

BOMBS AND BOMBINGS

ABOUT THE AUTHOR

Captain Thomas Graham Brodie, M.B.E., B.A., is a native Miamian. He is retired from the Miami-Dade Police Department where he rose through promotional examinations from patrolman to police captain in eight years. The author spent twenty-four years on the bomb squad, which he helped establish. He was a bomb specialist and a criminalist and supervised the crime scene section.

Captain Brodie disposed of thirty-seven bombs which had been delivered to their targets by bombers and disposed of over 4,000 other bombs and tons of explosives recovered from terrorists. He investigated approximately 350 bombings. Fifty percent of the perpetrators were convicted. *The Miami Herald* described Captain Brodie as “a genuine hero” and “the technical expertise of his bomb squad as almost legendary.”

Captain Brodie was knighted by Queen Elizabeth II for his role in protecting the British Empire in the Caribbean against bombers. The author also starred in a police training film “Bombs I, II, and III” with Mickey Rooney.

In the early 1970s, as one of only nineteen experienced police bomb disposal technicians, Captain Brodie served as a consultant in the establishment of the National Bomb Data Center. As a charter member of the International Association of Bomb Technicians and Investigators, he served on the advisory committee for thirteen years and was honored by the Association in 1998 with the Roger Goad Award.

The first edition of his book *Bombs and Bombings* was described as being twenty years ahead of its time.

Third Edition

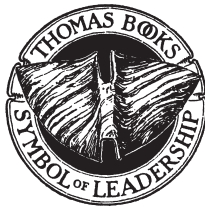
BOMBS AND BOMBING

**A Handbook to Protection, Security,
Detection, Disposal and Investigation for
Industry, Police and Fire Departments**

By

THOMAS GRAHAM BRODIE, M.B.E., B.A.

*Captain, Bomb Specialist, Criminalist and Crime Scene Technician
Miami-Dade Police Department (Retired)
Miami, Florida*



CHARLES C THOMAS • PUBLISHER, LTD.
Springfield • Illinois • U.S.A.

Published and Distributed Throughout the World by

CHARLES C THOMAS • PUBLISHER, LTD.
2600 South First Street
Springfield, Illinois 62704

This book is protected by copyright. No part of
it may be reproduced in any manner without written
permission from the publisher. All rights reserved.

© 2005 by CHARLES C THOMAS • PUBLISHER, LTD.

ISBN 0-398-07572-7 (hard)
ISBN 0-398-07573-5 (paper)

Library of Congress Catalog Card Number: 2004062077

*With THOMAS BOOKS careful attention is given to all details of manufacturing
and design. It is the Publisher's desire to present books that are satisfactory as to their
physical qualities and artistic possibilities and appropriate for their particular use.
THOMAS BOOKS will be true to those laws of quality that assure a good name
and good will.*

*Printed in the United States of America
MM-R-3*

Library of Congress Cataloging-in-Publication Data

Brodie Thomas G.

Bombs and bombings : a handbook to protection, security, disposal,
and investigation for industry, police and fire departments / by Thomas
Graham Brodie.—3rd ed.

p. cm.

Includes index.

ISBN 0-398-07572-7 – ISBN 0-398-07573-5 (pbk.)

1. Bombs. 2. Explosives. 3. Bomb reconnaissance. I. Title.

TP270.B76 2005
623.4'51—dc22

2004062077

FOREWORD

Information on the hazardous properties of explosive materials, Ied's, and other weapons of mass destruction is essential for Bomb Technicians and others responsible for the protection of life and property.

The information in this publication far exceeds anything I have seen or read before. Tom has included extensive data Re: equipment, safety procedures, Ied's, crime scene investigation as well as the safe disposal and destruction of Ied's and other hazardous materials. This is a book that should be in every Bomb Squad Library.

The terrorists' use of remote control car and truck bombs, roadside bombs, and suicide bombers together with the situation in the world today, could produce problems most of us have not encountered before. Tom's vast experience and diligent research has permitted him to produce a handbook the study of which would enable Bomb Technicians to deal with most situations.

Thanks, Tom.

ALBERT W. GLEASON

PREFACE

This book was written to answer the inquiries received from many sources concerning the subject of bombs and bombings. The author hopes that the information contained herein may help save lives and property. The book is not intended to make experts of readers or to assume any responsibility arising therefrom. The following pages contain a general outline of the procedures employed in processing commercial or homemade explosives, military explosive ordnance, bombs, improvised explosive devices, suspected packages, infernal machines, bomb scares, explosions, bombings, and similar incidents. Examples from real experiences are given to explain the reasons for these procedures.

It is stressed at the outset that the construction of the bomb or the infernal machine and the conditions of the emergency situation will rarely be exactly the same. No single procedure can be utilized in each and every instance without deviation.

This written material relates to disposal and investigation of bombs, but it does not describe how to construct lethal devices. However, practical information on bomb evidence, which is not found in other literature, is in this volume.

Bomb and explosive disposal is a fascinating but hazardous field. Frivolous interest by poorly motivated persons is strenuously discouraged. Death or permanent injury can be the cost of poor judgment or inexperience. Books, courses, and practice will not make a bomb expert, but these, accompanied by experience, will help a person become better at bomb disposal. Training and experience generate capability and good judgment. Excessive fear or overconfidence may cause the specialist to become his own worst enemy. While the experienced handler employing all of the accepted precautionary methods may minimize the risk of an untoward incident, it must be remem-

bered that bombs and explosives are engineered, planned, and ultimately designed to explode, and there is no absolutely safe method of handling many items.

It is possible to construct a bomb that cannot be deactivated. A bomb can be so sensitive to movement that it cannot be touched without its exploding.

New technology in the dismantling of bombs has increased the life expectancy of bomb disposal technicians. Yet many of those in bomb protection are not cognizant of their own essential needs: equipment, training, table of organization, and procedures.

These four basic elements in bomb protection cannot be overemphasized and must be understood and followed not only by bomb disposal technicians, but by administrative and management to insure the safest methods of bomb protection.

The following pages do not describe how to solve all bomb problems, but they have been prepared as an approach to one of the most difficult of all police challenges and are intended to serve in an educational and constructive manner.

T.G.B.

ACKNOWLEDGMENTS

Most of the photographs are through the courtesy of the Miami-Dade Police Department.

Al Gleason, Red Moody, Gerd Ester, Chris Ronay, Doctor Ralph Way, Daniel Eydtt, Tom Salter, Paul Cooper, and Doctor Lee Hearn were contributors.

I thank all those with whom I have ever worked because I learned something from each of them, which helped keep me alive. Try to learn from every opportunity.

CONTENTS

	<i>Page</i>
<i>Foreword by Albert W. Gleason</i>	v
<i>Preface</i>	vii
 <i>Chapter</i>	
1. EXPLOSIVE AND BOMB DISPOSAL SERVICES AND TRAINING	3
2. BOMB TRANSPORTERS	17
3. EQUIPMENT	34
4. DEFINITIONS AND CHARACTERISTICS OF EXPLOSIVES	45
5. EXPLOSIVES AND BOMB LAWS	68
6. BOMB SEARCH PROCEDURES	79
7. BOMB DISPOSAL PROCEDURES	101
8. SEARCH AND DISPOSAL OF BOMBS IN MOTOR VEHICLES	167
9. COMMERCIAL EXPLOSIVES AND MILITARY ORDNANCE	182
10. EVIDENCE OF EXPLOSIVES	223
11. PRINCIPLES OF BOMB PROTECTION	286
 <i>Index</i>	 309

BOMBS AND BOMBINGS

Chapter 1

EXPLOSIVE AND BOMB DISPOSAL SERVICES AND TRAINING

Obtaining adequate equipment for competent bomb handling is usually a difficult process. The best method is to educate persons in charge of the department. The bomb technician should be able to express his or her needs for equipment, training, standard operation procedures, and table of organization orally and in writing to his immediate supervisor who may be a sergeant, his lieutenant, or upward through the chain of command. The technician should follow his requests to make sure that proper budgeting and purchasing procedures are followed. The technician will find that tact and diplomacy are helpful.

All available data on bomb scares, stolen and recovered explosives, and actual bombs and bombings can be obtained from news media and local, state, and federal agencies to justify why the requested items are necessary. Although the aforesaid equipment for one's local needs is stressed, importance should be given to national and international incidents. Military and commercial usage of explosives may result in incidents. Surveys of possible local government and industry vulnerability also help show needs that should be met. Sometimes past experience demonstrates a need for bomb protection equipment and the organization of operating procedures. Miami-Dade County, Florida acquired training and equipment for its bomb squad in the early sixties after a series of right-wing bombings, labor bombings, and increased seizures of bomb caches of revolutionaries in the greater Miami area. Figures 2 and 3 provide outstanding examples. Everyone who recognizes a need for adequate equipment and training should not hesitate in bringing the information to the attention of responsible people.



Figure 1. This photograph was taken by Detective Kevin Barry of the New York City Police Bomb Squad thirty seconds after the second plane United Airlines hit the South Tower #2 at 9:03 a.m. This bombing gave notice to the world that we are involved in a war against terrorism.

Too often, police and fire agencies wait until a bomb is found or a tragedy occurs before a decision is made to take precautionary measures for the future. Even though a department may have trained personnel, equipment and tactical plans for such an emergency, an officer who is not a bomb specialist, will sometimes handle a bomb himself before he calls for skilled assistance as is seen in Figure 4.

Billy Poe, of the Louisiana State Police, obtained almost all of his needs after he disposed of a bomb that was sent to the governor, and someone bombed the state legislature. The South Carolina Law Enforcement Department has a well-developed public relations program in a videotape.

TACTICAL PLANS

Every police and fire department should have a tactical plan prepared for use in the event of an explosion or a bomb incident. Who is



Figure 2. The bomb makers were busily repainting old practice hand grenade bodies after putting corks in the bottom, using two-inch safety fuse for delays in the mechanism with new primers and gun powder. This support for terrorists going to Cuba never got there.

going to dispose of a bomb? It is the responsibility of the police or fire administrator to have his personnel know whom to call to the scene. The more experience and training the bomb specialist has, the safer he is and the more valuable he is to his jurisdiction. Incentives, such as hazardous duty pay, help him choose to stay in that field of endeavor. The Los Angeles Police Department bomb squad received a large hazardous duty pay after a bomb was found at the Los Angeles Times offices and a member of the bomb squad was asked by the newspaper media if the technician was going to dispose of the bomb. Before he disposed of the item he said, "I don't know. I don't get any extra for doing this. I could get killed."

In some cases, an officer who has had very little training and possesses very little equipment, as in the old days, i.e., a knife and some string, assumes or is given the responsibility of bomb disposal. A good administrator will determine in advance who the best specialist is and where and how he can be obtained. One man cannot be completely