

An astronaut in a white spacesuit is floating in space, positioned in front of a large, circular planet with a vibrant rainbow-like color gradient. The background is a dark, star-filled space.

What's It Like in Space?

STORIES FROM ASTRONAUTS
WHO'VE BEEN THERE

Ariel Waldman



What's It Like in Space?

STORIES FROM ASTRONAUTS
WHO'VE BEEN THERE

Ariel Waldman

Illustrations by Brian Standeford



CHRONICLE BOOKS
SAN FRANCISCO, CA

Text copyright © 2016 by Ariel Waldman.

Illustrations copyright © 2016 by Chronicle Books LLC. All rights reserved. No part of this book may be reproduced in any form without written permission from the publisher.

ISBN 978-1-4521-4871-7 (epub, mobi)

Library of Congress Cataloging-in-Publication Data

Waldman, Ariel, author.

What's it like in space? : stories from astronauts who've been there / Ariel Waldman ; illustrations by Brian Standeford.

pages cm

ISBN 978-1-4521-4476-4 (hc)

1. Life support systems (Space environment)—Anecdotes. 2. Space flight—Physiological effect—Anecdotes. 3. Astronautics—Anecdotes. 4. Astronauts—Anecdotes. I. Standeford, Brian, illustrator. II. Title. III. Title: What is it like in space.

TL1500.W35 2016

629.45'00922—dc23

2015018968

Illustrations by Brian Standeford

Design and additional illustration by Neil Egan

Chronicle Books LLC

680 Second Street

San Francisco, CA 94107

www.chroniclebooks.com

Contents

Introduction	5
NO ONE CAN HEAR YOU BURP	9
MYSTERIOUS HEADACHES	10
MOON FACE	12
LEAKY SUITS	14
URINE ICICLE	16
BACKWARDS DREAMS	18
FART PROPULSION	21
BARF BAG BOUNCE	23
THIS IS THE MOON	24
FALLING ASLEEP	27
STUCK MID-AIR	28
WHICH WAY IS UP?	30
STELLAR CITIES	32
UPSIDE DOWN	35
THE SMELL OF SPACE	37
OH YEAH, GRAVITY	38
SPACE ADAPTATION SYNDROME	40
SNEEZING IN SPACE	43
LIGHTNING	44
COLLECTION CONTRACTIONS	47
SPACE SILENCE	48
LAUNDRY IN SPACE	51
STUMBLING HOME	52
WAKING AFLOAT	55
EXERCISE	57
BULL IN A CHINA SHOP	59
SPICE EXPLORATION	60
OUTSIDE OF THE BUBBLE	62
HEAD COLDS	65
LONG-TERM SPACE TRAVEL	66
SOCK OVER THE DOORKNOB	69

UP ALL NIGHT 70

LIKE HOME 72

FOOD PLAY 75

THE OVERVIEW EFFECT 76

CLOUDS 79

YURI 81

CUBED OR TUBED 82

SECOND BIRTH 85

OVERSCHEDULED 86

INSECTS IN SPACE 89

COOKIE CURRENCY 90

COSMIC FAIRIES 93

AURORA 94

ICE CREAM PARTY 97

LOST AND FOUND 99

SHRIMP COCKTAIL 100

SATELLITES AND METEORS 103

NOBODY KNEW 105

MEASURING EVERYTHING 106

SCARING YOURSELF 109

BEING HUMAN 110

EARTH AS A WORK OF ART 113

IN YOUR OWN BACKYARD 114

SPACEWALK 116

SUNRISE 119

LOCAL COLOR 120

SO YOU **CAN** BURP IN SPACE 122

CRYSTAL SPECTACLE 125

OUR ORNAMENT 126

Acknowledgments 128

About the Author 128

Introduction

“If somebody’d said before the flight, ‘Are you going to get carried away looking at the Earth from the Moon?’ I would have [said], ‘No, no way.’ But yet when I first looked back at the Earth, standing on the Moon, I cried.”—Alan Shepard

What’s it like in space? It’s something many of us have wondered about, and something, of course, that astronauts are asked all the time. Much like space exploration itself, the question is boundless and hopeful. Asking “what’s it like in space?” represents our collective aspiration to dare how far humans can go and what we can achieve when we get there.

One of the first people to attempt to scientifically answer the question was the astronomer Johannes Kepler. In the early seventeenth century, *three centuries* before a human landed on the Moon, Kepler wrote *Somnium*, a work of science-based fiction about humans in space. *Somnium* detailed how humans could conduct science in space and how the Earth could be observed from the viewpoint of the Moon. The first Moon landing was still 361 years into the future of the time of Kepler’s writing, but he was one of the first to declare it scientifically possible and to imagine what it would be like to travel there.

Despite hundreds of years of scientific speculation, no one really knew what space would be like. Leading up to humans taking to spaceflight in the early 1960s, doctors were unsure about everything—from whether people would physically be able to eat in space to whether their eyes would float freely around in their heads. During the Cold War, astronauts and cosmonauts alike were subjected to intense and thorough tests to ensure that they would be able to handle every scenario imaginable. It was only by pushing the boundary of how far humans could go that we could truly answer the question of what it’s like in space.

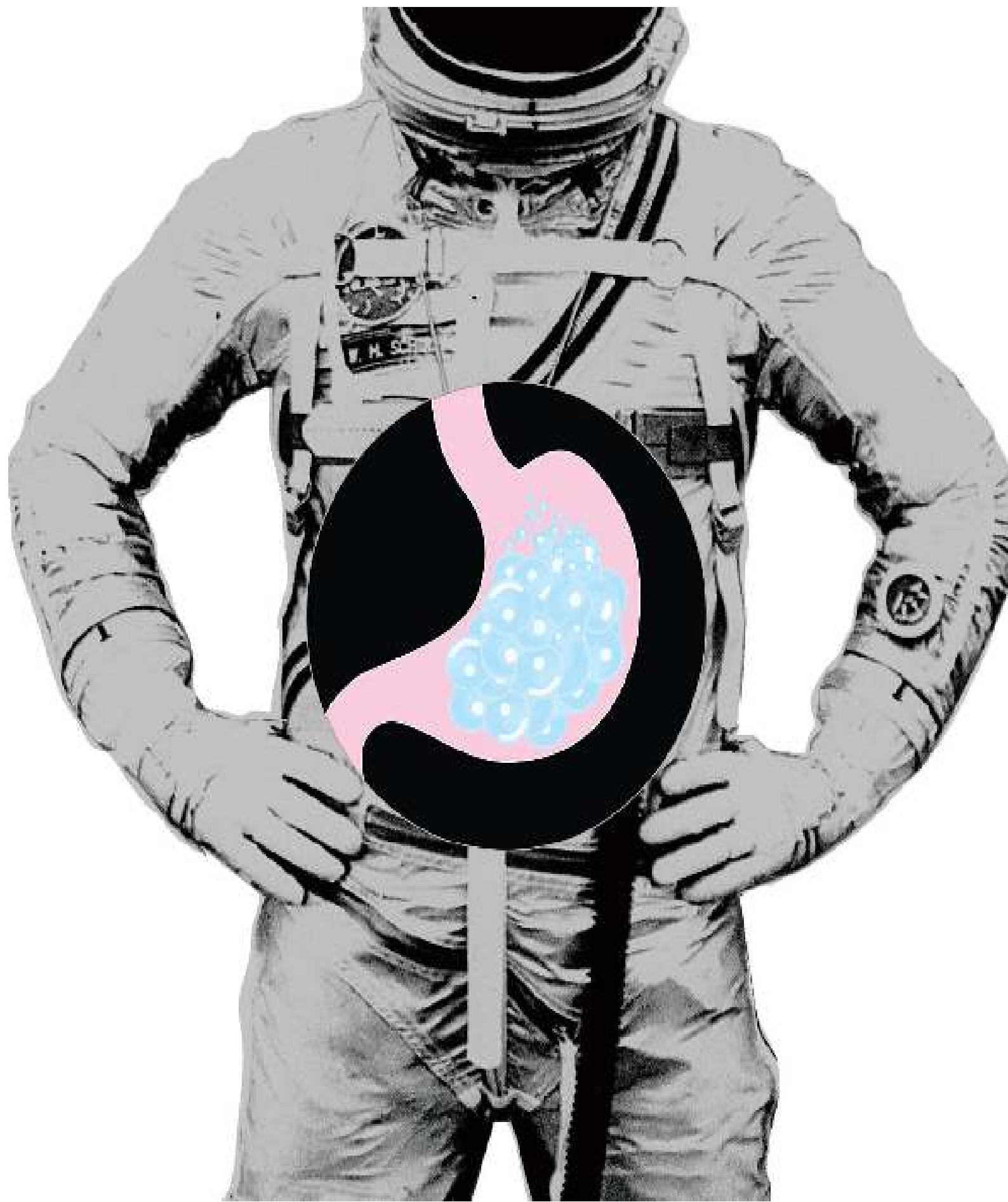
In my work, I make space exploration more accessible. Working on this book has been a fascinating opportunity to learn more about human spaceflight—an aspect of space exploration that has only been experienced by a select few over the fifty-plus years since its inception. But it was mostly just a lot of fun to talk to astronauts who generously shared their time and enthusiasm. The stories range from the comical to the peculiar to the awe-inspiring, but in researching or interviewing each astronaut they all shared a similar undercurrent: a quiet determination to tackle the unknown.

Despite several decades of human spaceflight, any answers to “what’s it like in space?” are provisional and will continue to change as the exploration widens, both in scope and accessibility. I enjoy reading through these stories and meditating on what someone four hundred years in the future might write about what it’s like in space. I can only hope that space exploration will slowly, but surely, become more accessible over the coming decades and centuries. Maybe someday this book will be as quaint a

books describing what it's like to fly in an airplane.

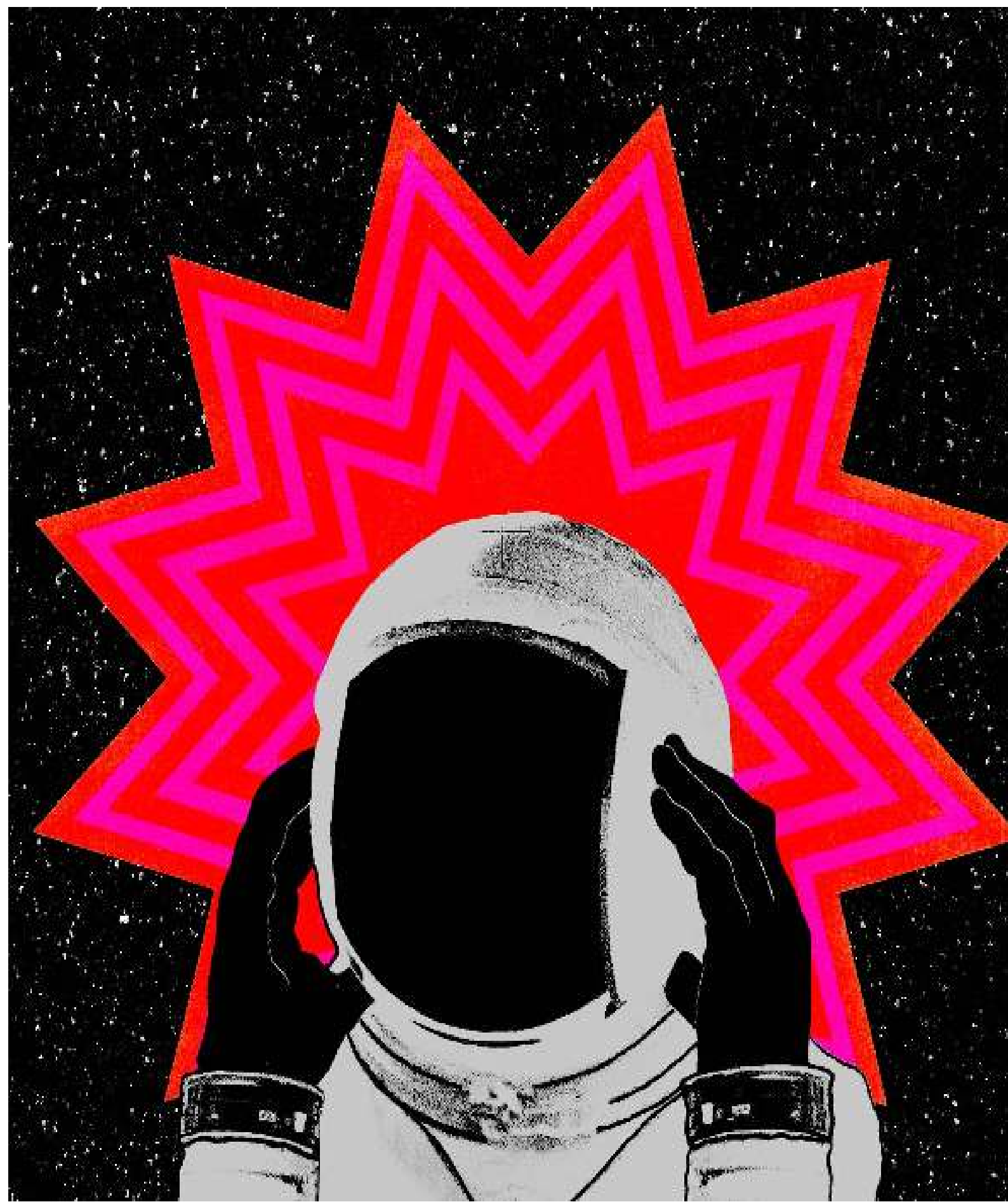
NO ONE CAN HEAR YOU BURP

In space, no one can hear you burp. Seriously. The lack of gravity means you can't keep your food down in your stomach if you try to expel gas out through your mouth. Thus most attempts to burp would actually result in vomiting. Needless to say, this is why there is no soda in space.



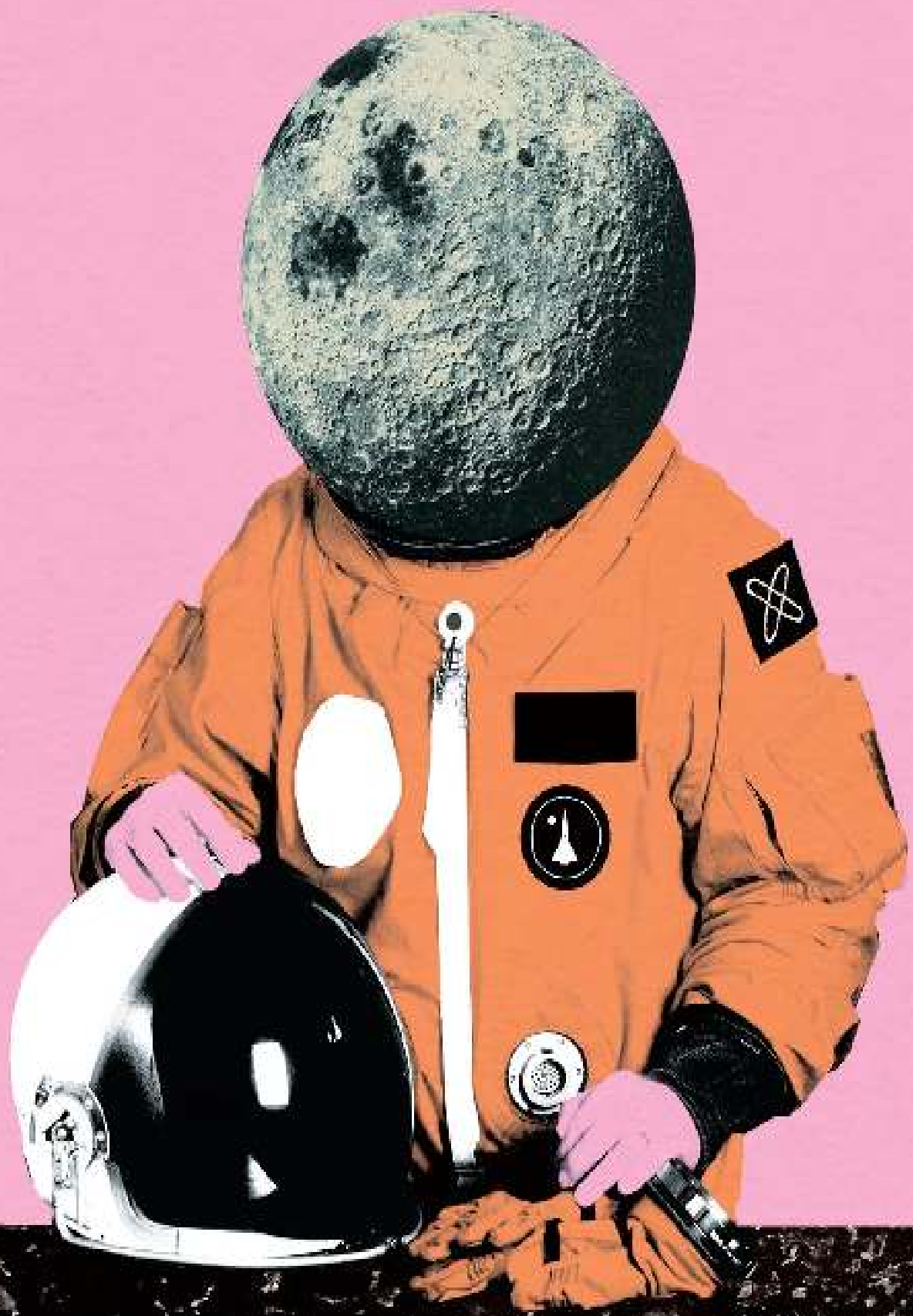
MYSTERIOUS HEADACHES

Some of the first astronauts to use the space shuttle reported experiencing mysterious headaches while in space. Lots of money and time were spent researching why. Intracranial pressure? Insufficient oxygen? No. Coffee has to be freeze-dried before being transported to space. This process reduces coffee's caffeine levels so significantly that the astronauts' headaches were actually a symptom of caffeine withdrawal.



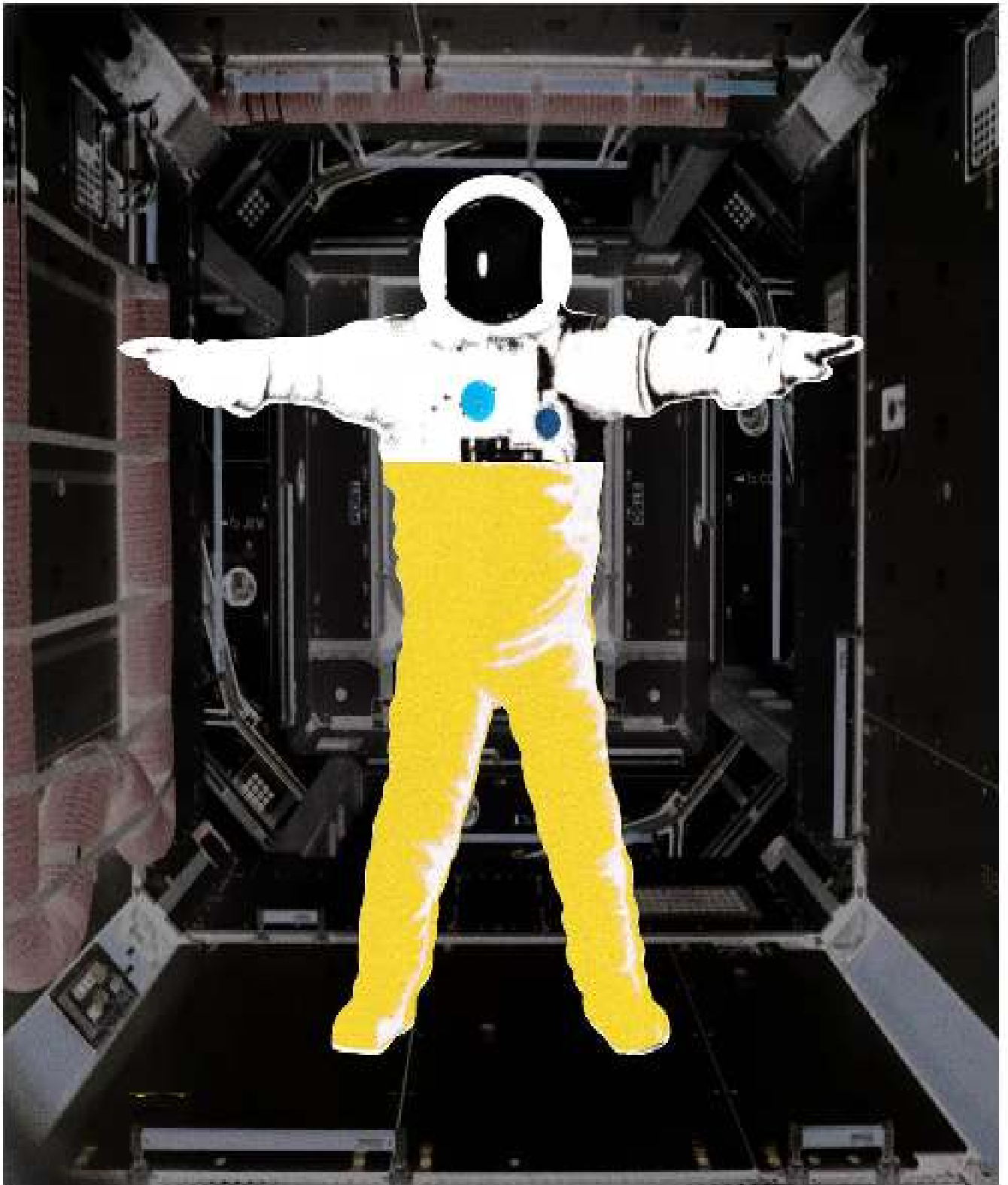
MOON FACE

“If you ever go to space, make sure you go for longer than four days,” advises four-time space shuttle astronaut Jim Newman. Within the first few hours of being in space, you get what astronauts call “Moon Face.” Due to the lack of gravity, your body can’t keep the flow of blood as well-distributed below your head. For the first few days in space, your face becomes bloated until your body figures out how to properly distribute blood in microgravity. Generally after the fourth day your face returns to normal and you can more comfortably enjoy your space travel.



LEAKY SUITS

The early male astronauts often had leaky spacesuits. They would frequently complain about their urine leaking into other areas of the suit. For a while, no one could figure out what was wrong with the spacesuits. NASA eventually realized the leaking was due to the oversized condom catheters the astronauts were using. Turns out that when the astronauts were asked by doctors what size they needed, they would often ask for “large.”



URINE ICICLE

The space shuttle used a venting system to expel astronauts' liquid waste away from it and into space. In 1984, this system broke down. A huge icicle of urine formed in space, attached to the base of the shuttle. Fearing that the icicle could do damage to the spacecraft, the astronauts had to use a robotic arm to snap it off.



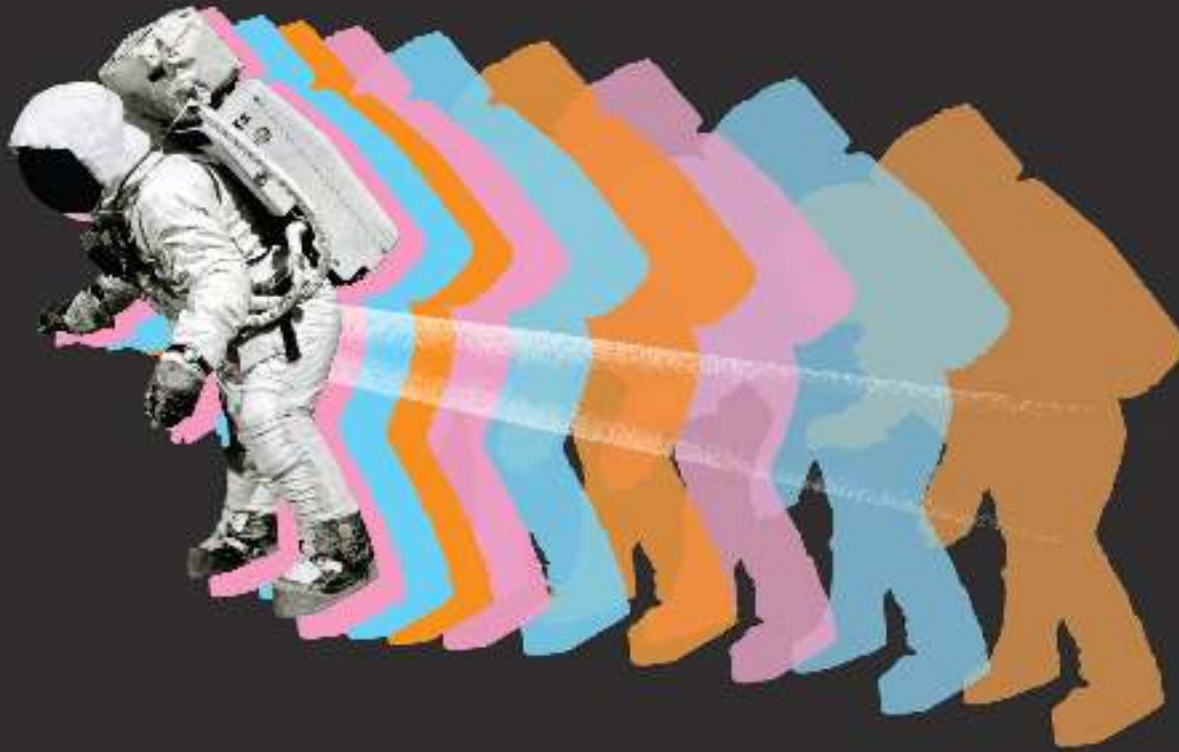
BACKWARDS DREAMS

Astronauts sometimes experience “backwards dreams” while sleeping in space. “Day 52 in space. Had my first backwards dream last night—got back to Earth and gravity wasn’t normal,” tweeted Reid Wiseman during his stay on the International Space Station. After returning to Earth, Wiseman reported that he still had dreams in which Earth’s gravity was abnormal, but that they faded after a week of being back on the ground.



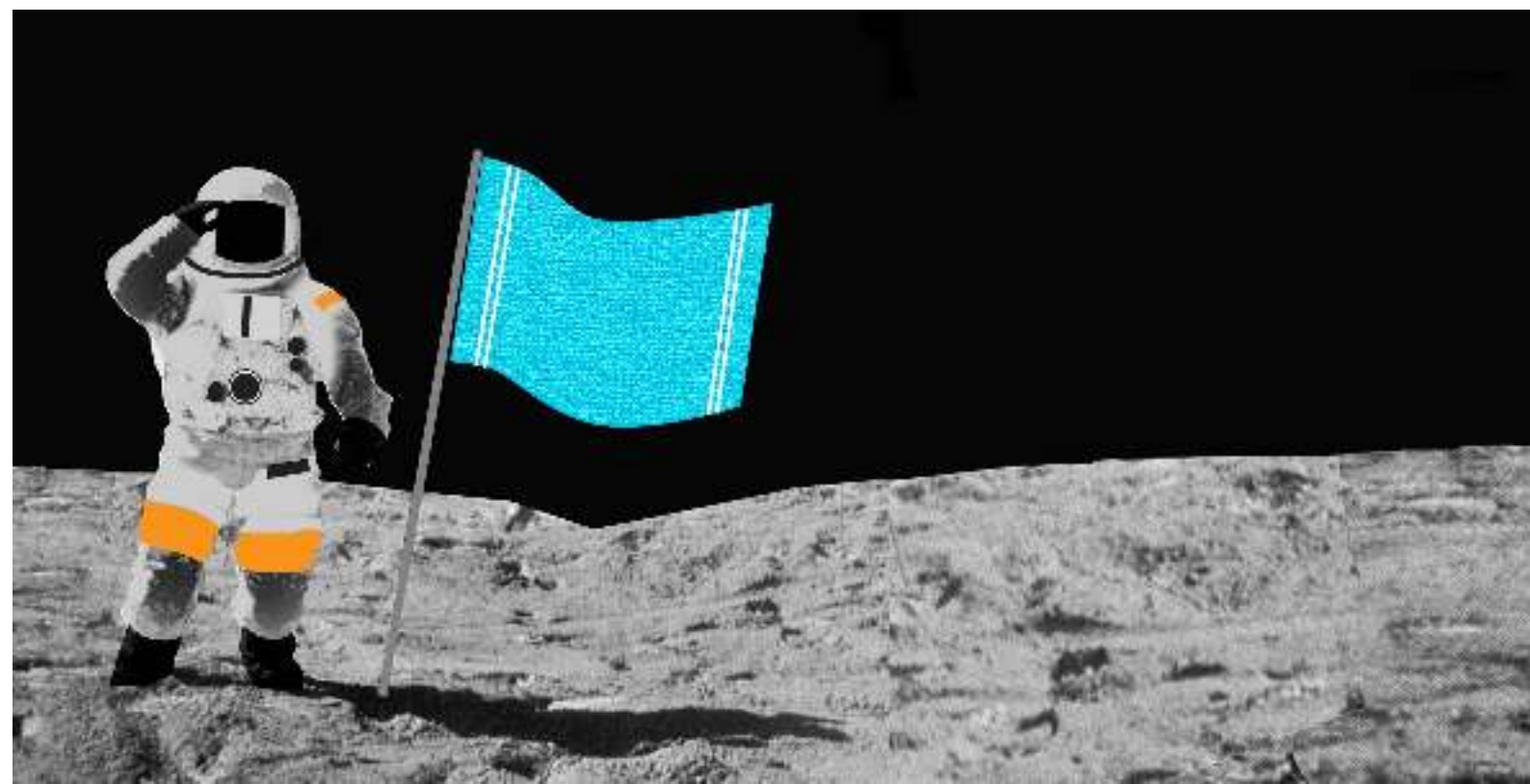
FART PROPULSION

Because it's difficult to burp in space, you fart more. Astronauts have admitted to attempting to use their farts as a type of personal propulsion for getting around the space shuttle and International Space Station. Alas, though perhaps to the relief of fellow astronauts, it turns out that farts don't propel a human body in space.



BARF BAG BOUNCE

Vomiting in space is like a slap in the face. Literally. Without gravity, your vomit will bounce off of the sides of a barf bag and into your face. Astronauts recommend planning ahead by taking a towel with you to clean up. So *The Hitchhiker's Guide to the Galaxy* was right—a towel is indeed about the most massively useful thing an interstellar traveler can have.



THIS IS THE MOON

Astronauts sometimes have to remind themselves of the magnitude of what they are doing. Alan Bean, an Apollo 12 astronaut who walked on the Moon, recounted, would look down and say, 'This is the Moon, this is the Moon,' and I would look up and say, 'That's the Earth, that's the Earth,' in my head. So, it was science fiction to us even as we were doing it."



FALLING ASLEEP

Sleeping in space can be difficult. With no bed to lie in due to the lack of our familiar gravity, astronauts have to adapt to sleeping in midair by relaxing their muscles enough to drift off. This can be tricky in a floating environment—many space newbies attest to being jolted awake by the feeling of falling, giving new meaning to the term *falling asleep*. One Russian cosmonaut became such a pro at sleeping in space that he was often seen outside of his sleeping cabin, drifting by in a deep sleep, his body occasionally bouncing off the walls.



STUCK MID-AIR

The interior of the International Space Station is covered in handrails, which astronauts use to help themselves move around. To test whether it was possible to move yourself without pushing off of a wall, two astronauts who had flown up on the Space Shuttle *Endeavour* carefully positioned one of their crewmates, astronaut Nancy Currie, in a space where she couldn't reach any walls. Currie found that no matter how vigorously she moved or how hard she flapped her arms she was stuck in mid-air, unable to reach any of the walls.

- [download online Metatropolis for free](#)
- [Thunder & Lightning: Weather Past, Present, Future here](#)
- [**read online The Christine Brooke-Rose Omnibus: Four Novels: Out, Such, Between, Thru online**](#)
- [read Belgarath the Sorcerer \(The Belgariad, Book 6\) online](#)
- [click Angela Merkel: A Chancellorship Forged in Crisis for free](#)

- <http://metromekanik.com/ebooks/Kings-and-Castles.pdf>
- <http://studystategically.com/freebooks/Thunder---Lightning--Weather-Past--Present--Future.pdf>
- <http://honareavalmusic.com/?books/The-Teenage-Brain--A-Neuroscientist-s-Survival-Guide-to-Raising-Adolescents-and-Young-Adults.pdf>
- <http://unpluggedtv.com/lib/And-a-Puzzle-to-Die-On--Puzzle-Lady-Mysteries--Book-6-.pdf>
- <http://crackingscience.org/?library/Angela-Merkel--A-Chancellorship-Forged-in-Crisis.pdf>