



A JOURNEY
THROUGH
TIME

EXPLORING THE UNIVERSE WITH
THE HUBBLE SPACE TELESCOPE

JAY BARBREE &
MARTIN CAIDIN

FOREWORD BY SENATOR JOHN H. GLENN, JR.

The scientific community's high expectations and NASA's confident hopes for the Hubble Space Telescope—the most celebrated telescope since Galileo's—were dashed when the first images transmitted back were out of focus; the telescope's primary mirror was flawed. A little more than two years later, in December 1993, NASA launched a repair mission that proved brilliantly successful in correcting Hubble's optics. It is at this point that *A Journey Through Time* begins.

A telescope orbiting above Earth's atmosphere would be able to see into the heavens with unprecedented clarity. And, once corrected, Hubble achieved a resolution ten times greater than that of the most powerful telescopes on Earth. As astronomer-astronaut Jeffrey Holman says, "The whole dream was to push back the frontiers of how far we can see out...towards the edge of the universe. That means backwards towards the beginning of time."

In giving us a far-seeing eye on the universe, the Hubble Space Telescope is also a time machine. The events and places it sees and records and transmits back to us on Earth are millions and billions of years old. The farther it sees, the closer it approaches the events that followed the Big Bang, the very origin of the universe.

A Journey Through Time, then, takes us on a tour through our own solar system, the Milky Way, through nebulae, great galaxies, dense clusters, exploding stars, along the edges of black holes, to scenes of the infant universe. In the course of such a journey we may yet well find another planet—not unlike Earth—in circumstances congenial to the development and nurture of life.

Over 200 full-color photographs from NASA and other sources—by ground-based observatories, satellites, planetary probes, and

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Above: A jet of gas ejected by a young star (HH1/HH2) lying 1,500 light-years away in the constellation Orion. (NASA)

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BY

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Senator John H. Glenn, Jr.

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PENGUIN

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1002022

2095

PENGUIN STUDIO

Published by the Penguin Group
Penguin Books USA Inc., 375 Hudson Street,
New York, New York 10014, U.S.A.

Penguin Books Ltd, 27 Wrights Lane,
London W8 5TZ, England

Penguin Books Australia Ltd, Ringwood,
Victoria, Australia

Penguin Books Canada Ltd, 10 Alcorn Avenue,
Toronto, Ontario, Canada M4V 3B2

Penguin Books (N.Z.) Ltd, 182-190 Wairau Road,
Auckland 10, New Zealand

Penguin Books Ltd, Registered Offices:
Harmondsworth, Middlesex, England

First published in 1995 by Viking Penguin,
a division of Penguin Books USA Inc.

10 9 8 7 6 5 4 3 2 1

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LIBRARY OF CONGRESS CATALOGING IN PUBLICATION DATA

Barbree, Jay.

A journey through time: exploring the universe with the Hubble Space Telescope / by
Jay Barbree and Martin Caidin ; foreword by John H. Glenn, Jr.

p. cm.

Includes index.

ISBN 0-670-86018-2

1. Hubble Space Telescope. 2. Orbiting astronomical observatories.

3. Outer space—Exploration. I. Caidin, Martin. II. Title.

QB500.268.B37 1995

520—dc20 95-6758

Printed in the United States of America

Set in ITC Century Book

Designed by William A. Sponn

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*Now and then extraordinary people
step forward to do extraordinary things.*

*This book is for such people:
those who repaired the Hubble Space Telescope
370 miles above Earth.*

Astronauts

**Richard Covey,
Kenneth Bowersox,
Story Musgrave,
Claude Nicollier,
Kathryn Thornton,
Tom Akers,**

and

the space-walking astronomer

Jeffrey Hoffman