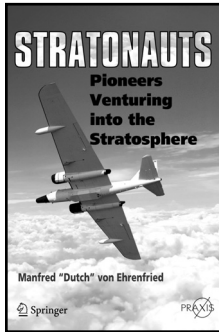


## BOOK REVIEWS

# STRATONAUTS: PIONEERS VENTURING INTO THE STRATOSPHERE



By Manfred "Dutch" von Ehrenfried

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This book is an annotated compilation of names, dates, places, vehicles, and heights attained by those who attempted to rise higher than ever before, or for one reason or another were compelled to make the attempt, either succeeding or failing in the act. The author's intended audience, as stated in his Preface, is "all those who have, or desired, to fly to extremely high altitudes," as well as those "who are fascinated by the achievement of those who have flown to great heights." Thus the book celebrates the flyers, though it is organized by first enumerating the challenges and the vehicles. After a brief opening chapter describing the layers of the atmosphere, and two following chapters on the physical problems flyers encounter (pressure, temperature, G-loads, procedures for escaping) and a descriptive history of pressure suits, there are three following chapters outlining the history of high flight to World War II. The bulk of the book is then devoted to specific high-altitude aircraft, such as the X series, the U-2, and Blackbird. There are sections on sailplanes and manned ballooning from Strato-Lab in the 1950s to the Red Bull Stratos.

The author writes enthusiastically as a participant, having flown to 70,000 feet in support of NASA's Earth Observations Aircraft Program, having tested pressure suits in vacuum chambers to simulated altitudes in excess of 400,000 feet, and having experienced high G-loads in centrifuges and virtual zero-G in NASA's Reduced Gravity Research Program. His tenure with NASA extends back to the 1960s as a flight controller for NASA's piloted missions.

One of the first questions an alert reader will encounter is just what "stratonaut" means. The term is used throughout the book, yet the author admits openly in his preface that there is no strict definition of the term and that by reading the content of his book, hopefully the reader will gain the author's insights to intuitively appreciate the term. To be sure there is an emotional element. For example, von Ehrenfried would like to redefine those high-flying aeronauts of yore as stratonauts if they "never made it to the heights of their imaginations."

So what does stratonaut mean? Von Ehrenfried would include commercial airline pilots if it were not for the fact that birds are known to fly at commercial altitudes in the lower stratosphere. Somehow, though, that would not disqualify humans flying in gondolas or open cockpits. He feels that the upper altitude limit is not at issue, since the definition of astronaut takes care of that. Even so, the upper limit seems to lie between 50 and 62 miles: the region where space begins and astronauts are defined. Overall he wants to appreciate "what it takes to be a stratonaut" and invites the reader to follow his argument to the end. And for sure, at the end is a section "Definitions of a Stratonaut." Even by the title, it is clear this is no simple matter for the author, who again explores not only altitude, but other factors: "the times, the conditions, the risks, the technology, and the implications for the flight." Highly laudable, but in his subsequent delineation of seven periods, distinguished by time and technology, what we get once again is a compilation of who did what, when and where, a bit of how, but not much why. Finally he hones in on 63,000 feet as the lower limit for what constitutes a stratonaut.

Aside from this heartfelt effort to coin a new term, or category for achieving high flight, a motive that might appeal to readers of *Quest* who seek an introduction to some of the mechanical aspects of high flight, this reviewer encountered some serious issues with the production of the book. First, although there are scattered general references to technical and participant literature, the reviewer found no references to secondary literature. There is heavy reference to Web-based resources. In lieu of a bibliography there is an appendix listing websites for various institutions. The one given for the National Air and Space Museum led to a commercial site for domain searching. There are similar problems with the index, which seems to be reliable for the basic text, but hit or miss for the extensive tables, image captions, or any other part of this intriguing but idiosyncratic book.

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