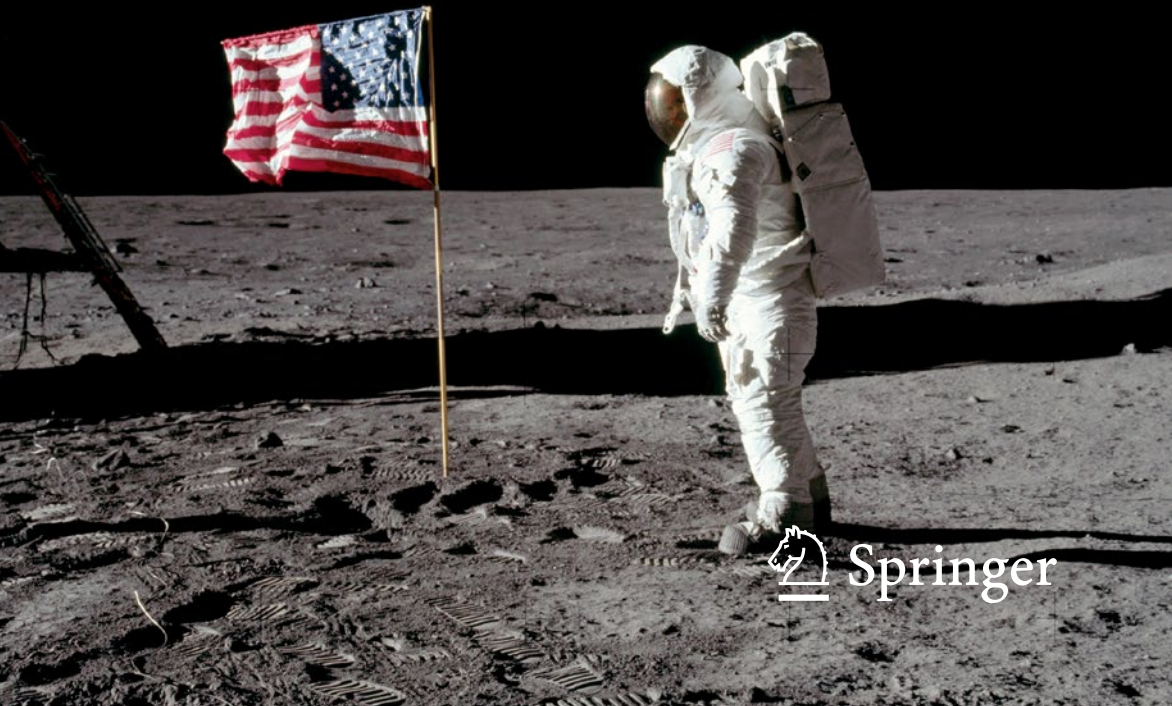
Thomas Eversberg

The Moon Hoax?

Conspiracy Theories on Trial



Springer

Science and Fiction

Science and Fiction – A Springer Series

This collection of entertaining and thought-provoking books will appeal equally to science buffs, scientists and science-fiction fans. It was born out of the recognition that scientific discovery and the creation of plausible fictional scenarios are often two sides of the same coin. Each relies on an understanding of the way the world works, coupled with the imaginative ability to invent new or alternative explanations—and even other worlds. Authored by practicing scientists as well as writers of hard science fiction, these books explore and exploit the borderlands between accepted science and its fictional counterpart. Uncovering mutual influences, promoting fruitful interaction, narrating and analyzing fictional scenarios, together they serve as a reaction vessel for inspired new ideas in science, technology, and beyond.

Whether fiction, fact, or forever undecidable: the Springer Series "Science and Fiction" intends to go where no one has gone before!

Its largely non-technical books take several different approaches. Journey with their authors as they

- Indulge in science speculation—describing intriguing, plausible yet unproven ideas;
- Exploit science fiction for educational purposes and as a means of promoting critical thinking;
- Explore the interplay of science and science fiction—throughout the history of the genre and looking ahead;
- Delve into related topics including, but not limited to: science as a creative process, the limits of science, interplay of literature and knowledge;
- Tell fictional short stories built around well-defined scientific ideas, with a supplement summarizing the science underlying the plot.

Readers can look forward to a broad range of topics, as intriguing as they are important. Here just a few by way of illustration:

- Time travel, superluminal travel, wormholes, teleportation
- Extraterrestrial intelligence and alien civilizations
- Artificial intelligence, planetary brains, the universe as a computer, simulated worlds
- Non-anthropocentric viewpoints
- Synthetic biology, genetic engineering, developing nanotechnologies
- Eco/infrastructure/meteorite-impact disaster scenarios
- Future scenarios, transhumanism, posthumanism, intelligence explosion
- Virtual worlds, cyberspace dramas
- Consciousness and mind manipulation

More information about this series at http://www.springer.com/series/11657

Thomas Eversberg

The Moon Hoax?

Conspiracy Theories on Trial

Springer

Thomas Eversberg
German Space Agency
Bonn, Germany

Translated into English by Markus Josef Geiss and Jordan Barr Holquist

Translation from the German language edition: "Hollywood im Weltall" by Thomas Eversberg. © Springer-Verlag GmbH 2013.

ISSN 2197-1188 ISSN 2197-1196 (electronic)
Science and Fiction
ISBN 978-3-030-05459-5 ISBN 978-3-030-05460-1 (eBook)
https://doi.org/10.1007/978-3-030-05460-1

Library of Congress Control Number: 2018966595

Cover illustration: Astronaut Edwin E. Aldrin Jr., lunar module pilot of the first lunar landing mission, poses for a photograph beside the deployed United States flag during an Apollo 11 extravehicular activity (EVA) on the lunar surface. *Credit:* NASA, Image number AS11-40-5875

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

For Bine

Foreword

July 20, 1969: The first humans land on the Moon. The older generations among us witnessed this event, whereas the younger generations have learned about it from history books. A historic event! A giant leap for mankind! Or maybe not? Could the event that was broadcast to millions of TVs possibly have been staged: is this a case of a "Moon Hoax"? There have been persistent rumors that the US space agency, NASA, tricked everyone with smoke and mirrors, and that all of the technological advances were completely made up. In the 1970s, the lies about the faked Moon landings were born. And nowadays, in the time of the Internet, where everyone is not only a consumer of media but can also easily be the author and distributor of information, these lies are being spread constantly. Other conspiracy theories, too, are once more rearing their ugly heads, all on the World Wide Web.

Our human insistence on doubting and questioning events, claims, and alleged facts is actually a positive aspect of our culture. These are inevitable requirements to be able to understand correlations, to classify things, and to increase knowledge. But where is the border between common sense and scientific thinking on the one hand, and lack of understanding, confusion, and ideological delusion on the other? What are we willing to accept as true and what remains incompatible with our worldview?

Thomas Eversberg, PhD in astrophysics and an active professional in space management, deals with the arguments of those who would question the trips to the Moon in this book, *The Moon Hoax?—Conspiracy Theories on Trial*. By taking these arguments seriously and then confronting them with solid logic, his analysis turns into a unique lesson. With penetrating clarity, he uses a tool from the philosophy of science called Occam's Razor: According to this theory, the hypothesis describing a phenomenon with the fewest assumptions

should be preferred. Those requiring an unnecessarily large number of assumptions can be discarded as too complex (in a figure of speech: sliced off by the razor blade).

It is the consistent application of this principle, a common practice in scientific work and rational thinking, that makes Eversberg's analysis significant far beyond the topic at hand. The author shows not only the flaws in the arguments of the Moon landing opponents—he shows more generally how serious arguments can be distinguished from fantasies. Anyone who reads this book will become much more capable of navigating the vast flood of information to be found in modern media without running the risk of being defrauded.

Spektrum der Wissenschaft Verlagsgesellschaft mbH Uwe Reichert
Heidelberg, Germany

Acknowledgement

Who would have thought that a little boy enthusiastic about space would turn into an astrophysicist that deals with the Moon landings 40 years later? I am indebted to my grandmother, Ruth Wendland, who sensitively promoted my interests, as did my father, Karl-Werner Eversberg. I would like to give a heartfelt thanks to him and my mother, Karin Eversberg, who gave me total freedom and who always supported my curiosity and enthusiasm. Many friends inspired me to give talks about the Moon landings and therefore contributed significantly to this book through their various questions and thoughts. This particularly applies to a few people that I would like to mention here. The many discussions I had with Andreas Boeckh instigated by his interest in science and the Moon, whether at home or in the Swedish mountains, gave rise to many of my approaches in this book. If he was ever bored by these weird thoughts of mine, he politely never let me notice. Norbert Reinecke deserves special thanks and respect for his critical questions and comments about my endeavors as an astronomer, and his support during rough times. I would like to thank Klaus Vollmann for our joint scientific discussions, his dedication to scientific accuracy, and the work at our observatory for many years; even more so, because this work is often very tiring and sometimes not the most enjoyable. Moreover, I would like to thank Anke Gödersmann and Dieter Schaade for their inspiring discussions while sharing delicious meals with me for many years. I further want to thank my uncle, Abdelali Aouati, for the constant motivation and his unprecedented optimism. And I thank my good friend Britta Schlörscheidt for motivating me during the writing of the book. Also, thank you to Martina Mechler from Springer Spektrum for her great help in creating this book. This also applies to my editor, Vera Spillner, who made a major contribution by asking professional and critical questions while giving me careful recommendations. I also want to thank my

editor, Angela Lahee, for making the English edition possible. Last but not least, I would like to thank my wife Sabine for her affection and endless patience. I especially appreciate her for these when I descend into logical questions, float off on stellar winds, or when I'm on the Moon once again.

Fig. 1 The *Saturn V* Moon rocket with *Apollo 11* on its way to the Moon. This rocket, the most powerful machine ever built, had a weight of almost 3000 metric tons, a total height of 111 meters, and developed a thrust of 3500 tons, or 160 million horse power. Photo: NASA. No.: AP11-KSC-69PC-442

Contents

1

Prologue: The Conspiracy of the Faked Moon Landings

A couple of years ago, many friends of mine asked whether I actually believed in the American Moon landings of the 60s and 70s. I was not the least bit surprised about this question. When I was a child, I unsurprisingly paid close attention to the Moon landings and earnestly painted rockets in school. We kids knew the names of our heroes by heart and fought over the question of who would be the best astronaut. For some reason I thought Jim Lovell from Apollo 8 was a particularly good astronaut, but Frank Borman also wasn't bad. My most envied possession was my Apollo-Quartet collectible card game, and to feed my enthusiasm, my grandmother sent me a picture book about the path to the Moon landings that I absolutely adored. The Moon landings are a part of my childhood and they were the grounds for my passion about space, as well as for my technical and scientific interests. Lastly, these missions were the foundations as to why I would become an astronomer and why I currently work in aerospace engineering management (Fig. 1.1). And now here comes this question!

I had, of course, realized that for some time in the media, and especially on the internet, there was a massive amount of doubt about the authenticity of the Moon landings. Based on irritating photographs, people claimed that humans had never actually been to the Moon, and that all of the reports, films, and results were one enormous trick performed on the entire world. I was only partially aware of these conspiracies and never really paid any attention to them.

But then my friends, intelligent people who are able to distinguish between serious arguments and fantasies, came to me with these questions. They were unsettled by the various claims from the so-called "Moon landing deniers"

T. Eversberg, *The Moon Hoax?*, Science and Fiction,
https://doi.org/10.1007/978-3-030-05460-1_1

Fig. 1.1 Earthrise. Photo: NASA/E. Cernan. No.: AS17-152-23274

and wondered whether there was anything true with their theories. For example, in images of the Moon published by NASA, which are freely available on the internet, something seems wrong with the shadows.[1] They don't appear to run parallel to one another, even though the Sun, which should be the only source of light, is so far away! Caught off guard, I investigated some other arguments. And indeed, something was wrong in other images as well. They appeared confusing and seemingly contradictory, and thus, my interest was aroused.

Generally, I find critical thinkers to be very pleasant, especially those who question any statement and don't just blindly accept such assertions as the

[1] Comprehensive sources for image and film documents are the NASA History Office (http://history.nasa.gov) and the Apollo Archive of Kipp Teague (http://www.apolloarchive.com).

truth. Because of that, and because I like to get to the bottom of things that are unclear to me, I was no longer able to ignore the claims from conspiracy theorists. Without addressing these assertions, I would not have been true to myself or to my skeptical friends, even more so since I am an analytical person who has enjoyed an extensive education in the natural sciences. In order to view the Moon landings from the proper perspective, we need to take into account their enormity and audacity. Humans actively worked towards leaving their home planet, an unprecedented endeavor symbolizing a break in human history; an event of the century. This was even more true because of the considerable risks taken by the astronauts during this project. Humans had first discovered how to use flying machines just 50 years earlier, and rocket technology was not even 20 years old when the Americans decided to fly to the Moon. And because some of the necessary technology for their mission didn't even exist, the idea of making this spectacular leap a reality in only ten years was simply unimaginable. Yes, it was absurd! Was everything just a lie after all?

In the year 2009, the news caught my attention that NASA had not been able to find the original photographs of the first landing on the Moon for three years. At first, I spontaneously classified this as fear mongering by some uninformed circles, but then I was more than a little irritated when the story turned out to be true. Even after intense search campaigns they were not able to recover the 45 magnetic tapes. Every rational human being has to pose the question: How in the world can something like this even happen?

Therefore, it is quite understandable if critical thinkers don't trust this entire story. Regardless of whether one is in politics or business—lies have been and will remain to be a part of every society. We are lied to in order to go to war or in order to get more money out of our pockets. The public outcry after any of these lies is great, but then we are lied to again only a few years later. Memories are fleeting after all! Even psychologists agree with the fact that lies are an essential part of the human condition and only with them are humans able to manage their everyday lives. To this extent, it makes complete sense that skepticism and detailed analyses are so close to a scarcely imaginable event. As such, critical attention to detail and a verification of facts that are presented is highly desirable—these are, of course, my daily bread and butter as a physicist. These habits are generally good to practice in your daily life, even though you can't be an expert in every field. With that and with my 40 years of work experience in space flight, I have become the first person to talk to for all of my friends' concerns regarding the Moon landing hoax. Step by step, I discovered unexpected pitfalls and the true complexity of these questions. The conversations with my friends resulted in an examination of

the pros and cons of the Moon landings, whereas my approach in this book was purely analytical and based on logic. Now one might think that logic is a science in and of itself, and that I am not an expert in that. However, I would like to emphasize that logic is not borrowed, nor was it invented by science, but rather that every human being thinks and acts more or less logically every day. That is the only reasonable way to construct your life. The common phrase "That makes sense!" encapsulates this fairly well. Moreover, everyday relationships between things and actions are connected through reason, and therefore logic (the scientist calls this "causally" connected). We even learn this as children. For example, if I hold my fingers into fire, I will burn myself—that's logical.

With this in mind, I started to more closely investigate the individual items that serve as evidence to the assertion that humanity was fooled and that the whole story was made up from beginning to end. At the time, I had no idea that this would become such a large amount of work. It turns out that there is a large discrepancy between making an ad-hoc claim and the effort to either support or disprove this claim in a meaningful, but simple manner. Furthermore, it is not sufficient to only investigate individual critical points, but you also need to look at the nature of evidence and its historical context. This is especially important because we are dealing with a singular and significant event in history. It is also interesting to know who was first to question the authenticity of the Moon landings and whether or not we will ever go back (or go for the first time ever) to the Moon in the future. Out of my personal interest in the future of space flight, I noted down some thoughts regarding this topic—and the result is this book.

To access all the original texts and film materials I have reviewed for this book, you can use the QR-codes and URLs within this book to find them online.

2

Russians, Rockets, and Election Campaigns

The first time I was allowed to watch TV in the middle of the night was in 1969, when I was an eight-year-old boy, to watch the very first Moon landing happen live. At the time, I was completely unaware of the significance of the special event that I was watching unfold. Today, you can hardly believe what was going on in the media back then. Reports of new rocket launches and space missions were still completely new phenomena and these events were followed closely by the general public. They were all broadcast on live TV and fascinated everyone else just as much as they did me. The "Conquest of Space" had already been going on for ten years, and everyone was fairly certain that the Olympics would be held on the Moon in the year 2000. We argued amongst ourselves about how new records would have to be evaluated in reduced gravity (imagine a 500-meter javelin toss), and becoming an astronaut was THE DREAM of all young boys.[1] Anyway, it was absolutely clear that new worlds were opening up—the film "2001—A Space Odyssey," reflects this attitude very well. For most of the adult population in Germany, not just in our city, the event was so momentous that they woke up at 3 o'clock on a Monday morning (!) to see what was happening on our Moon. Most of the windows in our neighborhood were lit up. This excitement enraptured a considerable number of people all over the world, but those in North America were particularly happy with NASA. They had planned the landing time so that it occurred between noon and late afternoon on the 20th of July,

[1] Until then, the only woman to fly in space was the Russian, Valentina Tereschkova, and that was only a public relations stunt.

T. Eversberg, *The Moon Hoax?*, Science and Fiction,
https://doi.org/10.1007/978-3-030-05460-1_2