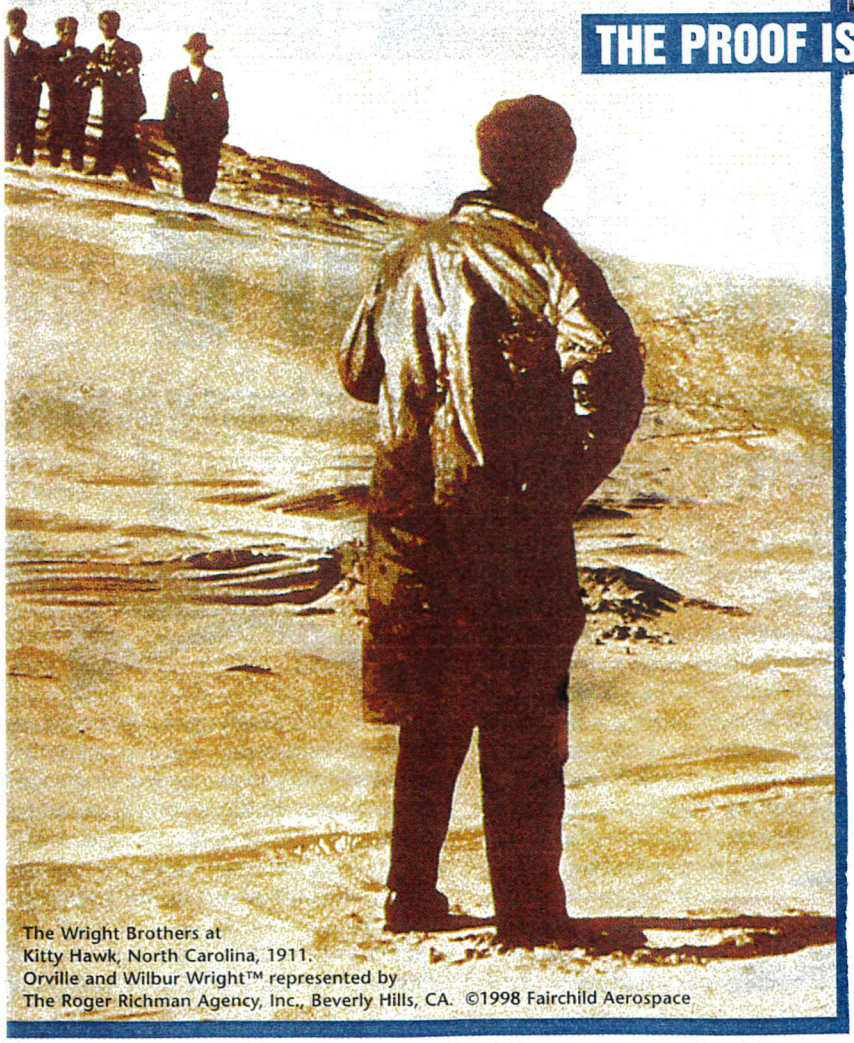
Key to the simple design was the newly developed Wright Cyclone GR-1820 engine which developed 710hp. Together with the aerodynamically clean lines of the cantilevered wing, the new engines gave the twin a better performance than any competing tri-motor. The design also made use of the newly available aluminium sheeting and bracketing.

A single Douglas Commercial 1 (DC-1) was delivered to TWA in December 1933. The airline was so pleased with the twin it ordered 25 stretched versions with more powerful engines. The DC-2, was an immediate success and attracted the interest of American Airlines which asked Douglas to develop a new version with foldaway bunks. The resulting Douglas Skysleeper Transport (DST), or DC-3 had a slightly wider fuselage cross section and could carry up to 21 passengers.

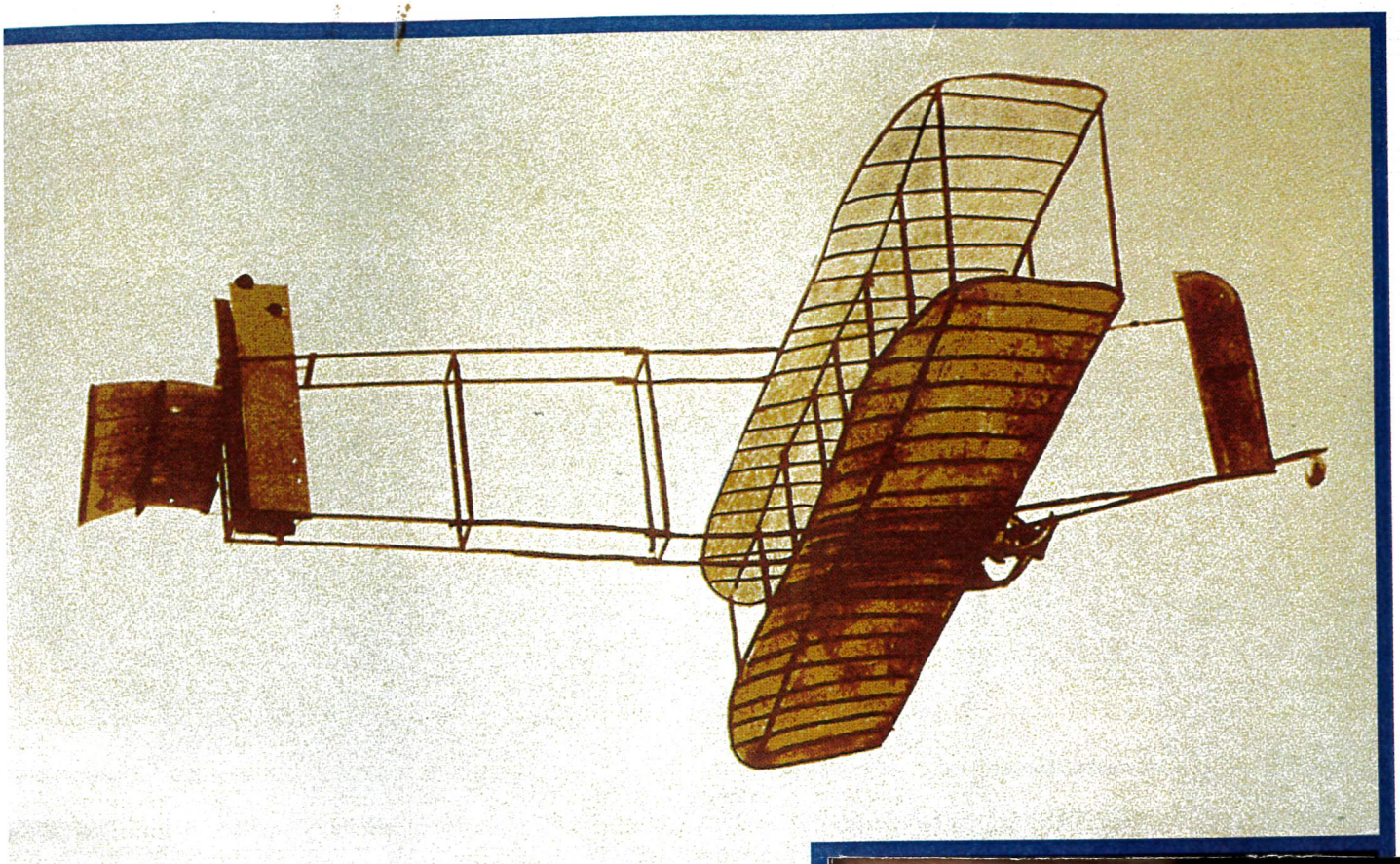
The first DST was deliver on June 7, 1936 and marked the st of a remarkable production r unlikely to be beaten by any transp aircraft. Although the US military h already begun ordering the transpo World War Two gave the DC-3 biggest boost. In addition to mc than 6,000 produced unc license in the Soviet Uni as the Li-2, o 10,000 were ma at plants the U The vast majority were designated the C-47 Dakota and powered by Pratt Whitney's Twin Wasp R-1830 fourte cylinder radials. Rugged design and l operating cost ensured that large nu bers passed into commercial use af the war, and many remain in service.

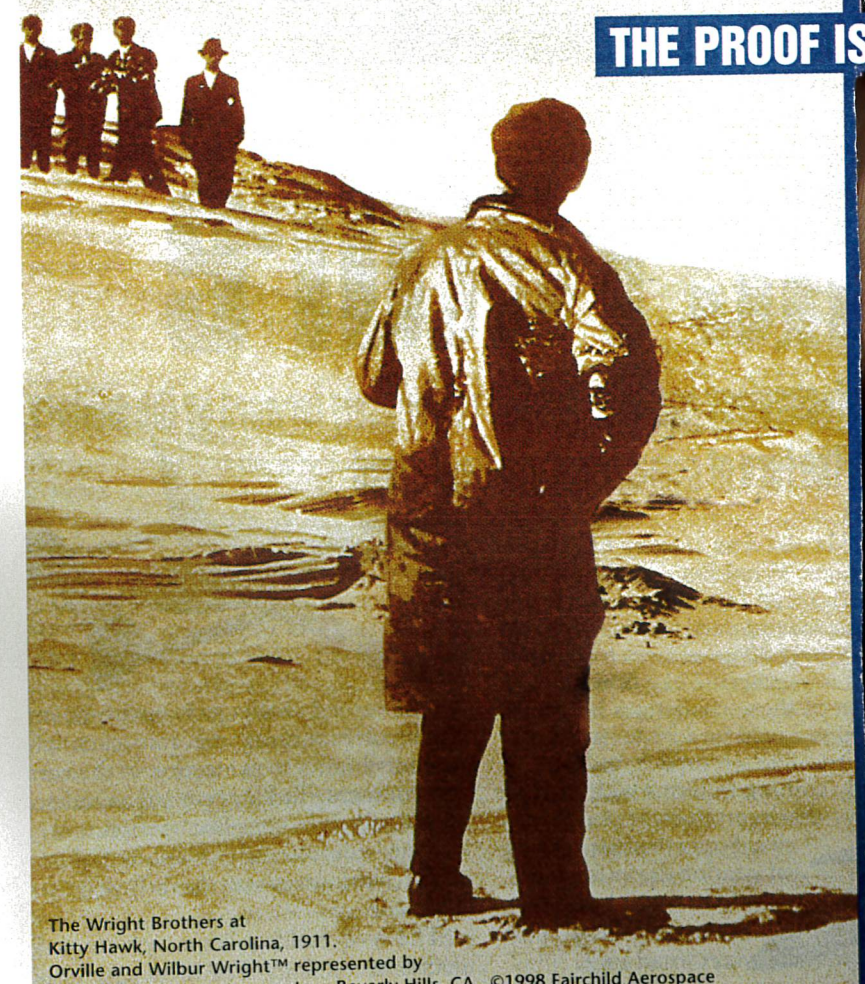


THE PROOF IS IN DOING IT.



The Wright Brothers at
Kitty Hawk, North Carolina, 1911.
Orville and Wilbur Wright™ represented by
The Roger Richman Agency, Inc., Beverly Hills, CA.





The Wright Brothers at
Kitty Hawk, North Carolina, 1911.
Orville and Wilbur Wright™ represented by
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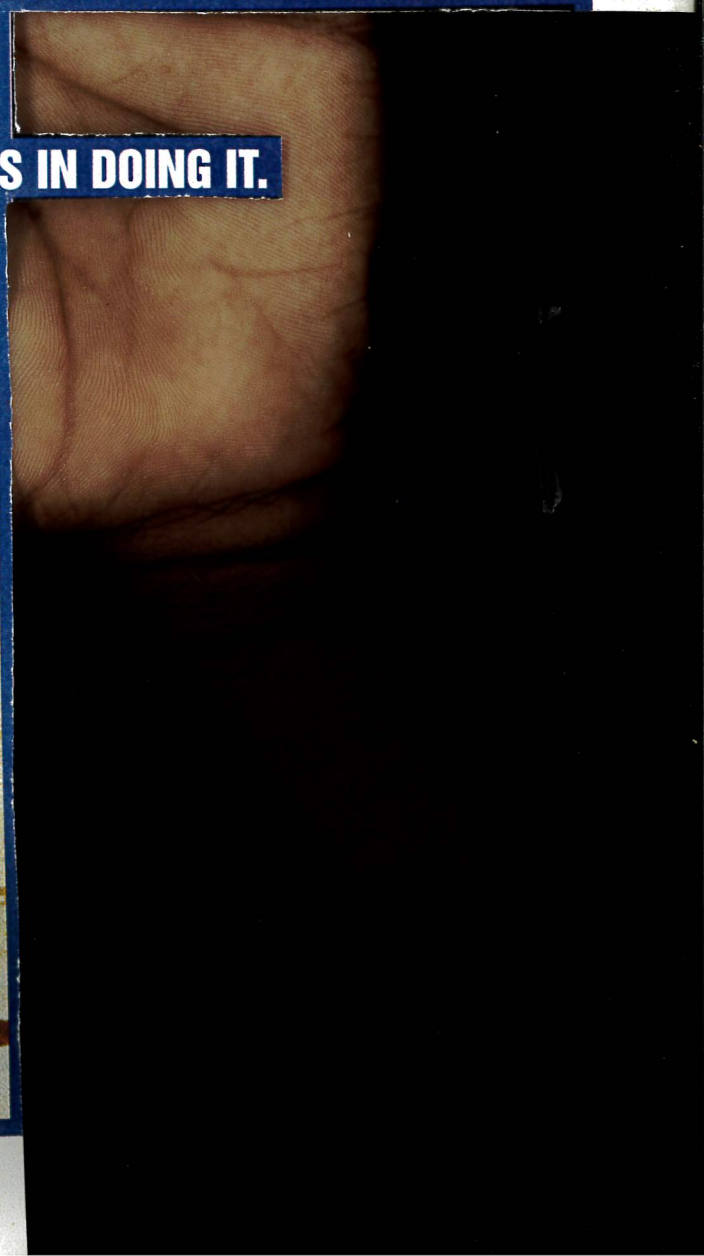
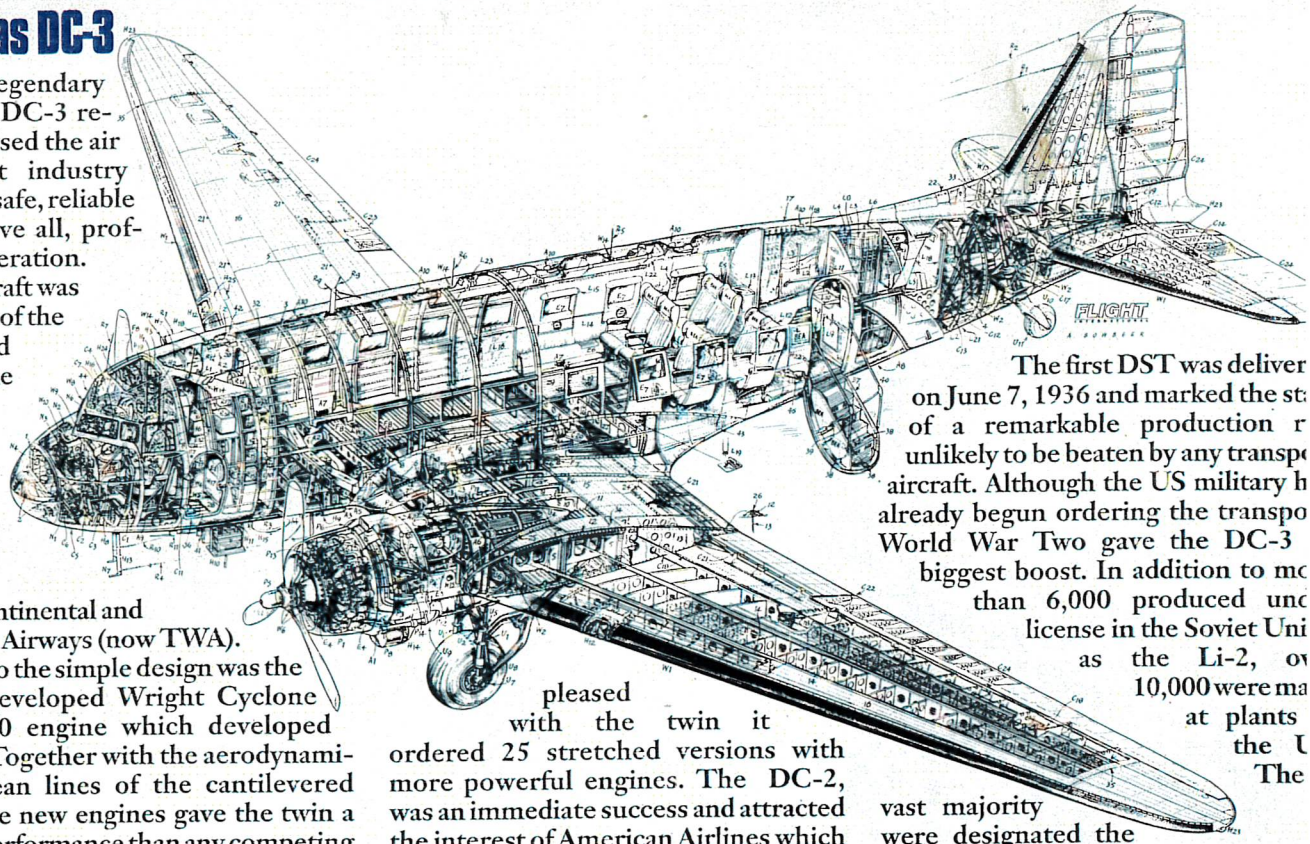


Douglas DC-3



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Zeppelin LZ129 Hindeburg

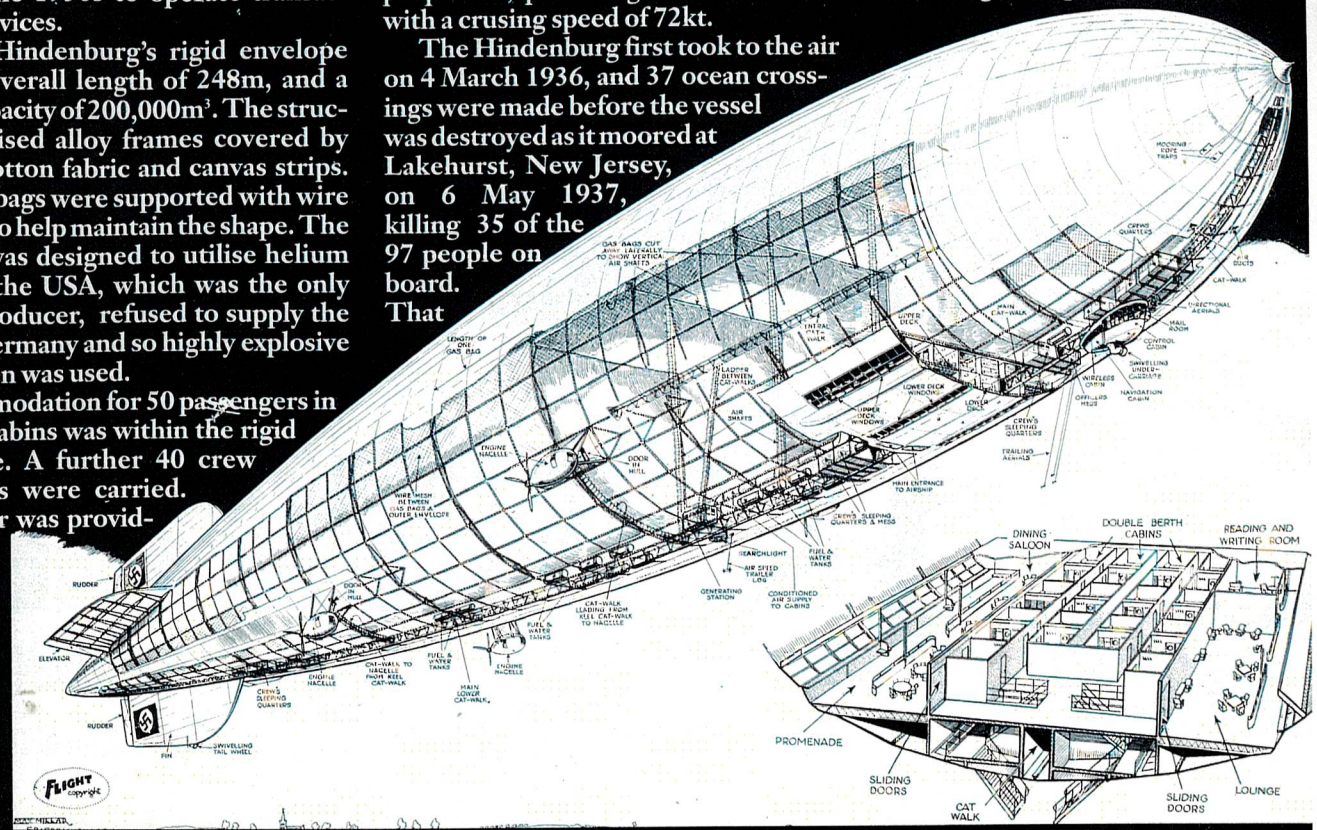
The LZ129 Hindenburg was conceived by Germany's airship builder Zeppelin during the 1930s to operate transatlantic services.

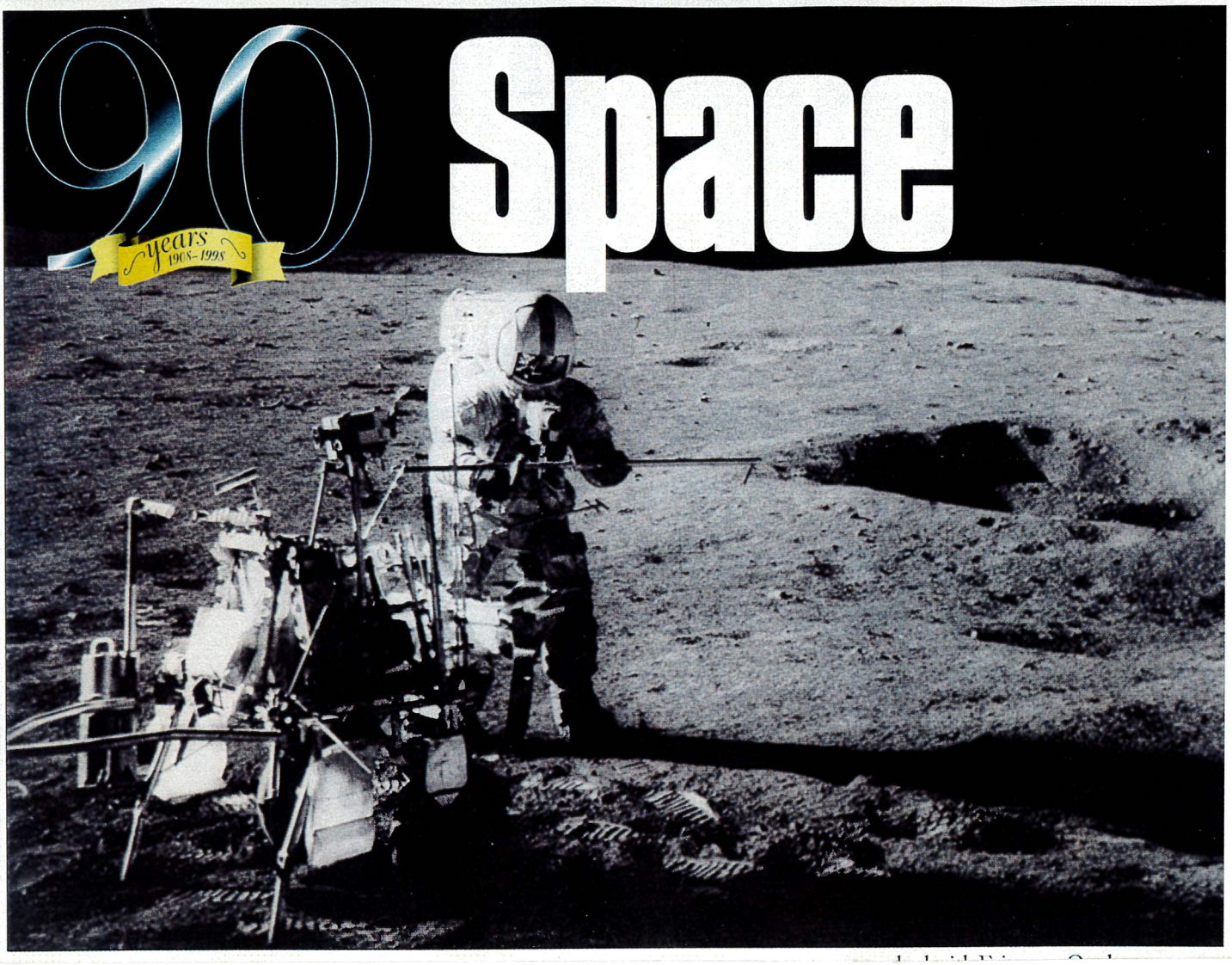
The Hindenburg's rigid envelope had an overall length of 248m, and a cubic capacity of 200,000m³. The structure utilised alloy frames covered by doped cotton fabric and canvas strips. The gas bags were supported with wire bracing to help maintain the shape. The airship was designed to utilise helium gas but the USA, which was the only major producer, refused to supply the gas to Germany and so highly explosive Hydrogen was used.

Accomodation for 50 passengers in double cabins was within the rigid envelope. A further 40 crew members were carried.

Power was provided by four 820kW, 16 cylinder Daimler-Benz diesel engines driving four bladed propellers, providing the 254t vessel with a crusing speed of 72kt.

The Hindenburg first took to the air on 4 March 1936, and 37 ocean crossings were made before the vessel was destroyed as it moored at Lakehurst, New Jersey, on 6 May 1937, killing 35 of the 97 people on board. That was the last crossing by a large airshi and within three years Germany remaining airships had been broken u

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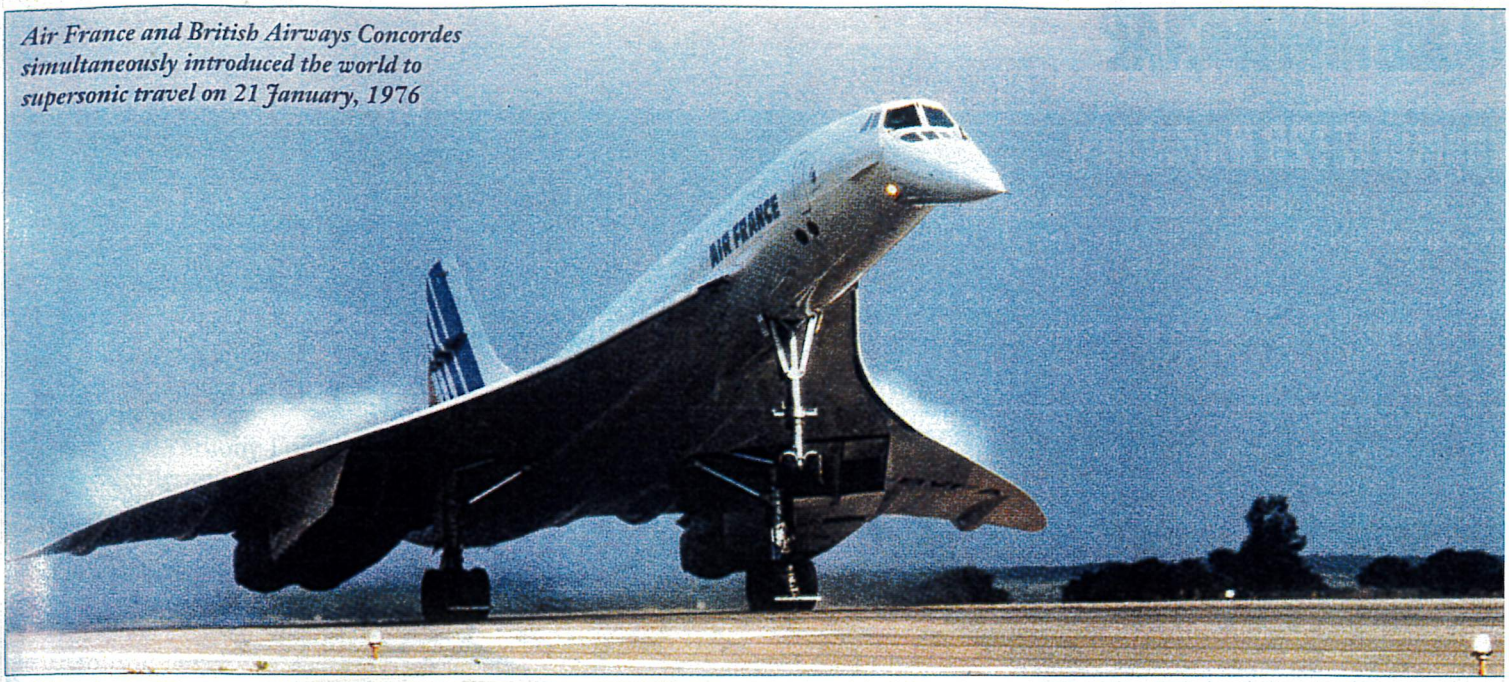
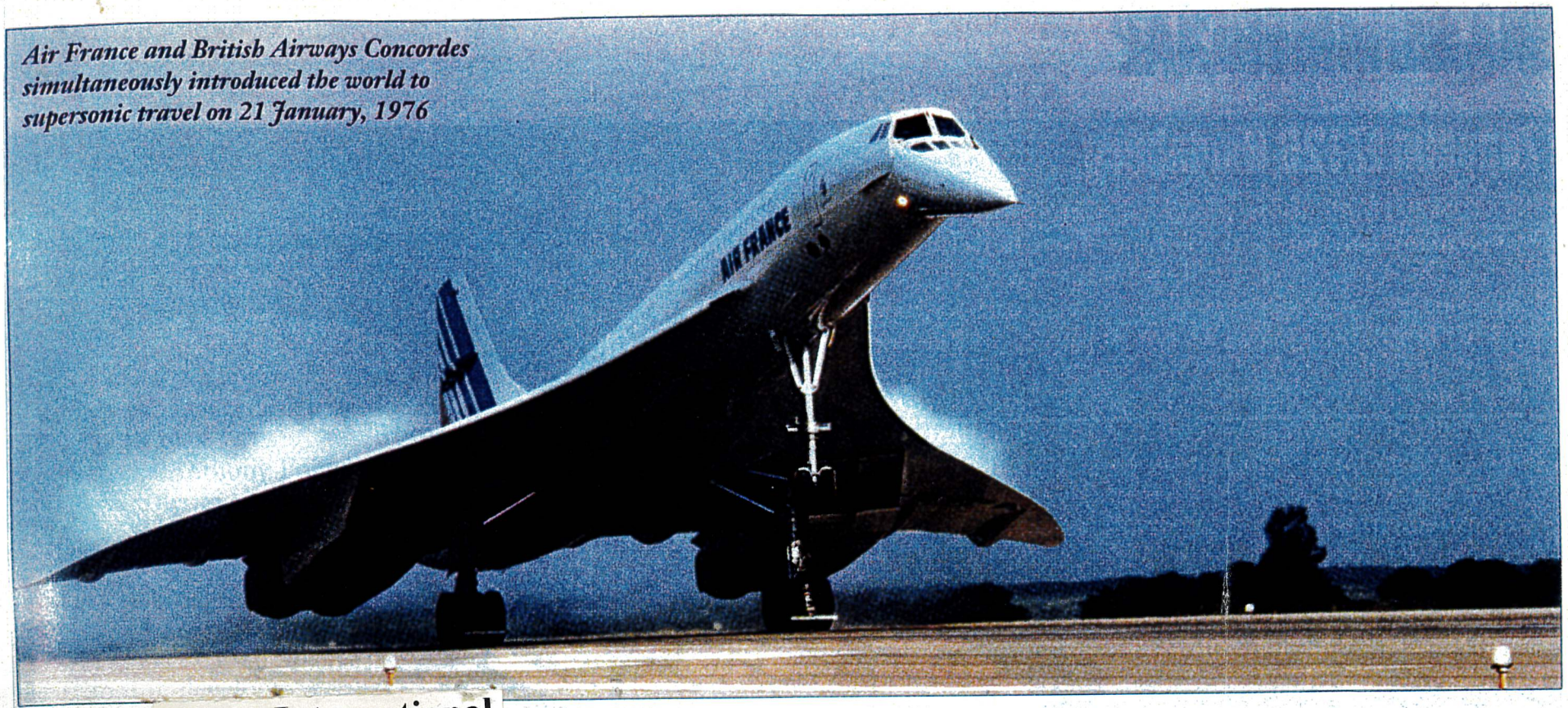
years
1908–1998
Space



Air France and British Airways Concordes simultaneously introduced the world to supersonic travel on 21 January, 1976

Flight International Years 1908 - 1998



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Flight International

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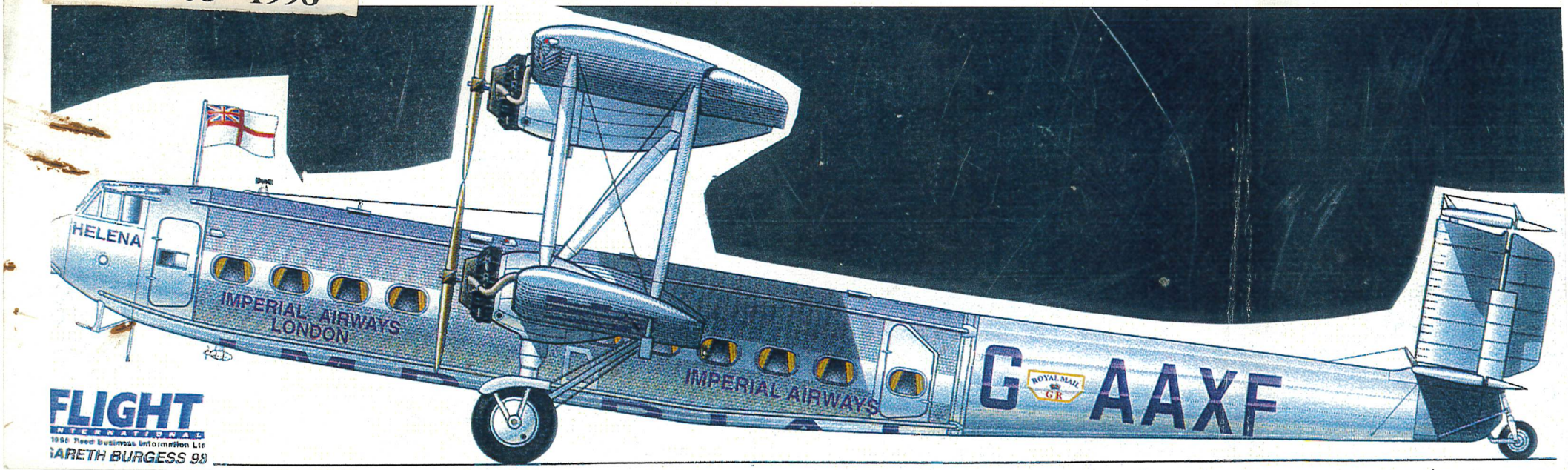
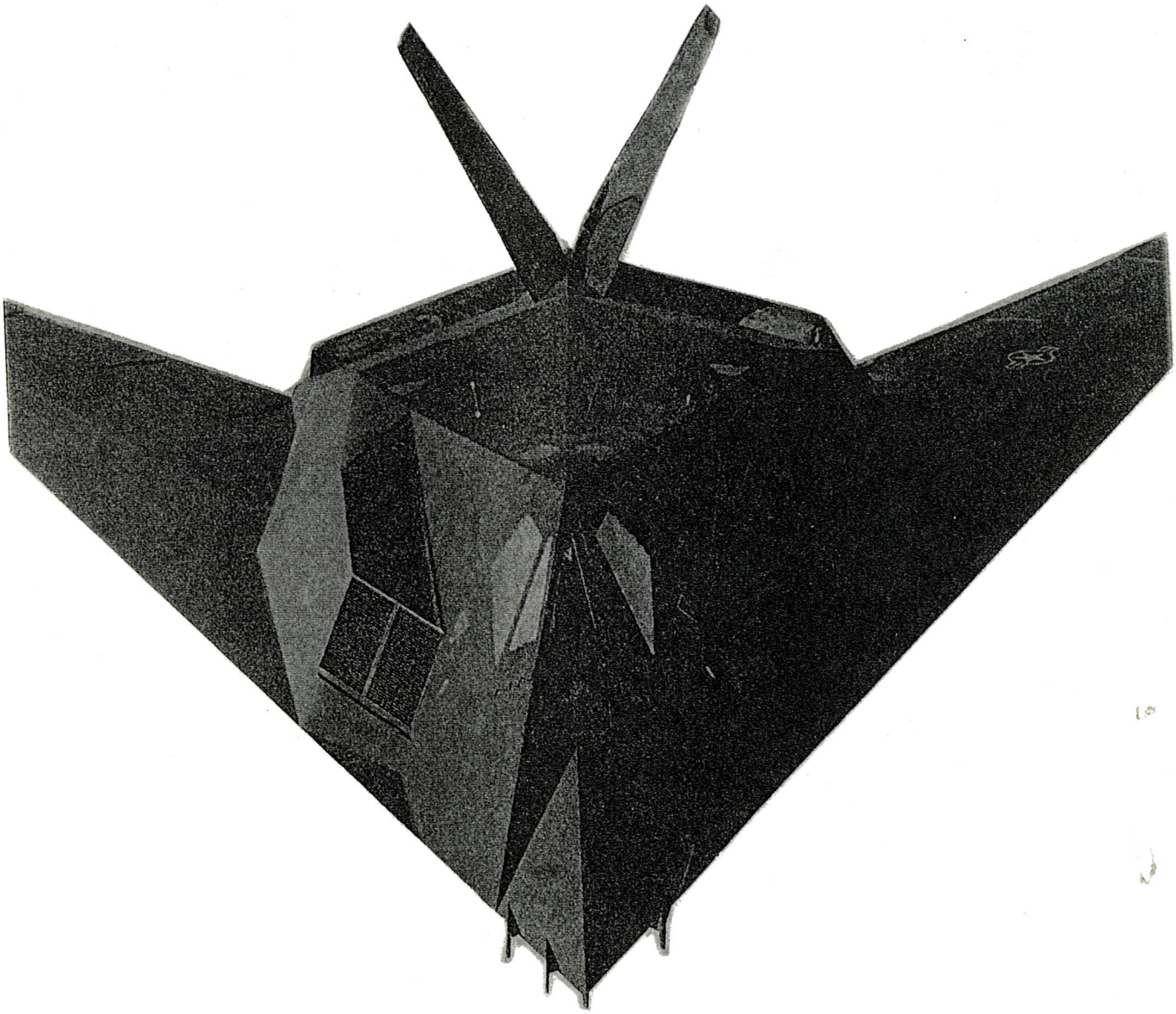


FLIGHT
INTERNATIONAL

GARETH BURGESS 98



F-117 STEALTH FIGHTER

SR-71 BLACKBIRD

BEN RICH

KELLY JOHNSON

SKUNK WORKS – BEN R. RICH & LEO JANOS
LITTLE, BROWN AND COMPANY, 1994