

History of Rocketry and Astronautics

**Proceedings of the Thirty-Fourth History Symposium of
the International Academy of Astronautics**

Rio de Janeiro, Brazil, 2000

Otfried G. Liepack, Volume Editor

Donald C. Elder, Series Editor

AAS History Series, Volume 30

A Supplement to Advances in the Astronautical Sciences

IAA History Symposia, Volume 20

Copyright 2009

by

AMERICAN ASTRONAUTICAL SOCIETY

AAS Publications Office
P.O. Box 28130
San Diego, California 92198

Affiliated with the American Association for the Advancement of Science
Member of the International Astronautical Federation

First Printing 2009

ISSN 0730-3564

ISBN 978-0-87703-549-7 (Hard Cover)
ISBN 978-0-87703-550-3 (Soft Cover)

Published for the American Astronautical Society
by Univelt, Incorporated, P.O. Box 28130, San Diego, California 92198
Web Site: <http://www.univelt.com>

Printed and Bound in the U.S.A.

Contents

	Page
Foreword	vii
Preface	ix

PART I **Developing Space Countries**

Chapter 1. Teófilo M. Tabanera (1909–1981): The Divulger, Oscar Fernández-Brital and Miguel Sánchez-Peña	3
Chapter 2. Biological Studies in Animals Using Sounding Rockets, Miguel Sánchez-Peña and Hugo F. L. Niotti	9
Chapter 3. Rocketry in Latin America in the 19th Century: A Historical Overview, Frank H. Winter and Karlheinz Rohrwild	19
Chapter 4. Indian Space Endeavors: A Historical Perspective, K. Kasturirangan, K. R. Sridhara Murthi, Mukund Rao, M. Y. S. Prasad and G. Madhavan Nair	55
Chapter 5. Rocket Weapons in Ancient China, Lai-Chen Chien, Yu-Ling Lee, Mei-Chen Lo and Yi-Lin Zhu	71

PART II **Failure and Success: Lessons Learned for Everybody**

Chapter 6. Baikonur Tragedy, L. V. Andreyev and S. N. Konyukhov	89
Chapter 7. Between a Rocket and a Hard Place: Episodes in the Evolution of Launch Vehicle Technology, Roger D. Launius and Lori B. Garver	97

	Page
Chapter 8. The True Beginnings of French Astronautics: 1938–1959 (Part II), Philippe Jung	125
Chapter 9. Early History of Kagoshima Space Center, Yasunori Matogawa	163
Chapter 10. The Military Space Organization in the Soviet Union: 1946–1991, Christian Lardier	181
Chapter 11. Rugged Efficiency: A History of French Liquid Rocket Engine Developments from Véronique to MS100, 1950–2000, Christophe Rothmund and Jean-Philippe Girault	221
Chapter 12. The Larger Solid Propellant Rocket Motors of the United Kingdom, John Harlow	239
Chapter 13. History of the Department of Defense Space Test Program, E. M. Sims	265
PART III People and Society	
Chapter 14. Czechs in Space, Petr Bares and Marcel Grün.	281
Chapter 15. Herman Potočnik Noordung: Slovenian Space Visionary, Miloš Krmelj	293
Chapter 16. French Youth and Space Activities: A Historical Approach (1961–1966), Hervé Moulin.	299
PART IV In Memoriam	
Chapter 17. The First Soviet Space Flight Organizations, B. V. Rauschenbach and V. N. Sokolsky	319
In Memoriam: Victor Nikolaevich Sokolsky (1924–2002)	325
In Memoriam: Boris Viktorovitsch Rauschenbach (1915–2001)	327
Index	329