INVESTIGATION OF SAFE AND MONEY CHEST BURGLARY

DONALD G. WEBB, B.S., LL.B., M.Ed.

Director

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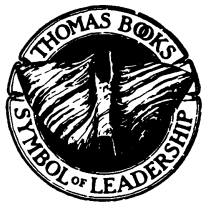

CHARLES C THOMAS · PUBLISHER
Springfield · Illinois · U.S.A.

Published and Distributed Throughout the World by
CHARLES C THOMAS · PUBLISHER
Bannerstone House
301-327 East Lawrence Avenue, Springfield, Illinois, U.S.A.

ISBN 0-398-03270-x
Library of Congress Catalog Card Number: 74-12376

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Printed in the United States of America
M-3

Library of Congress Cataloging in Publication Data

Webb, Donald G
Investigation of safe and money chest burglary.

1. Burglary investigation. 2. Safes. 3. Burglary.
I. Title.
HV8079.B8W4 364.12'1 74-12376
ISBN 0-398-03270-X

THIS BOOK IS DEDICATED
TO MAVIS AND JOE
WHO MADE EVERYTHING POSSIBLE

FOREWORD

For decades there was a dearth of literature in the field of law enforcement. The eager and ambitious young rookie was unable to increase his knowledge of police work except through personal interview and experience. However, scarcity has turned to abundance in recent years. Literally thousands of volumes have been written about law enforcement, the major emphasis being placed on management, supervision, community relations, and patrol techniques. Unfortunately, few detailed texts have been written which could assist the police officer in the daily performance of his job. "Investigation of Safe and Money Chest Burglary" fills this void.

The uniform crime statistics report the alarming frequency of the occurrence of the crime of burglary. Indeed much of a patrolman's duties are related to burglary prevention and the detection and apprehension of the suspect while an inordinate amount of time is spent by the detective in investigating the offense of burglary. Less frequently, however, is the officer confronted with the "pro"—the safe burglar. It is, therefore, difficult for the officer to learn from experience.

While some officers have specialized in safe burglary investigation and have attained a high degree of skill in their field, there are still far too many instances of cases being improperly and incompletely investigated. In some instances this has been due to a lack of manpower and man-hours, but in more cases there has been an obvious failure to conduct a proper investigation because of a lack of knowledge of what to do and/or what can be done.

This book is designed to assist the officer by giving him the know-how to conduct a good, thorough safe burglary investigation. Safe and money chest construction and various methods of attack are thoroughly discussed. Also included in the book is an excellent section on evidence potential and an in-depth check list delineating the information necessary for a complete

safe burglary report. The chapter entitled "Characteristics of Novice Safemen" will assist the officer in narrowing the scope of his investigation.

"Investigation of Safe and Money Chest Burglary" is the product of many years of intensive research by an author who is well qualified for the preparation of such a work by his scholarly background and practical experience as a police officer.

John B. McLaughlin
Police Training Institute
University of Illinois

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INVESTIGATION OF SAFE AND MONEY CHEST BURGLARY

I

INTRODUCTION

THE HISTORY AND DEVELOPMENT OF THE SAFE

THE HISTORY and development of the modern safe is an important prerequisite to the study of safe burglary. This information is valuable, for it provides the investigator with the needed insight that allows him to better understand the use of safes and inherent weaknesses that attract the criminal element.

Before examining the history and development of the safe, one should know the definition of the term "safe." Many investigators today have an erroneous conception of what this term actually means. "Safe" is a term that identifies fire-resistant safes. Fire safes are designed to protect valuables against damage or destruction by the perils of fire. Most people mistakenly use this term to additionally identify burglary chests, also called money chests. These are devices designed to protect valuables against burglarious attacks. Since both devices are targets for the safeman, this study of safe burglary will use the term "safe" as it has been used by most people, that is covering both fire-resistant safes and burglary-resistant chests. This is an improper use of the term, but it has been used this way so long that it would be somewhat confusing to change.

The modern "safe" has had a very interesting history. For centuries man has sought to protect his valuables from the terrible destructive force of fire. Additionally, he has attempted to thwart thieves in their attempts to relieve him of his valuables. Historians have discovered several methods man has employed to attempt to protect valuables and written documents. The early Egyptians buried their documents in pyramids. Assyrians duplicated important documents and buried them in different locations. Hundreds of years later

man developed the wooden chest for protection against thieves. Needless to say, its fire protection left a lot to be desired.

During the 15th Century oak chests were wrapped in iron bands for added strength and a crude key lock provided additional security. Again, the fire protection was almost nonexistent. As late as the 18th Century the oak chest was used to protect the crown jewels of Scotland.

The first all-metal box was developed in the latter part of the 19th Century. This device was fitted with a key lock and provided excellent protection against thieves. However, it provided very little protection against fires. In fact, the metal actually conducted the heat into the center of the box. In an attempt to eliminate this problem the area between the inner walls and outer walls of the safe was filled with various materials which helped prevent the conduction of heat, including bricks, mica, clay, plaster of Paris, wood, stone, chalk and in some cases a dead air space was used. Although these materials offered little protection by today's standards, they were a considerable improvement over the plain iron box.

At the turn of this century man was still searching for better protection of his valuables. By this time the combination lock had been added to the so-called safe, but this offered only a small problem to the persistent burglar. Safe manufacturers produced their products without any form of testing to determine the quality of fire and burglary protection they actually afforded. It was soon recognized that although safes offered some protection against the burglar, fire protection was still for all intents and purposes, nonexistent. Safes were heavy and massive with a strong outer metal shell. The perplexing problem was that the outer metal shell, while providing protection against the safeman, also provided 100 percent of the supporting strength. Even in fires of comparatively low temperatures, say 1000° Fahrenheit, as much as 70 percent of the supporting strength would be lost. The results of such a fire would cause bending and buckling of the outer surface, which allowed heat to breach the interior of the safe, thus destroying the contents. (See Fig. 1.)

In 1917 standard tests were developed which caused a drastic

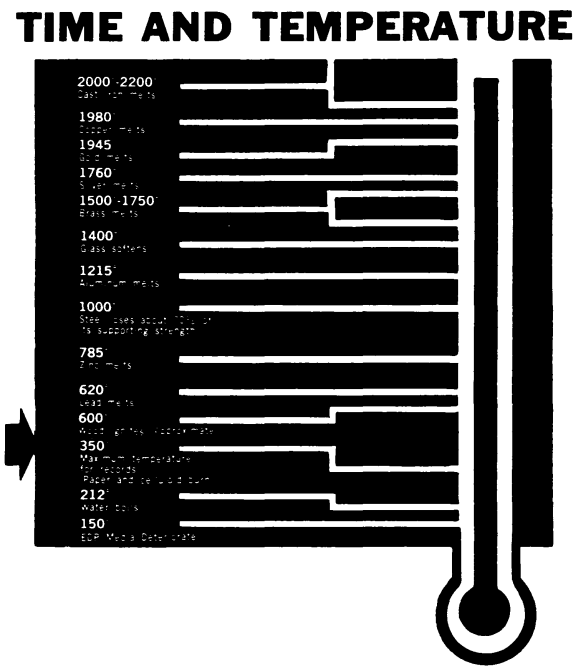


Figure 1. This chart indicates the combusting or melting points of materials. The arrow points to 350°F, the maximum temperature for paper and celluloid records. (Courtesy of the Safe Manufacturers National Association.)

change in the construction of the safe. For the first time a scientific investigation of design, materials and construction methods was undertaken. It became apparent that the fire protection and the burglary protection were not compatible in one unit. This is still true today. A fire safe is designed for fire protection but, by the very nature of its construction, it can be easily breached by skilled burglars. The primary reason for this weakness is that the materials out of which it is constructed are easily cut and do not provide adequate protection against burglarious attacks. On the other hand, the burglary-resistant chest is made of strong drill and explosive resistant metal alloys. These metals were especially designed to protect against all methods of attacks. However, the special metal alloys conduct heat, which can destroy the contents. If enough fire-resistant materials are incorporated into the construction of the burglar

chest to provide adequate fire protection, the strength of the chest would be sacrificed, thus a reduction of burglary resistant protection.

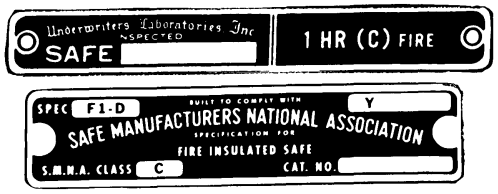
Underwriters' Laboratories, Inc. (hereafter referred to as UL) began testing fire-resistant safes in 1915 and burglar-resistant chests in 1917. Tests were finally standardized and all safes submitted for testing by manufacturers had to pass rigid testing before the manufacturer could advertise that the safe was UL tested and approved. Underwriters' Laboratories, Inc. and Safe Manufacturers National Association provide a labeling service for manufacturers which identifies fire-resistant, burglary-resistant and robbery-resistant safes or chests and the quality and quantity of protection they afford.*

Following is a list of the labels that UL and SMNA assign to fire-resistant safes, burglary-resistant chests and other security devices:

FIRE PROTECTION

Figures 2 and 3. *Class A–Four Hour (Fire-Insulated Safe).* These labels are assigned to fire safes that will protect contents against a 2,000°F fire for four hours during which times the interior temperature will not exceed 350°F.

Figures 4 and 5. *Class B–Two Hour (Fire-Insulated Safe).* These labels are assigned to fire safes that will protect contents against a 1850°F fire for two hours during which times the interior temperature will not exceed 350°F.



Figures 6 and 7. *Class C–One Hour (Fire-Insulated Safe).* These labels are assigned to fire safes that will protect contents against a 1700°F fire for one hour during which time the interior temperature will not exceed 350°F.

*For the SMNA code breakdown, refer to Figures 19, 20 and 21.

Underwriters' Laboratories, Inc. and SMNA labels can be found on fire safes approved by these organizations to carry their labels. Labels are usually found on the back of the door, although occasionally they may be displayed on the exterior of the unit. UL discontinued letter classification of fire safes in 1972; however SMNA still uses this type of classification. Underwriters' Laboratories, Inc. labels found on fire safes manufactured prior to 1972 will use the "A," "B" and "C" classification.

Currently UL identifies the quality and quantity of protection that fire safes afford by labels displaying the following: 350°-four hours, 350°-two hours and 350°-one hour. The quality of protection or the interior temperature that cannot be exceeded is indicated by 350°. Temperatures above this will damage or destroy paper. The latter part of the classification indicates the quantity or length of protection.

With the advent of the electronic data processing came the problem of storing computer tapes, discs, drums, etc. These EDP materials are susceptible to damage or destruction at temperatures above 150°F. Fire safes that provide 350° interior protection are useless for the protection of EDP material. Underwriters' Laboratories, Inc. identifies Insulated Record Containers designed to provide protection for these materials. Labels identifying these devices will display the following: 150°-four hours, 150°-three hours, 150°-two hours and 150°-one hour.

BURGLARY PROTECTION

Figure 8. *TL-15 Burglary (Tool-resistant Safe).* UL labels bearing this classification identify the money chest as a combination locked steel chest that offers fifteen minutes of protection against expert burglary by common hand tools.

Figure 9. *TL-30 Burglary (Tool-Resistant Safe).* UL labels bearing this classification identify the money chest as a combination locked steel chest that offers thirty minutes of protection against expert burglary by common mechanical tools.

Figure 10. *TRTL-30 Burglary (Torch and Tool-Resistant Safe).* UL labels bearing this classification identify the money chest as a combination locked steel chest that offers thirty minutes of protection against expert burglary by common mechanical tools and cutting torches.

Figure 11. *TRTL-60 Burglary (Torch and Tool-Resistant Safe).* UL labels bearing this classification identify the money chest as a combination locked steel chest that offers sixty minutes of protection against expert burglary by common mechanical tools and cutting torches.

Figure 12. *TXTL-60 Burglary (Torch, Explosive and Tool-Resistant Safe).* UL labels bearing this classification identify the money chest as a combination locked steel chest that offers sixty minutes of protection against expert burglary by common mechanical tools, cutting torches, high explosives and any combination of these means.

Figure 13. *KL Burglary.* UL labels bearing this classification identify the unit as a keylocked unit that offers a limited amount of protection against all commonly known methods of burglarious attack with the exception of oxy-fuel gas torches or explosives.

Figure 14. *T-20 (Tamper-Resistant Door)*. Older safes may be labeled by this classification; however, it is now obsolete. This label identifies a tamper resistant door which is designed to offer a limited amount of protection against all commonly known methods of burglarious attack with the exception of oxy-fuel gas torches or explosives. This label may be combined with fire resistant labels.

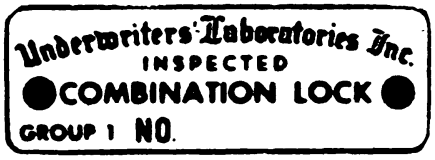


Figure 15. *Group 1 Combination Lock*. UL labels bearing this classification identify the combination lock used in the safe, money chest or vault door as affording high resistance to expert manipulation.

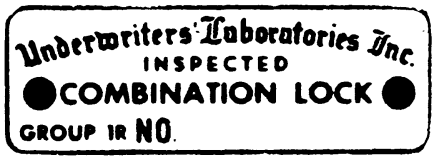


Figure 16. *Group 1R Combination Lock*. UL labels bearing this classification identify the combination lock used in the safe, money chest or vault door as affording high resistance to expert manipulation by any means and radiological methods.

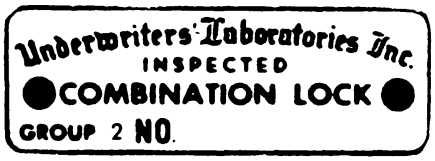


Figure 17. *Group 2 Combination Lock*. UL labels bearing this classification identify the combination lock used in the safe, money chest or vault door as affording resistance to semi-skilled manipulation.

Figure 18. *Relocking Devices*. This UL label indicates that the unit is equipped with a device that will relock the bolt work or the door by the functioning of auxiliary bolts when a burglarious attack on the door is attempted.

Today's fire-resistant safes and burglary-resistant chests are built to conform to insurance requirements. As mentioned

previously, Underwriters' Laboratories, Inc. test these units to determine if they meet the insurance specifications. Those that do are labeled accordingly. The Safe Manufacturers National Association also provides a labeling service which classifies the unit for insurance purposes. In other words, these are the labels the insurance agent is interested in when determining the type of coverage and the cost.

The modern fire safe offers much more protection than did its predecessors fifty years ago. This goes without saying for the burglary-resistant chest. The quality of workmanship and materials have greatly improved. However, we still have safemen, which is the reason for this text. The reason that we still have safe burglars today is simple—anything made by man can be opened by man. The same technology that provided the means to manufacture a quality protection unit also provides man with means to breach it. Sophisticated tools which can be operated by anyone, such as the "burning bar," are means technology has provided for breaching a safe.

As long as the evil element in our society feels that a fast buck can be made by safe burglary, we will continue to have this problem with us. However, through a proper investigation and successful prosecution of these criminals, a man who might turn to safe burglary will think twice. The man who does will be convicted. It is to this end that this text is dedicated.

SMNA FIRE-RESISTIVE LABELED EQUIPMENT

PRODUCT CLASSIFICATION	SMNA SPEC.	SMNA CLASS.	UL EQUIV.	PRODUCT DESIGN AND TEST FEATURES
Fire-Insulated Safe	F 1-D	A	A	4 Hour Tested Fire-Resistive Safe (With Impact Test)
Fire-Insulated Safe	F 1-D	B	B	2 Hour Tested Fire-Resistive Safe (With Impact Test)
Fire-Insulated Safe	F 1-D	C	C	1 Hour Tested Fire-Resistive Safe (With Impact Test)
Fire-Insulated Record Container	F 1-D	C	C	1 Hour Tested Fire-Resistive Container (With Impact Test)
Fire-Insulated Safe	F 1-ND	D	D	1 Hour Tested Fire-Resistive Safe (Without Impact Test)
Fire-Insulated Ledger Tray	F 1-D	C	C	1 Hour Tested Fire-Resistive Ledger Tray (With Impact Test)
Fire-Insulated Container	F 2-ND	E	E	½ Hour Tested Fire-Resistive Container (Without Impact Test)
Fire-Insulated Container	F 2-ND	D	D	1 Hour Tested Fire-Resistive Container (Without Impact Test)
Fire-Insulated Container	F 2-ND	2 Hour	B	2 Hour Tested Fire-Resistive Container (Without Impact Test)
Fire-Insulated Vault Door	F 3	2 Hour	2 Hour	2 Hour Tested Fire-Resistive Vault Door
Fire-Insulated Vault Door	F 3	4 Hour	4 Hour	4 Hour Tested Fire Resistive Vault Door
Fire-Insulated Vault Door	F 3	6 Hour	6 Hour	6 Hour Tested Fire-Resistive Vault Door
Fire-Insulated File Room Door	F 4	1 Hour	1 Hour	1 Hour Tested Fire-Resistive File or Storage Room Door
Fire-Insulated Record Container Data Processing Safe	F 2-D*	Class 150	Class 150	2 Hour or 4 Hour Fire-Resistive Data Processing Safe

Figure 19. (Courtesy of the Safe Manufacturers National Association.)

SMNA BURGLARY and ROBBERY—RESISTIVE LABELED EQUIPMENT

SMNA		UL LABEL	DESIGN FEATURES			CASUALTY UNDERWRITERS INSURANCE CLASSIFICATION †	
SPEC	GROUP		DOOR	WALL	LOCK	MERCANTILE SAFE POLICY	BROAD FORM
UB-1	U1	TXTL60	1½"S ⊙	1"S, P	C	I	G
UB-1	U2	TRTL60	1½"S ⊙	1"S, P	C	I	G
UB-1	U4	TRTL30	1½"S ⊙	1"S, P	C	H	G
UB-1	U5	TL30	1½"S ⊙	1"S, P	C	F	F
UB-1	U6	TL15	1½"S ⊙ ▭	1"S, P	C	ER	ER
B-1	1	TX60*	1½"S ⊙	1½"S, SC	C	H	G
B-1	1	TR60*	1½"S ⊙	1½"S, SC	C	H	G
B-1	1	X60*	1½"S ⊙	1½"S, SC	C	F	F
B-1	2	**	1½"S ⊙	1"S, SC, CH	C	E	E
B-1	3	**	1½"S ⊙	1"S, SC	C	E	E
B-1	3	TR30*	1½"S ⊙	1"S, SC	C	F	F
B-1	4	**	1½"S ⊙	1"S, P	C	E	E
B-1	4	TR30*	1½"S ⊙	1"S	C	F	F
B-1	5	**	1½"S ▭	1"S, P	C	E	E
B-1	6		1"S ⊙ ▭	½"S, SC or P	C	C	C
R-1	6		1"S ▭	½"S, SC or P	C	C	C
R-1	8		1"S ⊙ ▭	½"S	KL	***	—
R-1	9		½"S ⊙ ▭	¼"S	KL	***	—
R-1	9		½"S ⊙ ▭	¼"S	C	B	B
R-1	10		NMT		C	B	B
R-1	10		NMT		KL	None	—
M-12		Deposit Slot Accessible From Exterior of Container, Steel Construction.					

Figure 20. (Courtesy of the Safe Manufacturers National Association.)

SMNA LABELING PROCEDURE

SMNA Labels are available in various types and ratings for use on eligible products as follows:

SMNA SPECIFICATION	TYPE OF LABEL	SMNA CLASSIFICATION	SMNA DESIGNATION	TYPE OF PRODUCT FOR USE OF SMNA LABELS	BACKGROUND
F 1-D	Fire-Insulated Safe	Class "A"	Y	4 Hour Tested Fire-Resistive Safe with Drop Test	Green
F 1-D	Fire-Insulated Safe	Class "B"	Y	2 Hour Tested Fire-Resistive Safe with Drop Test	Green
F 1-D	Fire-Insulated Safe	Class "C"	Y	1 Hour Tested Fire-Resistive Safe with Drop Test	Green
F 1-D	Fire-Insulated Record Container	Class "C"	Y	1 Hour Tested Fire-Resistive Container with Drop Test	Green
F 1-ND	Fire-Insulated Safe	Class "D"	Y	1 Hour Tested Fire-Resistive Safe without Drop Test	Black
F 1-D	Fire-Insulated Ledger Tray	Class "B"	Y	2 Hour Tested Fire-Resistive Ledger Tray with Drop Test	Green
F 1-D	Fire-Insulated Ledger Tray	Class "C"	Y	1 Hour Tested Fire-Resistive Ledger Tray with Drop Test	Green
F 2-ND	Fire-Insulated Ledger Tray	Class "D"	Y	1 Hour Tested Fire-Resistive Ledger Tray without Drop Test	Black
F 2-ND	Fire-Insulated Container	Class "E"	W and Y	½ Hour Tested Fire-Resistive Container without Drop Test	Black
F 2-ND	Fire-Insulated Container	Class "D"	W and Y	1 Hour Tested Fire-Resistive Container without Drop Test	Black
F 2-ND	Fire-Insulated Container	2 Hour	Y	2 Hour Tested Fire-Resistive Container without Drop Test	Black
F 3	Fire-Insulated Vault Door	2 Hour	Y	2 Hour Tested Fire-Resistive Vault Doors	Green
F 3	Fire-Insulated Vault Door	4 Hour	Y	4 Hour Tested Fire-Resistive Vault Doors	Green
F 3	Fire-Insulated Vault Door	6 Hour	Y	6 Hour Tested Fire-Resistive Vault Doors	Green
F 4	Fire-Insulated File Room Door	½ Hour	Y	½ Hour Tested Fire-Resistive File or Storage Room Doors	Black
F 4	Fire-Insulated File Room Door	1 Hour	Y	1 Hour Tested Fire-Resistive File or Storage Room Doors	Black
UB 1	Burglary-Resistive Chest	Groups U 4-5	Y	Burglary-Resistive Underwriters' Laboratories Labeled Chest	Red
B 1	Burglary-Resistive Chest	Groups 3-4-5	Y	Burglary-Resistive Chests	Green
R 1	Robbery-Resistive Container	Groups 6-7-8-9-10	Y	Robbery-Resistive Containers	Black
M 1	Deposit Chute Container	Group 12	W and Y	Deposit Chute Container	Black

Figure 21. (Courtesy of the Safe Manufacturers National Association.)

II

THE SAFE BURGLARY REPORT

THE WRITTEN report is the culmination of an investigator's efforts before the trial. It is the basis of the court trial. If the investigation is complete but the report is incomplete, vague and inaccurate, it is all but useless for prosecution. It is a well-known fact that the majority of good investigators who are successful in the courtroom are also good report writers.

Safe burglary has presented problems to investigators for several years. The majority of investigators have a vague understanding of the different methods of attack used on safes or the types and classification of safes. In some cases they have learned that this has not been enough. The correct type of report form can provide investigators with guidance during the investigation.

The form report contains information blocks which can be checked or filled in by the investigator. Such a form can provide a guide for gathering information in a logical order. Investigators who use form reports of this type do not have to rely exclusively on their memories during the investigation. However, the form report must be augmented by a narrative report if the entire investigation is to be properly covered in the written form.

The narrative should not be considered as a separate report, but as a written extension of the form report. It can be one page or over one hundred pages in length. Regardless of its length, the same case or report number should be assigned to each page. (Refer to Appendix D for an example of a completed safe burglary investigation report.)

The narrative should cover the sequence of events in chronological order from the commission of the crime through the culmination of the investigative process. It should include all of the facts necessary for the successful prosecution of the responsible subjects.

Investigations may last for several days, weeks or even months. They may require several supplementary reports as new information is obtained. It is important that a supplementary narrative be made on every new development of a case. This aids supervisors in keeping track of the investigator's activities and insures that new information is added to the case as it develops. Remember to use the same case number.

The report form "Safe Burglary Report" is an example of the type of form report referred to above. It was developed exclusively for safe burglary investigations. Additionally, it provides for information that can be used to establish a *modus operandi* file that is important for suspect development. As mentioned previously, the form can also be used to guide the investigation.

The Safe Burglary Report also provides a built-in-index capability. Information blocks 1-16 are enclosed in a 3 x 5 box in the upper right–hand corner of the form. If this portion of the form is reproduced it can be used for location, name and crime type indices. This is an example report form only; any department can design a similiar form to meet its needs.

Specifically, each information block should be completed as follows:

1. Victim Name (Firm Name if Business)		2. Complaint No.
3. Victim Residence Address City		4. Res. Phone
5. Where Victim is Employed, or School He Attends City		6. Bus. Phone
7. Victim Sex-Race-D.O.B.	8. Location of Offense (Address or Block No.)	
9. Complainant's Name Sex-Race-Age		10. Res. Phone
11. Complainant's Address City		12. Bus. Phone
13. Date and Time Occurred	14. Date and Time Reported	
15. Crime		16. Classification (OFC. Use)

Figure 22.