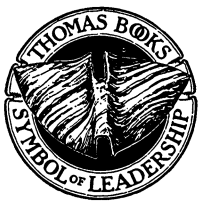
EXPLOSIVES
and
HOMEMADE BOMBS

EXPLOSIVES and HOMEMADE BOMBS

Second Edition, Second Printing

By

MAJOR JOSEPH STOFFEL, AUS (Ret)



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DEDICATION

THIS BOOK is respectfully dedicated to the American Federation of Police, who were the first to recognize that explosive and bomb incidents were a national hazard to law enforcement personnel and therefore sponsored regional training seminars in this vital subject; to the Institute Makers of Explosives, who have provided inert explosive training aids to law enforcement training agencies without cost to the agency; and to all law enforcement and firefighting personnel who in the course of their many duties may be called upon to deal with explosives in their many varied forms.

Last but not least to my family, Kay, Joe, Anne and Stephen, for their assistance and patience.

PREFACE

MAJOR CITIES such as New York, Chicago and Los Angeles require the full-time service of police officers specially trained and equipped to handle and dispose of homemade bombs. It is not feasible for smaller municipalities, county and state law enforcement agencies to maintain full-time bomb squads; nor can the agency justify the cost or use of special handling equipment for this purpose. However, it is a recognized fact that these agencies have to contend with homemade bomb incidents and are at a decided disadvantage.

The basic edition of *Explosives and Homemade Bombs,* the first book devoted exclusively to the subject, was written to acquaint inexperienced law enforcement personnel with the techniques of coping with explosive incidents and has become the basic text for training officers in this vital subject.

Since the introduction of the basic text, both the number of explosive incidents and the types and complexity of explosives and homemade bombs have increased. This completely revised text constitutes an advanced training manual that serves to bring the officer up-to-date with the latest advances and techniques of handling explosive incidents. Maximum attention is given to the methods of the bomber, the construction and employment of homemade bombs and the techniques of homemade bomb disposal. The simplicity of layout and practicality of the first edition have been retained.

Nontechnical language has been used deliberately to facilitate the understanding and retention of the subject matter by law enforcement and fire service personnel who would not normally perform full-time bomb disposal duties, but who may have to deal with explosives or homemade bombs at any moment.

No attempt has been made to identify all commercial explosives by their trade names except in instances where the explosive

or device is unique to the manufacturer. Several explosives and devices peculiar to the military forces have been included, since these items have turned up on the civilian economy in the form of war souvenirs or for illegal purposes. Information on Civil War munitions has been included for the benefit of law enforcement personnel in the central and southeastern United States.

No book can hope to offset the value of practical experience, but practical experience alone is the slow, hard and dangerous path to bomb disposal expertise. This textbook is unique in that a large number of questions, examples, problems, and practical exercises are included that are intended to provide the next best training; a combination of text and practical exercises that are based on actual incidents that have confronted disposal personnel. The practical exercise chapter combined with the questions asked at the end of each chapter in the text are designed to lead the officers in a step-by-step learning procedure and to stimulate the decision-making ability of the officer; they are intended to develop his knowledge, confidence, and competency to handle explosive incidents of any type.

This textbook is not only written for the individual student, but for employment by training officer and student in a formal classroom teaching situation. The questions at the end of the chapters constitute a review of the important teaching points of each chapter, or a method for the officer-instructor to measure student comprehension. Chapter 12 consists of fifteen practical exercise problems that combine photographs of explosives and homemade bombs and questions on the illustrated bomb or explosive. To further assist the training officer, a chapter is included on the materials and construction of representative homemade bombs which may be used in the classroom to enhance instruction.

There are many gray areas in the handling of explosive incidents, such as decisions that must be made at the site concerning evacuation, search, rendering safe and final disposal of explosive components. These gray areas are identified in the text and options, i.e. alternate methods and/or suggestions, are given.

The officer who combines the information attained from the

text with common sense application at the scene of an incident will enjoy the greatest success in his mission of protection of the public and himself.

This textbook has three major objectives:

1. To provide the officer with a working knowledge of explosives and homemade bombs, and practical safeing, transport, and disposal techniques that he may employ when confronted with an explosive incident.
2. To present situations by means of questions and practical exercise problems that will provide for individual application of this working knowledge.
3. To instil confidence in the officer in his ability to make on-the-job, practical, safe, judgmental decisions concerning any explosive incident that may arise.

JOSEPH F. STOFFEL

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MR. J. S. STOFFEL, Beloit, Wisconsin; Mr. M. M. Batzer, Philadelphia, Pennsylvania; Mrs. B. Picket, Oneonta, Alabama; Mrs. J. Street, Arab, Alabama; Mrs. C. Umphrey, Redstone Arsenal, Alabama; Mr. J. Hays, FBI, La Grange, Georgia; PIO & 89th Ord Det (ED), Fort Benning, Georgia; J. Arenberg, American Federation of Police, Miami, Florida; Institute Makers of Explosives, New York, New York; Mr. W. Berchtold and Mr. F. Sawyer, E. I. Du Pont de Nemours & Co. Inc., Wilmington, Delaware; Mr. V. Estes, Estes Industry, Penrose, California; Mr. T. Keller, Model Missiles Inc., Denver, Colorado; Vashon Industries, Vashon, Washington; Mr. G. Weaver, Explosive Technology, Fairfield, California; Mr. C. Lauve, Explosive Corporation of America, Issaquah, Washington; Mr. D. Lucas, Center for Forensic Sciences, Toronto, Canada; Mr. P. Tabor, Colt-Tabor, Colt Industries, Hartford, Connecticut; Federal-Spooner Laboratories, Saltzburg, Pennsylvania.

E. I. Du Pont de Nemours & Co. Inc., Figure 19; Explosive Technology, Figure 22; Explosive Corporation of America, Figure 23; St. Louis *Post Dispatch,* Figure 45; Colt-Tabor, Colt Industries, Figures 57-62; D. M. Lucas, Center for Forensic Sciences, Figure 63.

J.F.S.

CONTENTS

EXPLOSIVES
and
HOMEMADE BOMBS

TRAINING MATERIALS AVAILABLE

Training materials, 35MM color slides that duplicate most of the illustrations in this text and that are especially useful in police training programs may be ordered through the author. Appendix E lists by number the illustrations for which color slides are available. These may be ordered by writing to Maj. Joseph F. Stoffel, AUS, (Ret), 6008 Cowin Drive, N.W., Huntsville, Alabama 35810.

Chapter 1

THE EXPLOSIVE PROBLEM

BOMBERS AND BOMBINGS

In 1969 a study was made of known bombers in an attempt to determine if there were certain characteristics that were peculiar to the bomber and which would assist law enforcement agencies in identifying a potential bomber. The resultant report proved to be of value in one sense only. It was determined that a potential bomber could not be identified by any detailed characteristics, but the composit characteristics indicated a young white male of upper middle class or wealthy background.

A potential bomber can be loosely identified through his activities and association in an organization that is known to employ violence and explosives to gain their ends. The Ku Klux Klan (KKK) and the Students for a Democratic Society (SDS) are examples of this type of organizations. Surveillance of known violent groups by police intelligence units and the infiltration and use of informers within the groups are still the best methods of identifying potential bombers and preventing bombings in any area.

During hearings that were conducted in 1970 by the Senate Investigatory Subcommittee on Explosives, the Justice Department reported on the results of a survey on bombings covering the period of January 1, 1969, through April 15, 1970. The resultant statistics were admittedly not complete, but did much to indicate the extent of the bombings and opened the eyes of many to the major scope of the explosive problem. The report indicated that during the fifteen and one-half months that were surveyed, a total of four thousand three hundred thirty explosive and incendiary bombings had occurred, one thousand of which involved explosives. Bombings had resulted in forty deaths, and three hundred eighty-four citizens were injured. Property damage was estimated at twenty-two million dollars. In addition, there were

one thousand four hundred seventy-five attempted bombings, and thirty-five thousand bomb threats throughout the country.

In testimony before the subcommittee, Eugene T. Rossides, Assistant Secretary of the Treasury, testified that only about one-third of recent bombings could be attributed to any one cause or group and provided the following percentages:

Campus disturbances and student unrest	56%
Black extremists	19%
White extremists	14%
Criminal pursuits	8%
Labor disputes	2%
Religious motives	1%

Schools for bombers have been and are being conducted by various groups. In the mid-sixties, a House investigator testified that the Georgia Ku Klux Klan ran a how-to-do-it school for its members on time bombs, booby traps, judo and karate. A three-hour demonstration included:

—How to make a booby trap using a mercury switch from a washing machine.

—How to make an explosive charge using dynamite, blasting cap and fuse.

—How to make a time bomb by taping dynamite to a board and using a cigarette and book of matches as a timing device to allow the bombers to get away before the explosion.

—How to construct an incendiary bomb using a bottle, powdered sugar and potassium chlorate, to be set off by a capsule of acid. It was to be used against department stores that integrated, by having a klansman deposit the bottle in the pocket of a suit.

—How to set a car on fire by taping a firecracker to a bottle of gasoline. The explosion would spray the interior with burning gas. This was actually demonstrated on a derelict automobile.

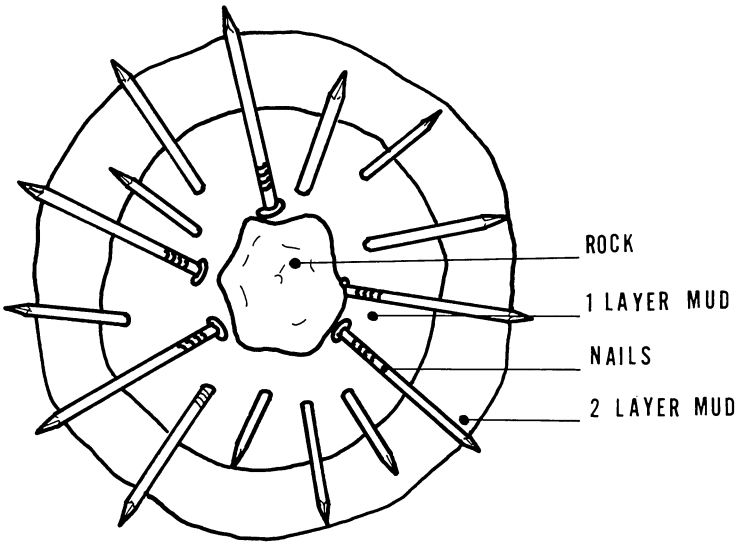
—How to make a bomb using a common fertilizer and sodium phosphate.

In 1969, Students for a Democratic Society (SDS) distributed a pamphlet called *Your Manual* to many of the universities throughout the country. The initial issue of *Your Manual* promises in future issues to highlight a revolutionary leader of the month, publish an assasination list and new instructions on firebombs, napalm bombs and time bombs.

The manual advocates the gathering of rocks and bottles by students, bringing them on campus by filling purses, book bags and attaché cases, and placing them in strategic locations. "An empty bottle or rock can disable a pig for the whole campaign. Throw first at pig cameramen on top of buildings."

Red pepper, darts, water guns with ammonia solution, cherry bombs, ice picks, leather punches, can openers and sling shots are recommended for use against "mounted pigs."

Heavy duty picket signs and axe handles are recommended as clubs along with steel and lead pipes, black jacks, chains and VC Mace (Fig. 1).



VC - MACE

Figure 1. Construction of the *VC Mace*.

The Zippo cigarette lighter is recommended for igniting curtains, waste baskets, bulletin boards, or paper towels in washrooms.

Oven cleaner in aerosol cans is to be used aginst "exposed skin area of the enemy."

Cherry bombs dipped in glue, then into tacks and BB's several times to form layers are to be "thrown into the middle of advancing pigs." (Fig. 2)

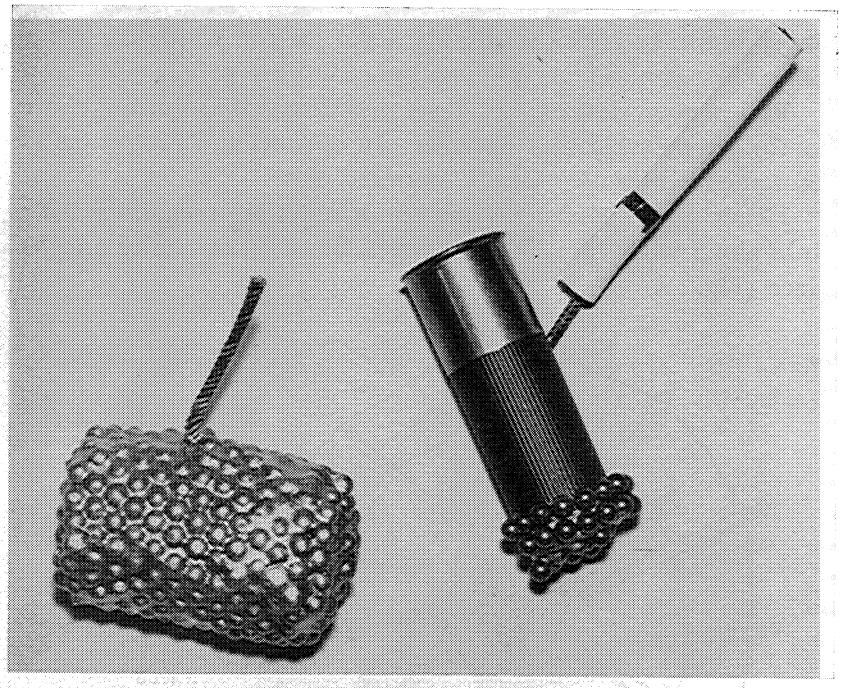


Figure 2. M-80 firecracker with liquid solder and BB surround. 12 ga. shotgun shell with fuse and BB surround.

The following is extracted from the manual and details the manufacture of a *pipe bomb:*

1. Buy a piece of pipe at any hardware store and buy cap-ends for the pipe at a second hardware store.
2. Buy gunpowder at a gun shop. If any questions are asked, tell them you are learning to reload your shells "for hunting deer on the coast range."