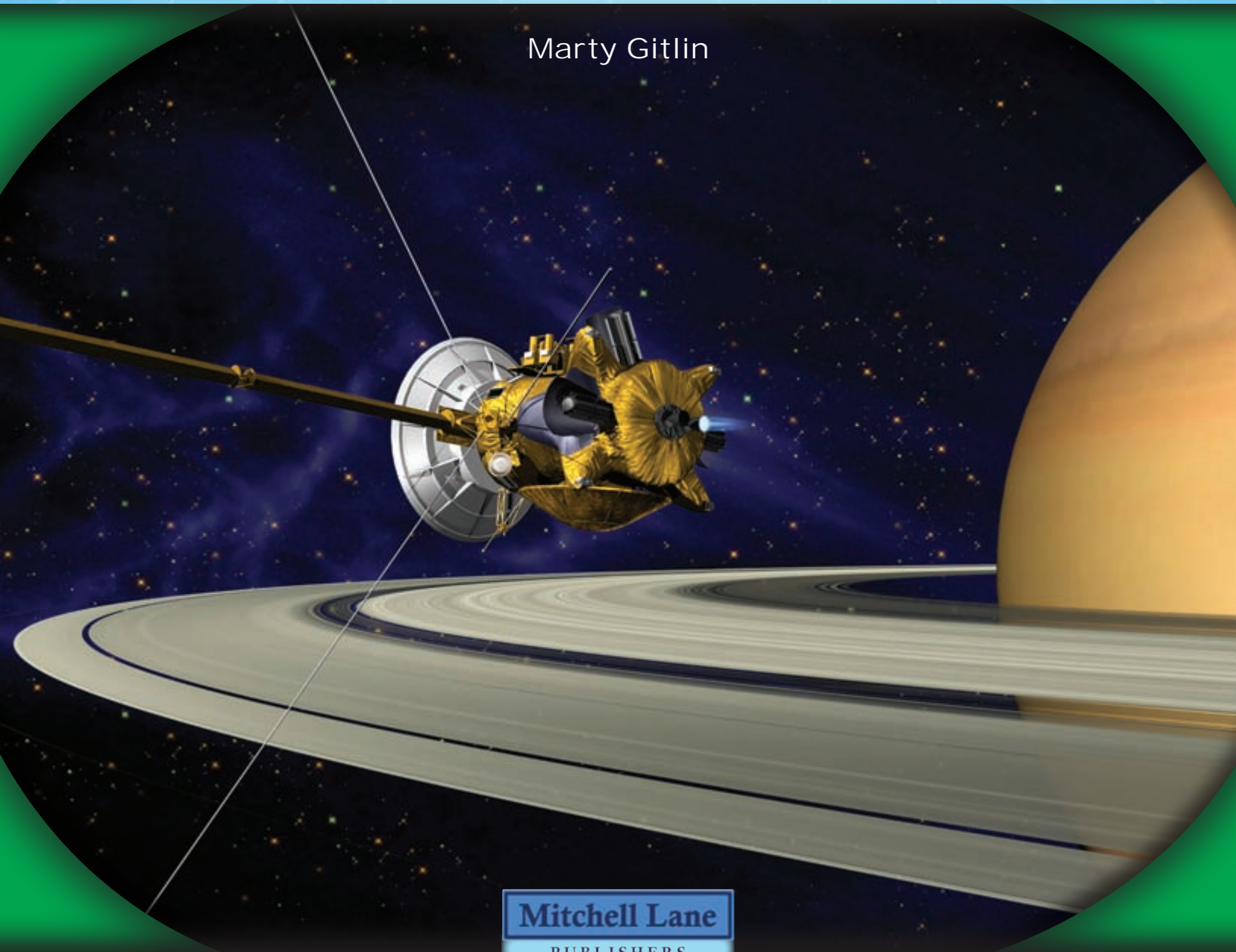




Cassini Mission

Marty Gitlin



Mitchell Lane

PUBLISHERS

2001 SW 31st Avenue
Hallandale, FL 33009
www.mitchelllane.com

Mitchell Lane

PUBLISHERS

Copyright © 2018 by Mitchell Lane Publishers. All rights reserved. No part of this book may be reproduced without written permission from the publisher. Printed and bound in the United States of America.

Printing 1 2 3 4 5 6 7 8



Designer: Sharon Beck

Editor: Jim Whiting

Library of Congress Cataloging-in-Publication Data

Names: Gitlin, Marty, author.

Title: Cassini mission / by Marty Gitlin.

Description: Hallandale, FL : Mitchell Lane Publishers, [2018] | Series: Engineering feats | Audience: Ages 9-13. | Includes bibliographical references and index.

Identifiers: LCCN 2017053463 | ISBN 9781680201703 (library bound)

Subjects: LCSH: Cassini (Spacecraft)--Juvenile literature. | Saturn probes--Juvenile literature. | Saturn (Planet)--Exploration--Juvenile literature. | Titan (Satellite)--Exploration--Juvenile literature.

Classification: LCC QB671 .G5257 2018 | DDC 629.43/546--dc23

LC record available at <https://lccn.loc.gov/2017053463>

eBook ISBN: 9-781-68020-171-0

PHOTO CREDITS: Design elements—RED_SPY/Getty Images, Ifness/Getty Images, Madmaxer/Getty Images, chictype/Getty Images, Thissatan/Getty Images, Nongkran_ch/Getty Images. Back cover photos (left to right)—NASA/JPL, Imagine China/Newscom, Henryk Sadura/Getty Images, NASA, Rehman/cc by-sa 2.0, U.S. Navy/Mass Communication Specialist Seaman Casey Hopkins/Public domain. Cover, pp. 1, NASA/JPL; p. 4—Wellcome Images/cc-by-sa 4.0; p. 6—Public domain, (inset) Synethos/cc-by-sa 4.0; p. 7—ART Collection/Alamy Stock Photo, (moons) NASA/JPL/Space Science Institute/Public domain; p. 8—WP/cc-by-sa 3.0; p. 9—NASA Ames/Public domain, NASA/ NASA/MSFC/Public domain; pp. 10, 13, 14, 20, 23, 24, 25, 27, 30, 35, 37—NASA/JPL; p. 11—NASA/Joel Kowsky; p. 15—DASA/ESA (European Space Agency); p. 16—ESA; p. 17—U.S. Federal Government/Public domain; p. 19, 38 (inset)—NASA; p. 21—NASA/JPL-Caltech; p. 22—YAY Media AS/Alamy Stock Photo; pp. 28-29—Universal Images Group North America LLC/Alamy Stock Photo, (inset) Kevin Gill from Nashua, NH, United States/cc-by-sa 2.0; pp. 31, 33—ESA-D. DUCROS; pp. 32-33—ESA - C. Carreau; pp. 36-37—ESA/S. Marti/CC BY-SA 3.0 IGO; p. 38—Kevin Gill from Los Angeles, CA, United States/cc-by-sa 2.0.

CONTENTS

CHAPTER 1

Sights Set on Saturn4

CHAPTER 2

Partners in Exploration12

CHAPTER 3

An Amazing Journey18

CHAPTER 4

Making Many Discoveries26

CHAPTER 5

An Incredible Feat.....34

What You Should Know40

Quick Stats.....40

Timeline41

Chapter Notes42

Further Reading44

Works Consulted.....44

On the Internet.....45

Glossary46

Index47

About the Author.....48

Words in **bold** throughout can be found in the Glossary.

1

Sights Set on Saturn

Imagine ancient humans gazing into the night sky. They look in wonder at a pale-yellow sphere with hints of orange. They marvel at its beauty. They stand in awe of its size. Many worship it as a sun god.¹

Fast forward to 1610. Italian astronomer Galileo Galilei peers through his crude telescope. He becomes the first person to get an enlarged view of Saturn. He wrongly believes the stunning rings around the planet are moons.

Forty-five years later, Dutch astronomer Christiaan Huygens uses a more advanced telescope to reveal the actual nature of the rings. He also discovers the Saturn moon of Titan.²

There are more moons to find. And Italian-born astronomer Giovanni Domenico Cassini (who changed his name to Jean-Dominique Cassini when he moved to France as an adult) finds four of them between 1671 and 1684. They are Iapetus, Rhea, Tethys, and Dione. Cassini also observes a narrow gap that splits the rings of Saturn into two parts.³

More than 400 years have passed since Galileo first stared at Saturn. The sixth planet from the sun has remained an object of fascination ever since. It is the most distant planet of the **solar system** that can be seen with the naked eye. The mere sight of it in the night sky excites viewers.



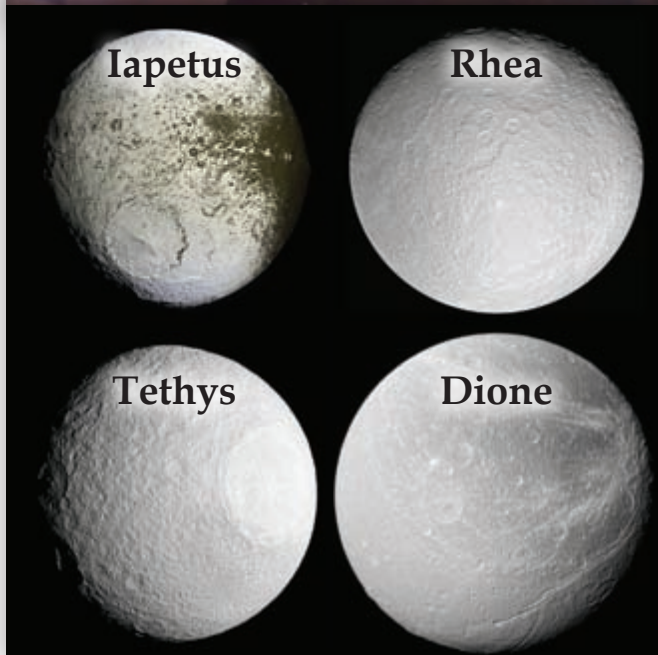
This oil painting features Italian astronomer Galileo Galilei, who first eyed Saturn with a crude telescope. That telescope can be seen here in the inset.



Dutch astronomer Christiaan Huygens and an engraving of his 210-foot telescope, which gave him a view of the rings of Saturn and the Titan moon. The telescope is on display at the Old Observatory in the Dutch town of Leiden.



**Giovanni
Domenico
Cassini**



Giovanni Domenico Cassini discovered four satellites of Saturn – Iapetus and Rhea in 1671 and 1672, and Tethys and Dione in 1684.

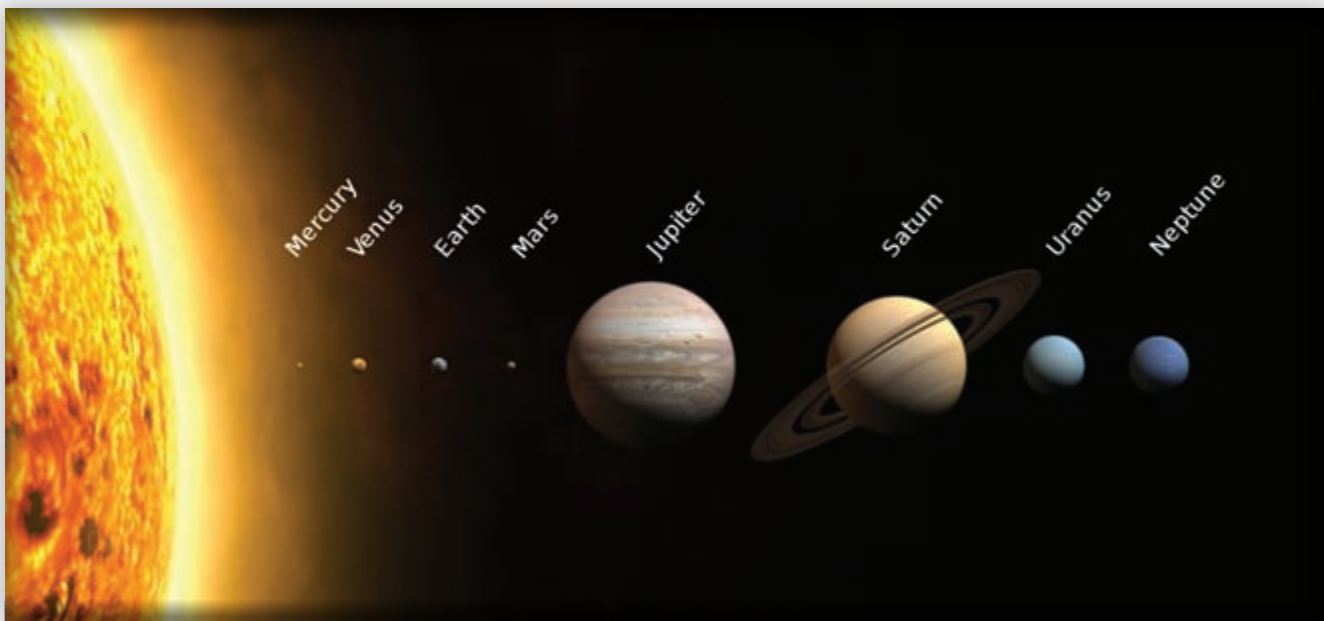
That attraction motivated American and European space scientists to solve the mysteries of Saturn. They teamed up to build and send two unmanned spacecraft to explore the planet, rings, and moons. It was called the Cassini-Huygens Mission, often shortened to just Cassini, after the two astronomers who had planted the seeds for Saturn exploration.

The history of how Saturn has been perceived is as interesting as the planet itself. One can imagine a prehistoric person gazing at what may have seemed to be the slowest-moving star in the sky due to its long orbit around the sun. The ancient Assyrians recorded the oldest known observation of Saturn. They nicknamed it “Lubadsagush,” or “oldest of the old,” possibly for its slow movement. The Romans celebrated Saturn with a festive holiday event called Saturnalia.

Among the modern-day experts who have the same fascination for Saturn is Carolyn Porco,

who played a key role in the Cassini-Huygens Mission. “No other planet looks as unworldly or **surreal** as Saturn,” she said. “When you see it floating in the eyepiece of your telescope, you feel as if you’ve uncovered mystery in the cosmos.”⁴

The discovery of Saturn’s rings in the 1600s heightened interest in the planet. The rings stretch nearly 180,000 miles from side to side. That is twice the diameter of Jupiter, the largest planet in the solar system. But the rings themselves are incredibly thin. They measure a mere 300 feet high. They disappear from view when seen on edge from Earth.⁵ If Saturn could be shrunk down to the size of a basketball, the thickness of the rings would be just 1/250th of the diameter of a human hair.⁶



The solar system was formed 4.6 billion years ago. The vast majority of the system’s mass is in the Sun. The four smaller inner planets – Mercury, Venus, Earth, and Mars – are terrestrial planets, being primarily composed of rock and metal. The four outer planets are much larger. The two largest, Jupiter and Saturn, are gas giants, being composed mainly of hydrogen and helium. The two outermost planets, Uranus and Neptune, are referred to as ice giants. They are composed mostly of substances with relatively high melting points compared to hydrogen and helium.

You've Just Finished your Free Sample

Enjoyed the preview?

Buy: <http://www.ebooks2go.com>