

Fink, J. H. and S. W. Anderson, 2000, "Lava Domes and Coulees," in *Encyclopedia of Volcanoes*, H Sigurdsson, ed.; Academic Press, 307-320.

This reference is not provided here due to possible copyright restrictions. Please contact:

John Tegtmeier, EIS Document Manager
Los Alamos Site Office
National Nuclear Security Administration
U.S. Department of Energy
3747 West Jemez Road
Los Alamos, NM 87544
Telephone: 505-665-0113

ENCYCLOPEDIA OF

VOLCANOES

Editor-in-Chief

HARALDUR SIGURDSSON

University of Rhode Island, U.S.A.

Associate Editors

BRUCE F. HOUGHTON

Institute of Geology and Nuclear Science, New Zealand

STEPHEN R. MCNUTT

Alaska Volcano Observatory and University of Alaska Fairbanks, U.S.A.

HAZEL RYMER

Open University, United Kingdom

JOHN STIX

McGill University, Canada

Foreword by

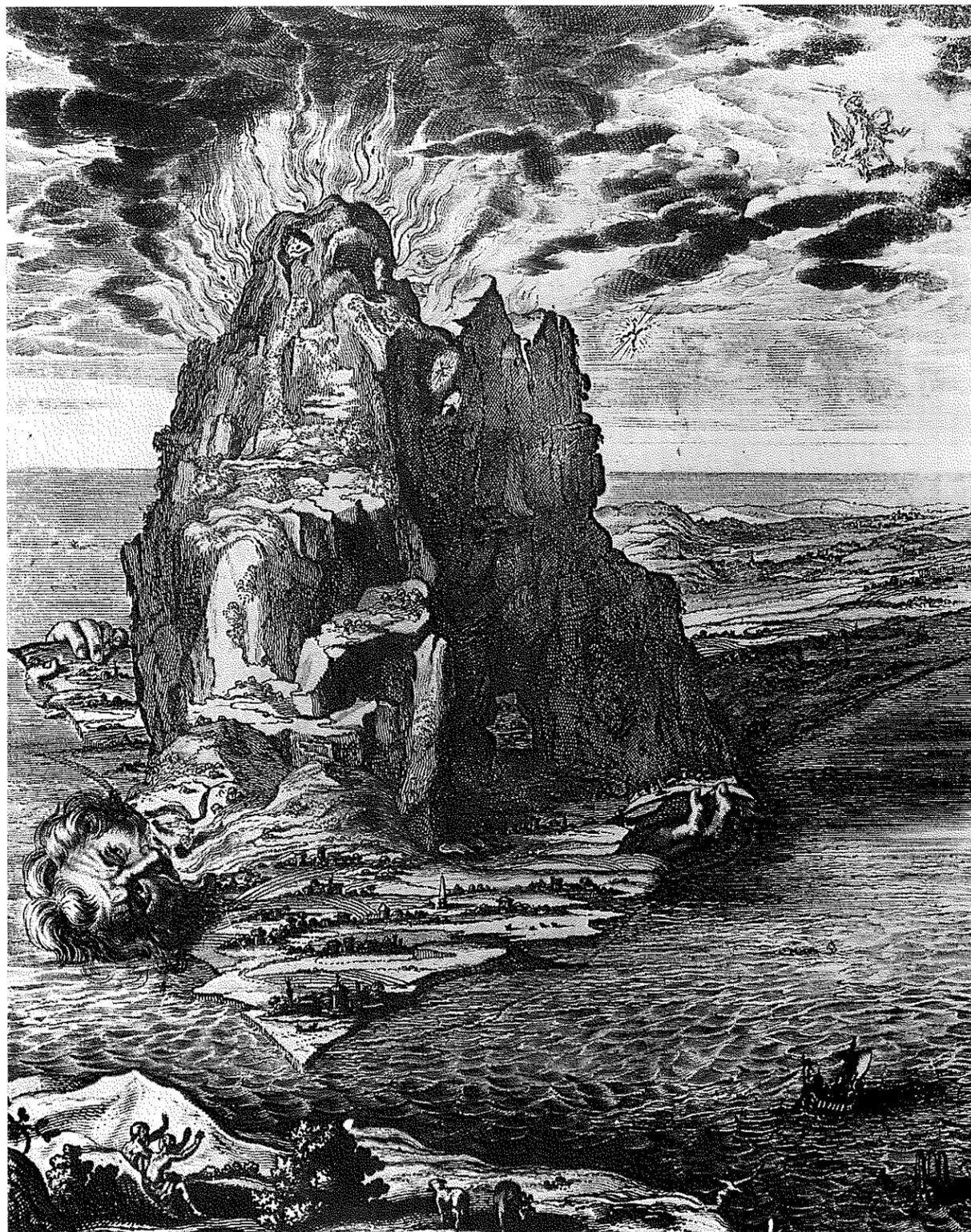
ROBERT D. BALLARD



ACADEMIC PRESS

A Harcourt Science and Technology Company

San Diego San Francisco New York Boston London Sydney Toronto



According to Greek Mythology, the giant Typhon is buried under Etna volcano. Whenever the giant stirs, the volcano erupts violently. Eighteenth century print. (See *The History of Volcanology*, p. 15.)

CONTENTS

Cover photo: Douglas Peebles Photography

This book is printed on acid-free paper. (∞)

Copyright © 2000 by ACADEMIC PRESS

All Rights Reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Requests for permission to make copies of any part of the work should be mailed to: Permissions Department, Harcourt Inc., 6277 Sea Harbor Drive, Orlando, Florida, 32887-6777.

Academic Press

a division of Harcourt Brace & Company
525 B Street, Suite 1900, San Diego, California 92101-4495, USA
<http://www.apnet.com>

Academic Press

24-28 Oval Road, London NW1 7DX, UK
<http://www.hbuk.co.uk/ap/>

Library of Congress Catalog Card Number: 99-62781

International Standard Book Number: 0-12-643140-X

PRINTED IN THE UNITED STATES OF AMERICA
99 00 01 02 03 04 MB 9 8 7 6 5 4 3 2 1

ARTICLE INDEX	XI	MELTING THE MANTLE	55
CONTRIBUTORS	XIII	<i>Paul D. Asimow</i>	
FOREWORD	XIX	MIGRATION OF MELT	69
<i>Robert D. Ballard</i>		<i>Martha J. Daines</i>	
PREFACE	XXI	PLATE TECTONICS AND VOLCANISM	89
<i>The Editors</i>		<i>Michael R. Perfit and Jon P. Davidson</i>	
GUIDE TO THE ENCYCLOPEDIA	XXIII	COMPOSITION OF MAGMAS	115
INTRODUCTION	1	<i>Nick Rogers and Chris Hawkesworth</i>	
<i>Haraldur Sigurdsson</i>		ORIGIN OF MAGMAS	133
THE HISTORY OF VOLCANOLOGY	15	<i>Timothy L. Grove</i>	
<i>Haraldur Sigurdsson</i>		VOLATILES IN MAGMAS	149
		<i>Paul Wallace and Alfred T. Anderson, Jr.</i>	
<hr/>		PHYSICAL PROPERTIES OF MAGMAS	171
PART I		<i>Frank J. Spera</i>	
ORIGIN AND TRANSPORT OF MAGMA		MAGMA CHAMBERS	191
MANTLE OF THE EARTH	41	<i>Bruce D. Marsh</i>	
<i>Raymond Jeanloz</i>			