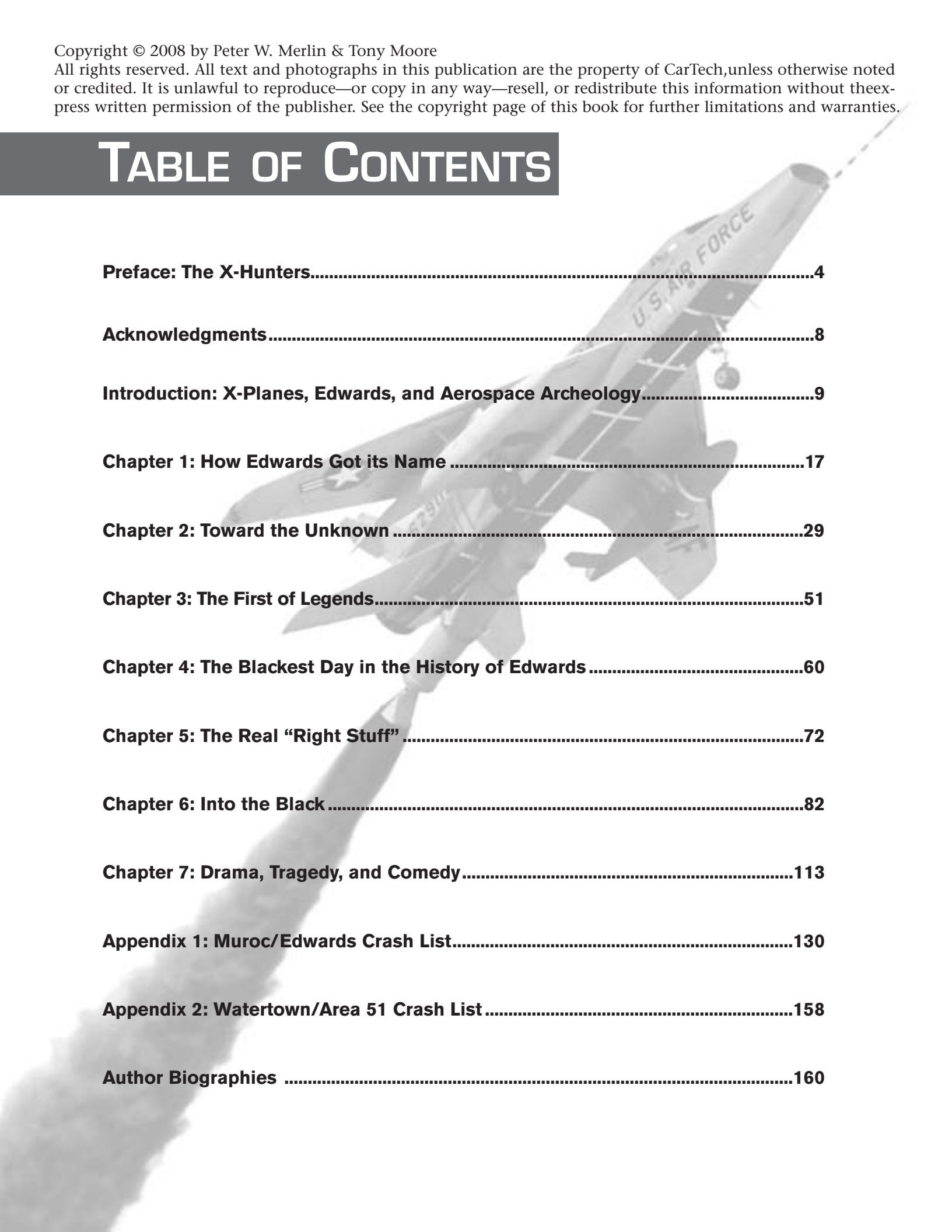


TABLE OF CONTENTS



| | |
|---|------------|
| Preface: The X-Hunters..... | 4 |
| Acknowledgments..... | 8 |
| Introduction: X-Planes, Edwards, and Aerospace Archeology..... | 9 |
| Chapter 1: How Edwards Got its Name | 17 |
| Chapter 2: Toward the Unknown | 29 |
| Chapter 3: The First of Legends..... | 51 |
| Chapter 4: The Blackest Day in the History of Edwards | 60 |
| Chapter 5: The Real “Right Stuff” | 72 |
| Chapter 6: Into the Black | 82 |
| Chapter 7: Drama, Tragedy, and Comedy..... | 113 |
| Appendix 1: Muroc/Edwards Crash List..... | 130 |
| Appendix 2: Watertown/Area 51 Crash List..... | 158 |
| Author Biographies | 160 |



Howard Hughes sits in the cockpit of the first XF-11 at his company's airfield in Culver City, California. Note the airplane's counter-rotating propellers. (AFFTC Museum)

DRAMA, TRAGEDY, AND COMEDY

Tony and I thought we should end this volume with a collection of stories not easily categorized in any of the previous chapters, but which beg to be included. They are stories of bravery, sacrifice, high drama, and occasional humor. We think they epitomize the perils and pitfalls of the Golden Age of Flight Test.

“I’ll go alone” – Howard Hughes and the XF-11

Howard R. Hughes Jr. was known as a wealthy eccentric film producer and director, industrialist, engineer, and record-setting aviator. As president of Hughes Aircraft Company, he was responsible for production of a number of unusual and innovative aircraft including the H-1 racer, XF-11 reconnaissance plane, and H-4 Hercules flying boat (better known as the *Spruce Goose*).

The Hughes XF-11 was a prototype for a two-seat, twin-engine reconnaissance airplane with a relatively small, pressurized, central crew compartment and twin tails on long, slender booms. It accommodated a crew of two, including a pilot and a relief-pilot/navigator who could change places during flight. The relief pilot also performed the duty of photographer. The 67-foot-long airplane had a maximum takeoff gross weight of 58,300 pounds and a 101-foot wingspan.

It was powered by two Pratt & Whitney R-4360-31 radial air-cooled, 28-cylinder engines. The cylinders were arranged in four radial rows of seven cylinders in each row. Seven magnetos were mounted on each engine to furnish the ignition. An injection-type carburetor and two single-stage, single-speed turbo-superchargers were installed on each engine.



Parked at Culver City, the XF-11 shows off its 101-foot wingspan. The relatively small fuselage made the airplane appear deceptively small while it was, in fact, quite large for its time. (AFFTC Museum)

Each engine powered a set of Hamilton-Standard eight-blade, counter-rotating, superhydromatic propellers. The propellers were of the constant-speed, full-feathering, reversible-pitch type.

The aircraft was an all-metal monoplane with tricycle landing gear. Its ailerons and spoilers were mechanically synchronized. Conventional operation of the ailerons in the "Up" position for the left or right wing automatically actuated the spoilers.

The XF-11 evolved from an earlier Hughes project called the D-2. The earlier design had a similar configuration, but it was constructed primarily of Duramold, a resin-impregnated plywood, molded under high heat and pressure. It was powered by two 2800-hp Pratt & Whitney R-2800-49 radial engines driving three-bladed propellers.

The D-2 was originally designed for breaking speed records, but with the onset of the war in Europe in 1939, Hughes offered the design to the U.S. Army Air Corps with the hope of winning a military contract for a pursuit aircraft.

Army officials approved the project, but in May 1940 Hughes began to alter his concept of the airplane's mission. For a while, it was improbably considered as a bomber, but it was incapable of carrying a significant payload. Hughes also recommended the D-2 for the bomber-escort role, but it was not sufficiently maneuverable.

In 1942, Lt. Gen. Henry H. "Hap" Arnold approved procurement of the D-2 for testing at Wright Field, Ohio. Hughes, however, wanted to test it himself first. The major subassemblies of the D-2 were constructed at the Hughes plant in Culver City, California, and trucked



Beverly Hills firefighters battle the blaze at 808 Whittier Drive. One of the XF-11's vertical tails is visible at right. (U.S. Air Force)



Impact damage at 803 North Linden Drive after the main landing gear of the XF-11 slammed into the Spanish tile roof. (U.S. Air Force)

to a hangar at Harper Dry Lake in the Mojave Desert for final assembly.

Initial ground trials in the spring of 1942 resulted in short hops above the runway that indicated some aileron instability and control problems. Hughes made some changes, and the completed the D-2's first real flight on 20 June 1943. Hughes himself piloted that flight and a second one on the same day. He noted some additional controllability problems and grounded the airplane for modifications.

An increase in wingspan failed to solve the problem, and Hughes concluded that major changes would be required. While the D-2 was undergoing additional modifications at Harper Lake, the Army requested it be flown to Bolling Field, D.C., for inspection. Although

the airplane was in no condition to be flown and the design remained unproven, Hughes proposed that the Army purchase three different production variants with various roles. Army officials were unimpressed and recommended in August 1943 that development of the airplane be discontinued.

Hughes continued to work on his own, modifying the airplane into a new configuration called the D-5. In November 1944, with work still not yet completed, the D-2/D-5 was lost in a mysterious fire. Hughes later claimed a lightning bolt struck the hangar at Harper Lake, setting it ablaze. Nothing remained of the building or the one-of-a-kind aircraft.

Hughes now set his sights on the all-metal XF-11. Eventually, he reached an agreement with Army officials



Remains of the XF-11 litter the backyard at 808 Whittier Drive. These houses were both eventually torn down and rebuilt, covering much of the wreck site. (U.S. Air Force)



Looking forward and down into the cockpit of the XF-11. To escape the burning wreck, Hughes crawled through this hole in the melted canopy. (U.S. Air Force)



In this close-up of the XF-11 cockpit after the crash, the throttle quadrant is visible at center and the control yoke at right. (U.S. Air Force)



The left engine of the XF-11 lies in the front yard of 810 Whittier Drive. The Los Angeles Country Club golf course, Hughes' intended landing site, is visible in the background across the street. (U.S. Air Force)